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Measuring the Unknown



Obsolescence



Definitions

- Fair Market Value – The amount at which property would change hands between a willing buyer and a willing seller when neither are under any compulsion to buy or sell. Value used to assess ad valorem tax.
- Composite Factors - Combination of the indexed cost factor and the value, or percent good, that an asset retains over time. In the cost approach, the factor applied to the cost of an asset to reach fair market value.
- Appraisal Depreciation – The estimated loss in value of an asset, compared with a new asset; caused by physical deterioration, functional, and economic obsolescence.



Standard Depreciation **vs. Obsolescence**

- Composite factors - based on average condition and age of property determines standard depreciation and based on specific industry or property factors,
- Further adjustment to value may need to be considered
- Obsolescence is generally recognized as a loss in value from diminished utility



Types of Obsolescence

Three types of obsolescence that affect value:

Physical

Functional

Economic (External)





Applying Obsolescence in Tax Assessment

- The responsibility to prove physical deterioration, functional and economic obsolescence lies with the taxpayer
- Any further adjustment for property obsolescence beyond that depreciation applied using the composite factor should follow guidelines from the Department of Revenue
- If necessary, ADOR may provide assistance



3 Types of Obsolescence

Physical Deterioration

A loss in 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.



Physical Deterioration

Considered first when determining loss of utility

1. Observation – Look and see; based on appraiser's experience.
2. $\text{Use/Total Use} = \frac{\text{\# hours used}}{\text{\#hours in life}}$
3. $\text{Age/Life} = \frac{\text{effective age}}{\text{physical life}}$
4. Direct Dollar Measurement – best for older property. Considers whether deterioration is curable and how much it will cost to cure.



3 Types of Obsolescence

Functional Obsolescence

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 costly replacement property that new technology has developed.



Functional Obsolescence

Potential causes of functional obsolescence:

- Excess capacity
- Changes in design
- Reduced efficiency of equipment because of new technology

The reduced utility could be reflected in the tax assessment.

$$\% \text{ Functional Obs.} = 1 - \frac{\text{potential capacity}}{\text{current capacity}}$$



What is Inutility?

- Indicator of Economic Obsolescence
- *“Whenever the operating level of an asset is significantly less than its rated or design capability... the asset is less valuable than it would otherwise be.”¹*

[1] *Valuing Machinery and Equipment*, 3rd Ed., American Society of Appraisers, 2011, p. 76-77



3 Types of Obsolescence

Economic (External) Obsolescence

- 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;
- reduced demand for the product; increased competition;
- environmental regulations;
- inflation or high interest rates or similar factors.



Economic Obsolescence

- Investigation and Identification:
 - *Does it exist?*
 - *What is causing it?*
 - *Is it related to internal or external factors?*
- Quantification:
 - *Answering “What is causing it?” will guide to the appropriate method(s) to quantify*
- Document Results (Tell the Story):



Economic Obsolescence

The calculation for economic obsolescence is similar to functional obsolescence; however, the cause is not *within* the asset, but from outside factors affecting value.

$$\% \text{ Economic Obs.} = \frac{\text{cost of goods sold}}{\text{gross sales}} \times \frac{\text{present output}}{\text{output capacity}}$$



Overview of Obsolescence

- Physical Deterioration – observed condition
- Functional Obsolescence – inability to perform adequately the function for which it is used
- Economic Obsolescence – diminished utility due to negative external influences



Taxpayer Requirements

Documentation from a taxpayer is required to make a judgement of obsolescence

- Audited financials
- Published production statistics
- Tax returns



Questions?