

PROCEDURES TO IDENTIFY AND QUANTIFY ECONOMIC OBSOLESCENCE IN THE PROPERTY TAX VALUATION OF INDUSTRIAL AND COMMERCIAL PROPERTIES

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One of the most common types of microeconomic analysis in the investment community relates to the measurement of economic obsolescence. Economic obsolescence occurs in an investment when the price of the investment is too high to allow the owner to earn a fair, market-derived rate of return on the investment. In such a situation, the market bids down the price of the investment until the owner can earn a fair rate of return on the devalued price. The investment fair rate of return is typically equal to the investor's market-derived cost of capital (i.e., the required rate of return on an investment of comparable risk). In the property tax discipline, the measurement of economic obsolescence is an important component in the cost approach valuation of any income-producing or special purpose property. Most large, integrated manufacturing or processing facilities are either income-producing, special purpose, or both. In this context, economic obsolescence occurs in a property when the cost (however measured) of the property is too high to allow the owner/operator to earn a fair, market-derived rate of return on the property investment. In such a situation, the market bids down the cost of the property until the owner/operator can earn a fair rate of return on the depreciated cost. The property fair rate of return is typically equal to the owner/operator's market-derived cost of capital (i.e., the required rate of return on a property of comparable risk). Economic obsolescence can be measured at a business enterprise level, an operating business unit level, or a line of business level. For property tax purposes, economic obsolescence is typically measured at the level of the unit of operating assets that is subject to ad valorem taxation. This discussion will focus on the microeconomic analyses that are commonly used to measure economic obsolescence related to complex industrial or commercial facilities.

INTRODUCTION

As the national economy continues to experience slow and uncertain growth, state and local governments continue to look to ad valorem property taxation receipts as a major source of revenue. This is because income tax receipts and sales tax receipts are negatively impacted by the continuing slow-growth economy. In addition, transfer payments from the federal government to state and local governments have been cut back in recent years.

Accordingly, state and local property tax assessors have an incentive to assign the highest supportable values to the properties that they assess. This is because an increase in property assessments results in an increase in state and local property tax receipts.

And, given a choice, municipalities generally prefer to increase property assessments for industrial and commercial property owners rather than for residential property owners for two reasons.

First, residential property owners are voters who may react negatively to property tax increases at local election time; industrial and commercial property owners are typically corporations that are not voters.

Second, municipalities often assume that industrial and commercial property owners can afford to absorb the property tax increase; municipalities often assume (erroneously) that industrial/commercial property owners can just pass the property tax expense increase along to their customers in the form of higher prices.

In contrast, industrial and commercial property owners typically seek to maximize the return on investment in their income-producing property. Consistent with this objective of maximizing the return on investment, property owners seek to incur the lowest level of operating expense (including property tax expense) with regard to their industrial and commercial property. Accordingly, for property tax purposes, industrial/commercial property owners have an incentive to assign the lowest supportable assessment values to the properties that they own.

First, this discussion presents a summary description of the various forms of industrial and commercial property obsolescence.

Second, this discussion recommends procedures to help the taxpayer and the assessor to recognize the existence of obsolescence in an industrial or commercial property.

Third, this discussion lists numerous objections that property tax assessors often present to explain why they will not recognize obsolescence at the subject property.

Fourth, in response, this discussion describes responses that taxpayers can present in order to convince the property tax assessors to recognize the obsolescence that exists in the subject industrial or commercial property.

Fifth and finally, this discussion suggests procedures for distinguishing between the various types/influences of industrial and commercial property obsolescence, from both a classification and a quantification perspective.

THE COST APPROACH VALUATION OF INDUSTRIAL AND COMMERCIAL PROPERTIES

The identification and quantification of obsolescence in the cost approach is often the source of conflict and controversy in the property tax valuation of industrial and commercial properties. This is particularly true with regard to:

1. special purpose industrial or commercial properties and
2. large scale, integrated manufacturing/processing facilities.

This is because it is often difficult for analysts to apply the income approach or the sales comparison approach to the valuation of such properties. Therefore, by “default,” appraisers often use the cost approach to value such properties. And, the quantification of all forms of obsolescence is an integral component of any cost approach valuation analysis.

Special purpose or integrated industrial/commercial facilities are typically owner occupied. They are rarely leased between an independent owner/lessor and an independent operator/lessee. Therefore, it is difficult for an

analyst to extract from the marketplace indications of either (1) property rental income or (2) income capitalization rates. And, while these properties are often income producing, the income that is produced at the subject property is business enterprise income—and not property rental income.

In other words, the income that is generated at the subject property is produced by a combination of real estate, tangible personal property, and an assemblage of intangible assets functioning together as an integrated business enterprise. It is often difficult to segregate this business enterprise income into that particular component that represents rental income related to the taxable real estate and tangible personal property.

Special purpose manufacturing/processing facilities do not sell that often in the secondary market. In other words, it is difficult for the analyst to identify and analyze comparable sale transactions. This is true for three reasons.

First, these special purpose or integrated properties simply do not sell that often. Therefore, there are very limited market data available for analysis.

Second, when such properties do sell, they are sold from an owner/operator to an owner/operator (and not from investor/owner to an investor/owner). Therefore, the sale transactions may not always represent market value transactions (but rather strategic value or investment value transactions).

Third, when the properties do sell, they often sell as part of the sale of a going-concern business enterprise. In such transactions, the stand-alone price of the real estate/personal property is not disclosed to the marketplace.

For all of these reasons, analysts often rely principally on the cost approach in the property tax valuation of special purpose or integrated industrial and commercial facilities. The identification and quantification of all forms of obsolescence is a fundamental procedure in a cost approach valuation of any industrial and commercial property.

While the necessity of performing this obsolescence procedure is rarely disputed, the specific quantification of property obsolescence is often the source of controversy in ad valorem property tax valuations. The quantification of property obsolescence is often controversial with regard to (1) functional obsolescence and (2) external obsolescence. And, the quantification of property obsolescence seems to be particularly controversial with regard to the economic obsolescence component of external obsolescence. Five common reasons why the quantification of property obsolescence is the source of controversy in ad valorem property tax valuations. These five reasons are summarized below.

First, other than the physical deterioration component of obsolescence, it is often difficult for an analyst to physically inspect the various forms of obsolescence. In other

words, it may be difficult for an analyst to visually identify the results of functional obsolescence and external obsolescence.

Second, with regard to external obsolescence, the causes of the obsolescence are, by definition, physically external to the subject industrial or commercial property.

Third, the data needed to quantify some forms of obsolescence are often property-owner-specific. That is, these data have to be supplied to the analyst by the property owner, and these data often cannot be verified or compared in the marketplace.

Fourth, the analyses of some forms of obsolescence are often comparative in nature. And, the obsolescence analysis often compares a property that does exist to a property that doesn't exist. For example, an obsolescence analysis could compare the subject property with excess operating costs to a replacement property without excess operating costs. Since the replacement property doesn't exist, there may be uncertainty about the hypothetical operating costs of the hypothetical replacement property.

And, fifth, the industrial or commercial property owner typically does not measure—or even realize—the existence of obsolescence. For example, other than original cost depreciation, there is no provision on the property owner financial statements for the recognition of obsolescence. The property owner may be aware that competitive industrial/commercial facilities are more productive or more cost effective. However, the property owner may not associate those indicia of obsolescence with the subject taxable property.

SUMMARY DESCRIPTION OF THE THREE FORMS OF PROPERTY OBSOLESCENCE

For purposes of this discussion, obsolescence may be defined as any cause for a decrease in the value of an industrial or commercial property. All of the components of property obsolescence are typically categorized into three forms:

1. physical deterioration
2. functional obsolescence
3. external obsolescence

Physical deterioration results in a decrease in value due to the subject property's physical condition. There are two common components to physical deterioration: (1) decrease in value due to age and (2) decrease in value due to physical wear and tear. Often, both of these physical deterioration components are measured collectively.

There are several methods that may be used to quantify physical deterioration. The most common physical depre-

ciation measurement methods are (1) the age/life method and (2) the observed depreciation method.

Functional obsolescence results in a decrease in value due to the subject property's inability to perform the function for which it was originally designed or intended. There are two common components to functional obsolescence: (1) the functional component and (2) the technological component.

In the functional component, the intended function remains the same but the subject property no longer performs that function as well as it did when the property was new. In the technological component, the subject property may work as well as when it was new. However, the intended function itself has become obsolete.

Some common examples of functional obsolescence include:

1. excess operating/maintenance costs
2. excess capacity/excess capital costs
3. structural/capacity deficiency

Typically, functional obsolescence is quantified by (1) capitalizing excess operating costs, (2) reducing the property value by the capital cost related to the excess capacity, or (3) estimating the capital costs to cure the functional deficiency.

External obsolescence relates to a decrease in the value of property due to influences that are external to (or outside of) the subject property. There are two common components of external obsolescence:

1. locational obsolescence
2. economic obsolescence

Locational obsolescence occurs when the location of the property results in a decrease in property income or an increase in operating costs. Economic obsolescence occurs when the property owner can no longer earn a fair rate of return on the operating of the subject property.

The two common methods for quantifying external obsolescence are:

1. the capitalization of income shortfall method, and
2. the paired sales comparison method.

In practice, analysts sometimes distinguish between (1) curable obsolescence and (2) incurable obsolescence. With regard to curable obsolescence, the cost to cure the cause of the obsolescence is less than the decrease in value resulting from obsolescence. With regard to incurable obsolescence, the cost to cure the cause of the obsolescence

is greater than the decrease in value resulting from the obsolescence.

In the case of curable obsolescence, the rational owner/buyer of the subject property will (1) incur the capital cost to cure the obsolescence and (2) eliminate the cause and the effect of future obsolescence. Therefore, for curable causes of obsolescence, the “cost to cure” often sets an upward limit on the quantification of obsolescence.

Some analysts become quite concerned about the correct classification of obsolescence. In other words, should a particular value decrement be classified as functional obsolescence or economic obsolescence? In practice, the correct classification of obsolescence is not as important as the correct quantification of obsolescence. As long as the cause and effect of the value decrement are correctly identified, the classification of a particular value decrement among the three forms of obsolescence should not affect the final property value conclusion.

PROCEDURES TO RECOGNIZE THE EXISTENCE OF PROPERTY OBsolescence

Some forms of obsolescence are easier to identify than others. For example, physical deterioration is often recognized through the appraiser’s physical inspection of the subject industrial or commercial property. Physical inspection of the subject property should allow the analyst to identify the effects of wear and tear. And, physical inspection of the property owner’s accounting records should allow the analyst to identify the subject property (1) age and (2) date placed in service.

Physical inspection may also allow the analyst to identify some types of functional obsolescence. For example, the analyst may be able to identify excess capacity related to unused facility space and unused facility equipment.

Physical inspection may also allow the analyst to identify an inefficient (1) facility design and/or layout or (2) equipment production/process line. And, physical inspection may also allow the analyst to identify (1) real estate structural deficiencies and (2) personal property material flow/process flow deficiencies.

As mentioned above, many causes of functional and external obsolescence are quantified on a comparative basis. The comparative basis may be: (1) the subject property actual operating results “with” the obsolescence effect compared to (2) the subject property hypothetical (e.g., historical or projected) operating results “without” the obsolescence effect.

Alternatively, the comparative basis may be: (1) the subject property actual operating results “with” the obsolescence effect compared to (2) one or more comparable property operating results “without” the obsolescence

effect. Given the comparative nature of these types of obsolescence, physical inspection alone may not be adequate to allow the analyst to identify these causes of obsolescence.

Accordingly, the analyst may have to review subject property-related financial documents or operational reports in order to identify many types of functional and external obsolescence. These types of financial and/or operational documents may include:

1. financial statements or financial results of operations;
2. financial budgets, plans, projections, or forecasts;
3. production statements, production cost analyses, or operating cost variance analyses;
4. material, labor, and overhead cost of goods sold analyses;
5. fixed versus variable expense operating statements;
6. cost/volume/profit analyses; and
7. unit/dollar sales analyses or average selling price analyses.

The analyst typically considers the above-listed data and documents on various comparative bases, including:

1. actual results versus historical results,
2. actual results versus budgeted results,
3. actual results versus specific comparative property results,
4. actual results versus specific competitor results,
5. actual results versus industry average/benchmark results, and
6. actual results versus subject property practical/normal production capacity.

If the analyst is familiar with competitive or comparative properties, then physical inspection may reveal some types of obsolescence. However, the analyst will typically perform these physical inspections from a comparative basis.

For example, the analyst may note that the subject property production/process line requires four employee operators while a comparative property production/process line only requires two employee operators. Or, the analyst may note that the subject property production/process line produces four product units per operation while a comparable property production/process line produces eight product units per operation. Or, the analyst may note that the subject production/process line produces considerably more scrap/waste material than a comparative property product/process line produces.

The analyst may be able to identify the causes of certain types of industrial or commercial property obsolescence

through physical inspection. However, the analyst will typically rely on comparative property-related financial and/or operational data in order to quantify the observed obsolescence.

With regard to locational obsolescence, the analyst may be able to identify some causes of obsolescence through physical inspection of the subject property's neighborhood. For example, the analyst could observe new construction between an apartment or office tower and a scenic view, such as a lakefront or ocean. Likewise, the analyst could observe if the neighborhood around a shopping mall or resort property is deteriorating.

More likely, though, the analyst will identify locational obsolescence by performing a comparative analysis of market rents, particularly for an income-producing property. This comparative market rent analysis could contrast:

1. subject property current rental rates with subject property historical rental rates or
2. subject property current rental rates with comparable (but different location) property rental rates.

With regard to economic obsolescence, the analyst will most likely analyze subject-property-specific financial data in order to identify the causes of obsolescence. Particularly with regard to owner-occupied special purpose property, the analyst may analyze:

1. business enterprise profit margins,
2. business enterprise returns on investment,
3. industrial/commercial product unit average selling price,
4. industrial/commercial product unit cost of goods sold, or
5. industrial/commercial product unit sales volume.

Each of these economic analyses would typically be performed on a comparative basis, such as:

1. current results versus historical results,
2. current results versus planned or budgeted results,
3. current results versus specific comparative properties, or
4. current results versus industry average results.

In each case, the analyst will look for some external factor affecting the subject property that may cause the property owner/operator to not earn a fair rate of return on the subject industrial or commercial property investment.

RESPONDING TO TAX ASSESSOR OBJECTIONS REGARDING THE QUANTIFICATION OF OBsolescence IN INDUSTRIAL AND COMMERCIAL PROPERTIES

First, the property owner (or the property owner's valuation analyst) has to identify the causes and types of obsolescence affecting the subject property value. Second, the property owner (or the property owner's valuation analyst) has to quantify the effects of the obsolescence. In this process, the property owner (or the property owner's valuation analyst) will typically categorize the indicated obsolescence allowances as either physical, functional, or external.

However, in order to recognize a reduction in the subject property assessment, the property owner (or the property owner's representative) has to perform one more important communication/education procedure. The property owner (or the representative) has to convince the taxing authority to include the appropriate property obsolescence adjustments in the cost approach value indication.

This communication/education process often involves explaining and justifying the proposed property obsolescence adjustments. And, this communication/education process often involves responding to the assessor's objections with regard to the proposed property obsolescence adjustment.

This section of the discussion presents ten objections commonly raised by state and local taxing authority assessors when presented with a taxpayer claim for obsolescence allowances. These assessor objections typically relate to taxpayer claims for (1) extraordinary functional obsolescence or (2) external obsolescence.

And, these objections typically relate to special purpose, large scale industrial and commercial properties. Corresponding to each common property tax assessor objection, this section also presents a reasonable taxpayer response or explanation.

It is noteworthy that these property tax assessor objections and the corresponding taxpayer responses are not presented in any particular order of importance or priority. And, due to the nature of this discussion, the taxpayer responses are deliberately general in nature.

With regard to any subject property, the assessor will likely have very specific questions and data requests. And, the taxpayer (or the taxpayer representative) should respond with subject-property-specific data and documents. Nonetheless, the following "top ten list" is intended to:

1. illustrate common assessor objections to typical property obsolescence analyses and
2. suggest reasonable (but general) taxpayer responses to these common tax assessor concerns.

Objection #1

The effects of the property obsolescence, particularly the effects of any economic obsolescence, are only temporary. That is, the causes of the subject property obsolescence will correct themselves over time. Therefore, these effects should not result in an adjustment to the subject property *ad valorem* tax value.

Response #1

This tax assessor assertion may be absolutely correct. Obviously, physical deterioration does not cure itself. Some types of functional obsolescence may cure themselves (or, at least, the magnitude of their effects vary) over time. But, many causes of the economic component of external obsolescence are cyclical.

Consumer demand for the subject special purpose facility's product may increase or decrease over time. Both demand changes and competitive factors can cause product prices to fluctuate over time. The cost of essential raw material components may vary significantly over time. And, interest rates and investor expectations are generally cyclical; therefore, the property owner's required rate of return on investment will change over time.

With due recognition of all of the above truisms, the objective of the property tax assessment is to value the subject property as of a specific point in time. This specific point in time is usually the defined assessment "as of" date. It is not the responsibility of the assessor (or the property owner or the independent appraiser) to speculate as to what the subject property value may be a year from now—or five years from now.

The subject property valuation should be performed as of a very specific date. And, the subject property valuation should consider all of (and only) the obsolescence in effect as of that date. The valuation should not consider at all whether the amount of obsolescence will increase or decrease in the future. The valuation should only consider the actual obsolescence in effect on the "as of" date.

The assessor should realize that, if the subject obsolescence is temporary, then the subject property value (and the subject property assessment) will be greater on the next assessment date. At that future time, the assessor may tax the increased value (that is, the increase in property value due to decreased obsolescence).

Likewise, the assessor should realize that the subject obsolescence may increase over time, due to cyclical (and temporary) factors. In that case, the subject property value (and the subject property assessment) will be less on the next assessment date. In that event, the assessor will tax the decreased value (that is due to increased obsolescence) appropriate to that future assessment date.

Objection #2

The effects of obsolescence, particularly economic obsolescence, are simply the result of incompetent property owner management. That is, the obsolescence is not due to any inherent deficiencies of the subject property.

Response #2

The property owner should admit that, from time to time, company managements do make suboptimal investment decisions. With the best of intentions, managements sometimes "misread" the marketplace. In that case, a corporate property owner can build a special purpose facility designed to produce a single product for which demand is shrinking.

First, the tax assessor should recognize that changes in product unit demand, unit average selling price, and costs of production usually change slowly over time. When the taxpayer bought or built the subject property, taxpayer management believed it was making a good investment decision.

No taxpayer management would consciously or deliberately implement a bad capital investment decision. However, over time, what originally looked like a good property investment decision can be affected by obsolescence-causing factors.

Second, property owners will always try to optimize the returns generated by even the worst investment decisions.

Let's say that Taxpayer Corporation builds a new special purpose widget manufacturing plant. Just as the plant comes on line, the technology in the subject industry advances. Technologically superior gizmos replace technologically inferior widgets in the marketplace. All of Taxpayer Corporation competitors are now producing gizmos. Consumer demand for widgets is considerably reduced. Accordingly, the sales price and the sales volume of widgets are decreased.

Even in this situation, Taxpayer Corporation management will do whatever it can to maximize its return on the widget manufacturing plant investment. Taxpayer Corporation may reduce widget unit selling prices, attempt to develop new markets for widgets, or retool the special purpose facility to produce other products.

Due to obvious external obsolescence factors, Taxpayer Corporation may never earn its expected rate of return on the widget plant. However, Taxpayer Corporation management will do whatever it can to earn the highest return on investment possible—and thereby maximize the value of a special purpose property otherwise suffering from obsolescence.

Third, inefficient taxpayer managements are quickly replaced. Whether the taxpayer is a privately owned business or a publicly traded corporation, stockholders will

not tolerate ineffective management for long. Corporate management will replace inefficient division or subsidiary (i.e., property-specific) management. Corporate boards of directors will replace inefficient corporate management. And, stockholders will replace ineffective corporate boards of directors.

So, if the subject property experiences obsolescence year after year, it is probably not due to incompetent management. That obsolescence is probably due to external factors that the taxpayer management is doing everything it can to minimize.

Objection #3

Even if the taxpayer management is competent, the obsolescence is the result of the property owner's conscious decision—for example, to move production from the subject property to a new production facility in another taxing jurisdiction. Therefore, the taxpayer's specific actions caused any decrease in the subject property value.

Response #3

Certainly, corporate taxpayer management is responsible for maximizing the value of the entire taxpayer company—and not just the value of the special purpose property in the individual assessor's taxing jurisdiction. Even with that consideration in mind, the assessor should realize that no property owner (even the corporate management of the largest multinational company) will deliberately diminish the value of its property.

Such deliberate property value diminishment does not maximize the stockholders' return on investment. Rather, it decreases the stockholders' return on investment.

Assessors should realize that corporate property owners will do everything they can to most efficiently utilize all of their industrial and commercial property holdings. When a corporate taxpayer shifts production from one facility to another facility, this is the perfect example of the impact of obsolescence.

The multi-property taxpayer will (1) maximize production in the facility with the least obsolescence (e.g., the plant with the lowest cost of goods sold) and (2) minimize production in the facility with the greatest obsolescence (e.g., the plant with the highest cost of goods sold).

The fact that taxpayer management made a conscious decision to reduce utilization of the subject property in any way is an obvious indicium of some form of obsolescence. That taxpayer management decision (whatever it is) is intended to minimize the economic impact of the subject property obsolescence—and not to create obsolescence at the subject property.

Objection #4

The effects of the subject property obsolescence (whatever those effects are) are industry-wide. Therefore, the obsolescence is not unique to the subject property.

Response #4

There are two responses to this particular property tax assessor objection.

First, there are many forms of obsolescence that affect an entire category (e.g., an industry group) of taxpayers. For example, all taxpayer properties suffer from physical deterioration. That is, all 20-year old properties in any given industry experience some physical deterioration. In that case, the assessor cannot reject the subject taxpayer's claim for a physical deterioration obsolescence allowance just because every other taxpayer in that industry will claim a physical deterioration obsolescence allowance for their 20-year old property.

Second, many types of external obsolescence are the result of industry-wide factors. In that case, every taxpayer in the industry may suffer from external obsolescence to a greater or lesser extent.

In both property valuation theory and property valuation practice, there is no rule that obsolescence should be recognized only if it affects one property only. Based on the hypothesis of objection #4, all taxpayers that own special purpose property in the affected industry may experience some amount of obsolescence.

Objection #5

The comparative benchmarks that the taxpayer used to quantify the property obsolescence are either inappropriate or unreasonable. That is, the benchmarks are too hypothetical, or the benchmarks are not sufficiently comparable to the subject industrial or commercial property.

Response #5

There are typically three components to the taxpayer response to this particular assessor objection.

First, the taxpayer should ask the property tax assessor to specify (1) exactly which benchmark is unreasonable and (2) exactly why that benchmark is inappropriate. Then, the taxpayer (or the taxpayer's representative) can (1) respond to specific complaints and (2) provide specific explanations or justifications.

This assessor objection is somewhat analogous to the common assessor objection "Mr. Analyst, your comparable sale number 1 is not comparable to the subject property." In order to respond to that complaint, the valuation analyst

(or the taxpayer) needs to know exactly what the assessor believes is wrong with comparable sale number 1.

Second, it is often appropriate for the taxpayer (or the taxpayer's representative) to ask what benchmark the property tax assessor believes is more appropriate to use for purposes of comparison to the subject property.

In response, the assessor may suggest as an alternative benchmark (1) a different comparative time period, (2) different individual comparable properties, or (3) a different comparative industry segment. The taxpayer can then discuss the relative strengths and weaknesses of the alternative benchmarks with the assessor.

Presumably, through compromise or persuasion, the taxpayer and the assessor can agree on the best set of benchmarks. If the assessor cannot suggest alternative benchmarks, then the taxpayer should explain that the taxpayer's benchmarks must be the most appropriate to the subject property. After all, the assessor cannot come up with any better benchmarks to consider.

Third, the taxpayer (or the taxpayer's valuation analyst) may have to explain that the benchmarks are specifically intended to be different from the subject property. The benchmarks are supposed to represent the subject property "but for" the existence of obsolescence. Therefore, it is appropriate to consider a benchmark that represents:

1. the subject property before the onset of obsolescence,
2. a brand new property that does not experience obsolescence, or
3. a hypothetical replacement property that has obsolescence designed out of it.

Accordingly, the benchmark measures (however defined) should not be directly comparable to the subject property. They should be comparative to the subject property—except that the benchmarks do not experience the subject obsolescence.

Objection #6

An industrial/commercial property that suffers from obsolescence cannot also benefit from the existence of intangible assets. Nonetheless, the taxpayer is also claiming that the sales comparison approach and the income approach value indications include the values of several business-enterprise-related intangible assets.

Response #6

The business enterprise that operates at an industrial or commercial property often encompasses discrete intangible assets, such as: customer contracts or relationships, favor-

able supplier contracts, patents, copyrights, trademarks, trade secrets, computer software, proprietary technology, licenses, assembled workforce, and so forth.

If the business enterprise level of income is used in either the income approach or the sales comparison approach analyses of the subject property, then the value indications generated by those analyses will relate to the business enterprise owner/operator of the subject property.

Those business enterprise value indications will encompass all of the following categories of taxpayer assets: (1) real estate, (2) tangible personal property, (3) discrete intangible assets, and (4) intangible value in the nature of goodwill.

If the business enterprise income generated at the subject industrial or commercial property does not provide for a fair rate of return on investment, then the subject property likely experiences economic obsolescence. If the subject property experiences economic obsolescence, then certain intangible assets may have little or no value.

For example, if the intangible assets (1) are integrated with the subject property and (2) are valued based on a capitalized excess earnings methodology, then these intangible assets probably have little or no value.

However, at the subject industrial/commercial facility, there may be intangible assets that are not integrated with the subject property or that are valued based on another methodology (e.g., a cost approach method). In that case, even if the subject property experiences economic obsolescence, these intangible assets (1) can have an independent value and (2) can be encompassed in income approach and/or sales comparison approach value indications.

Objection #7

The taxpayer did not recognize an asset impairment "writeoff" on its corporate financial statements. Yet, the taxpayer is claiming an obsolescence adjustment for property tax assessment purposes. That is, if the subject industrial or commercial property is really obsolete, then the taxpayer should "write down" the subject property on its corporate books and records.

Response #7

There are four principal differences between (1) the recognition of obsolescence for property valuation purposes and (2) the recognition of an asset impairment adjustment for financial accounting purposes. The four principal differences relate to:

1. the starting point from which to make the adjustment,
2. the appropriate standards of value,

3. the specific tests for recognizing an asset impairment for financial accounting purposes, and
4. the organization level at which the accounting adjustment is recognized.

It is noteworthy that there are two generally accepted accounting principles (GAAP) provisions related to the accounting recognition of asset impairment or obsolescence. First, Financial Accounting Standards Board (FASB) Statement of Financial Accounting Standards (SFAS) No. 142 is entitled Goodwill and Other Intangible Assets. Second, SFAS No. 144 is entitled Accounting for the Impairment or Disposal of Long-Lived Assets.

Therefore, SFAS No. 142 presents the GAAP requirements for the “writedown” of goodwill, and SFAS No. 144 presents the GAAP requirements for the “writedown” of long-lived tangible and intangible assets.

First, in a cost approach analysis of an industrial or commercial property, obsolescence is typically measured as an adjustment to either (1) replacement cost new less depreciation or (2) reproduction cost new less depreciation. In the financial accounting recognition of an asset impairment, the adjustment is measured against net book value.

Net book value is equal to original cost less accounting accumulated depreciation. Typically, neither replacement cost new nor reproduction cost new is equal to original cost. And, typically, physical depreciation is not equal to accounting accumulated depreciation.

Second, both SFAS Nos. 142 and 144 are based on the fair value standard of value. Most state and local property tax statutes are based on the fair market value (or a conceptually equivalent) standard of value. In many ways, fair value and fair market value are the same. However, they are not exactly the same. And, the subtle differences in the two standards could result in different value indications.

As an example, fair market value typically indicates value to the “market”—that is, what a hypothetical willing buyer would pay to a hypothetical willing seller. Under that standard of value, buyer-specific synergies are not included in the subject property valuation analysis. However, under the fair value standard of value for GAAP purposes, buyer-specific synergies are included in the subject property valuation analysis.

Third, both SFAS Nos. 142 and 144 provide very specific rules and tests for the recognition of an asset impairment. For example, for long-lived tangible assets, the SFAS No. 144 test allows for an asset impairment adjustment only if the sum of all future cash flow expected to be generated by the asset is less than the asset’s net book value.

It is noteworthy that the test is not: the present value of all future cash flow expected to be generated by the asset. The test is: the sum of all future cash flow expected to be

generated by the asset. There is no present value procedure in the SFAS No. 144 asset impairment test.

Accordingly, it is extremely unlikely that an asset will “fail” the SFAS No. 144 cash flow test and be subject to an asset impairment writedown. In contrast, it is much more likely that an asset will fail the present value of future cash flow test that is commonly used in property tax economic obsolescence analysis.

Fourth, for property tax valuation purposes, obsolescence analyses are typically performed on a property-by-property basis. In other words, the analyst would quantify obsolescence (if any) at the individual plant or facility level. For purposes of SFAS Nos. 142 and 144, asset impairment testing is performed at the “reporting unit” level.

A “reporting unit” can include several separate facilities if the facilities all operate in the same line of business. While the “reporting unit” level can vary by company, it is generally analogous to a corporation division or subsidiary.

In other words, a company’s “reporting unit” could be a division that includes six different facilities in six different taxing jurisdictions, for example. While these facilities all produced the same product, some facilities may experience functional or external obsolescence—and others may not. So, the corporate taxpayer may report obsolescence at one facility to the local assessor. However, the total (or consolidated) “reporting unit” may not experience asset impairment for GAAP purposes.

Objection #8

The taxpayer’s quantification of economic obsolescence is based on just another application of the taxpayer’s income approach valuation. Therefore, the taxpayer has converted its cost approach analysis into a clone of its income approach analysis. Whatever the replacement cost/reproduction cost starting point is for the cost approach analysis, the conclusion is exactly the same as the income approach value indication.

Response #8

The above statement may be absolutely true (and the property tax assessor objection may be absolutely correct) if the taxpayer (or the taxpayer’s valuation analyst) has not correctly performed the economic obsolescence analysis. The cost approach economic obsolescence analysis should be mathematically independent of the income approach valuation analysis.

Both the cost approach and the income approach may rely on common valuation variables—for example, a property-specific discount rate or direct capitalization rate. However, the cost approach economic obsolescence

analysis absolutely should not be influenced by the results of the income approach valuation analysis.

Some valuation analysts inappropriately quantify economic obsolescence as a “plug number” or residual. That is, first, the analyst quantifies replacement/reproduction cost new less physical depreciation less functional obsolescence (RCNLDFO). Second, the analyst quantifies the income approach value (IAV) indication. Third, the analyst subtracts the IAV from the RCNLDFO in order to measure economic obsolescence (EO). Last, the analyst subtracts EO from RCNLDFO in order to arrive at the cost approach value (CAV) indication.

Using this inappropriate procedure, the IAV will always be exactly equal to the CAV. Using this procedure, the cost approach is not independent of the income approach. In fact, the value conclusion of the cost approach is entirely influenced by the value conclusion of the income approach. Accordingly, this “plug” procedure for quantifying economic obsolescence is fundamentally flawed.

Economic obsolescence is almost always calculated on a comparative basis. Common comparisons include:

1. actual versus historical margins, returns, units, or prices;
2. actual versus budgeted margins, returns, units, or prices;
3. actual returns versus required returns (i.e., costs of capital); and
4. actual results versus benchmark (comparable property or industry average) results.

These cost approach economic obsolescence comparative analyses may involve some of the same data points used in the income approach analysis (e.g., unit volume, average selling price, NOI margin). However, the results of these comparative economic obsolescence analyses should be totally independent of the results of the income approach.

And, one economic obsolescence comparative analysis that is simply not appropriate is: (1) income approach value indication versus (2) cost approach value indication before the recognition of economic obsolescence.

A correctly prepared economic obsolescence analysis can—and should—stand on its own analytical merits. It should be (and can be) mathematically independent of the income approach analysis. With an economic obsolescence analysis based on comparative financial or operational variables, the cost approach can—and should—provide a totally independent value indication from the income approach.

Objection #9

Functional and (particularly) economic obsolescence are implicitly recognized in both the sales comparison approach

and the income approach. If the taxpayer also explicitly recognizes functional and (particularly) economic obsolescence in the cost approach, then that property valuation double counts (or exaggerates) the impact of obsolescence.

Response #9

Consistent with generally accepted property valuation practices, a cost approach analysis should recognize all forms of property obsolescence. This includes physical depreciation, functional obsolescence, and external obsolescence.

All of these forms of property obsolescence are implicitly recognized in both the income approach and the sales comparison approach. All of these forms of obsolescence should be explicitly recognized in the cost approach. Unless all three valuation approaches include (implicitly or explicitly) all forms of obsolescence, the value indications of the three approaches will not reconcile in the valuation synthesis and conclusion.

Therefore, it is not inappropriate to consider the effects of obsolescence in all three valuation approaches. Rather, it is inappropriate to exclude consideration of obsolescence effects from any one of the three property valuation approaches.

Objection #10

The effects of functional and external obsolescence are already included in the calculation of depreciation if depreciation is based on cost estimation guide depreciation tables from, for example, the *Marshall Valuation Service*. Therefore, the analyst will double count (or exaggerate) the impact of obsolescence by considering both (1) a discrete functional/external obsolescence analysis and (2) a physical depreciation adjustment extracted from a cost estimation guide depreciation table.

Response #10

The premise of this property tax assessor objection is factually incorrect. Standard published depreciation tables, such as those published in the Marshall & Swift *Marshall Valuation Service* and used by many assessment authorities, are designed to include two components only: (1) normal physical deterioration and (2) normal functional obsolescence due to changes in construction materials and techniques.

So, it is true that some influences of functional obsolescence are included in the standard depreciation tables. These ordinary, age-related influences would relate to the structural deficiencies of all properties of a certain age. Examples of these influences include the width of interior/exterior walls in older factories, the size and number of support stanchions in older warehouses, and so on.

However, standard published depreciation tables do not recognize any influences of functional obsolescence that are property-specific and not dependent on age. These factors may include inefficient layout or design, technologically obsolete equipment, excess production labor costs or material handling costs, and many others.

And, almost by definition, the standard published depreciation tables do not include consideration of external obsolescence. This is because the influences of external obsolescence are, by definition, external to the physical property.

Accordingly, it is proper (and quite common) for an valuation analyst to extract physical deteriorating and age-related (or ordinary) functional obsolescence from a standard published depreciation table. Then, the analyst completes the cost approach analysis by discretely quantifying (1) property-specific (or extraordinary) functional obsolescence and (2) external (and particularly), economic obsolescence.

DISTINGUISHING BETWEEN THE TYPES OF PROPERTY OBsolescence INFLUENCES

The identification and quantification of all forms of property obsolescence is an essential procedure in any cost approach valuation analysis. However, the designation of the property-specific influences between each form of obsolescence is less important.

In other words, the taxpayer and the property tax assessor should be concerned that they (1) recognize all forms of obsolescence at the subject property and (2) don't double count the effect of any form of obsolescence at the subject property. However, the labeling of any particular obsolescence influence as either functional obsolescence or economic obsolescence is not that important to the final value conclusion.

Nonetheless, there are several procedural guidelines that valuation analysts may consider to help distinguish the various types of obsolescence influences at the subject industrial or commercial property.

First, the analyst should be vigilant not to double count the same obsolescence influence. It is possible to double count obsolescence when two related data sources are used to quantify two (allegedly) different obsolescence influences.

For example, the analyst may capitalize higher than planned operating costs and call that functional obsolescence. Then, the analyst may capitalize lower than planned operating profit and call that economic obsolescence. Those two analyses (both based on related financial data sources) may result in double counting the subject property obsolescence.

Second, when categorizing the various obsolescence influences, the analyst should recall the basic descriptions of the three categorical forms of obsolescence. These basic descriptions were presented early in this description. Going back to the basics in terms of categorical descriptions should help the analyst to properly distinguish between the various property obsolescence influences.

Third, it is usually helpful for the analyst to identify and quantify obsolescence influences in the order or sequence in which they are discussed in most property valuation textbooks: (1) first, physical deterioration, (2) second, functional obsolescence, and (3) third and last, external obsolescence. This sequence allows the analyst to investigate and distinguish between the property obsolescence influences in an organized manner.

Fourth, to the extent practical, the analyst should separately explain and quantify each obsolescence influence. Separate explanations help the assessor (and other parties relying on the property valuation analysis) to better understand and distinguish between the various obsolescence influences. The separate quantification helps the analyst reader to understand the different obsolescence influences. It also may help the appraiser to identify—and therefore avoid—the use of the same data in multiple obsolescence analyses.

Fifth, obsolescence influences can be quantified as either (1) a percent value adjustment or (2) an absolute dollar value adjustment. Depending on how the various obsolescence influences are quantified, the order (or sequence) of the application of obsolescence influences can be important. Application sequence is not important if all forms of obsolescence are expressed as a percentage adjustment.

For example, let's assume the Taxpayer Corporation subject property replacement cost new less depreciation (RCNLD) is \$10,000,000. Let's assume that (1) the obsolescence influence adjustment A is 10 percent and (2) the obsolescence influence adjustment B is 20 percent.

In this case, the order of applying obsolescence adjustments does not matter. In this example, the cost approach value indication is \$7,200,000, regardless of which obsolescence influence adjustment is applied first.

Likewise, the application sequence is not important if all forms of obsolescence are expressed as an absolute dollar amount. For example, let's assume the Taxpayer Corporation subject property RCNLD is \$10,000,000. Let's assume the obsolescence influence adjustment A is \$1,000,000 and the obsolescence adjustment B is \$2,000,000.

In this case, the order of applying obsolescence adjustment does not matter. In this example, the cost approach value indication is \$7,000,000, regardless of which obsolescence adjustment is applied first.

However, the application sequence is important if some obsolescence influences are expressed as a percent-

Exhibit 1
The Importance of Sequence in
the Measurement of Property Obsolescence
at the Taxpayer Corporation Subject Property

Property Obsolescence Adjustment Sequence #1	
<u>Applying Obsolescence Influence A Before Obsolescence Influence B</u>	
Subject Property RCNLD	\$10,000,000
less: Obsolescence Influence A (fixed \$ amount)	<u>1,000,000</u>
Subtotal	9,000,000
less: Obsolescence Influence B (@ 20%)	<u>1,800,000</u>
equals: Subject Property Value Indication	<u>\$ 7,200,000</u>

Property Obsolescence Adjustment Sequence #2	
<u>Applying Obsolescence Influence B Before Obsolescence Influence A</u>	
Subject Property RCNLD	\$10,000,000
less: Obsolescence Influence B (@ 20%)	<u>2,000,000</u>
Subtotal	8,000,000
less: Obsolescence Influence A (fixed \$ amount)	<u>1,000,000</u>
equals: Subject Property Value Indication	<u>\$ 7,000,000</u>

age adjustment and other obsolescence influences are expressed as an absolute dollar adjustment.

For example, let's assume the Taxpayer Corporation subject property RCNLD is again \$10,000,000. This time, let's that (1) assume the obsolescence influence adjustment A is \$1,000,000 and (2) the obsolescence influence adjustment B is 20 percent.

Exhibit 1 illustrates how the application sequence of these two obsolescence influence adjustments directly affects the final Taxpayer Corporation subject property value indication.

As indicated in Exhibit 1, when the different obsolescence influences are expressed as both (1) a percentage adjustment and (2) an absolute dollar adjustment, then the application sequence of the obsolescence influence adjustments does directly affect the cost approach value indication.

In this situation, the analyst should:

1. very deliberately decide the most appropriate application sequence of the various property obsolescence adjustments and
2. specifically explain the rationale for the application sequence selection in the industrial or commercial property valuation report.

SUMMARY AND CONCLUSION

This discussion presented summary descriptions of (1) the three generally accepted property valuation approaches and (2) the three generally accepted forms (or categories) of property obsolescence. This discussion also presented an explanation of procedures that both property owners and property tax assessors can use to identify the existence of obsolescence at the subject industrial or commercial property.

This discussion also focused on the cost approach valuation of special purpose and/or large scale, fully integrated industrial and commercial properties.

This discussion presented a nonexhaustive "top ten list" of objections that state and local property tax assessors commonly offer when reviewing property owner/taxpayer requests to recognize property obsolescence allowances. And, this discussion also offered suggestions for taxpayer (or taxpayer representative) responses to these common property tax assessor objections.

Finally, this discussion presented several procedures for distinguishing between the different types of industrial or commercial property obsolescence influences.

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