



Source: WA STATE DNR

Chapter 3 Valuation Methodology

Valuation Methodology

Our valuation methodology, which estimates the Trust Value of each asset class, relies on the Income Approach to value, a commonly used method that estimates value based on the ability of the land to generate net operating income.

INTRODUCTION

In this chapter, we discuss the selection of the Income Approach method of valuation as well as our decision not to use either the Cost Approach or the Sale Comparison Approach, the other valuation methods commonly used in appraisals. We also describe the methodology used to value ecosystem services (under a separate cover) and contrast its conclusions of value with those of the Trust Value estimates for each asset class.

TRUST VALUE OF THE TRUST LAND ASSETS

The starting place of our discussion of the valuation methodology employed in this Trust Lands Performance Assessment (TLPA) is a review of the traditional valuation methods employed by real estate appraisers in conventional fair market value appraisals. We then address the three primary circumstances involving trust lands

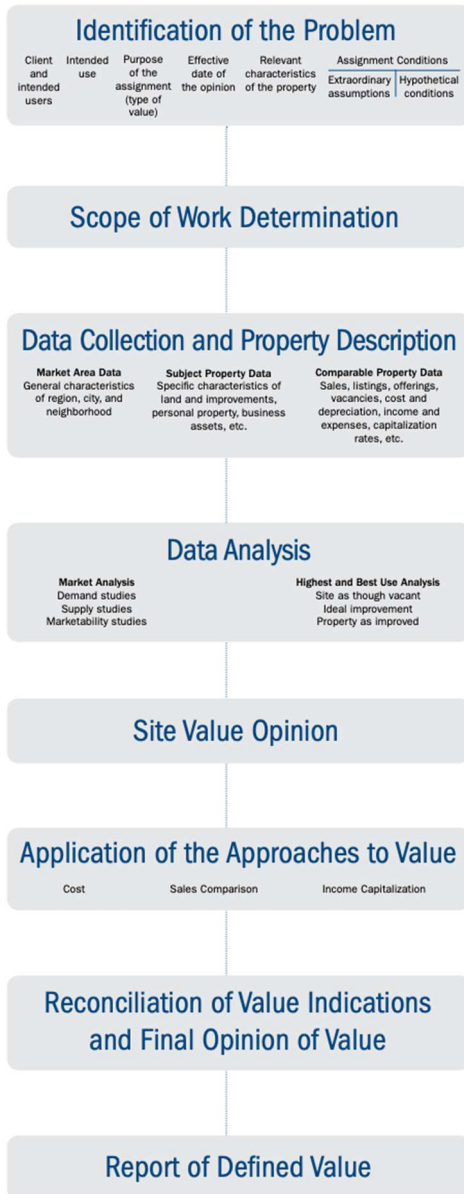
supervised by the Trust Manager that led to our conclusion that the appropriate term to use, when describing the value of these trust lands, is “Trust Value.” These factors also influence our choice of valuation methods with which we shall value each trust land asset class. Finally, we describe in greater detail the specific methods we have used as well as any additional justification for our method selections.

TRADITIONAL REAL ESTATE APPRAISAL METHODOLOGY

The appraisal process that leads to a typical conclusion of Market Value in the United States today is the product of nearly 100 years of evolution and improvement, including conceptual and methodological improvements, as well as significant improvement to the data relied upon by appraisers and available technologies that permit more comprehensive analysis and reliable conclusions of value.

The Appraisal Institute, one of several professional organizations of real estate appraisers, provides the following illustration of the “appraisal process” in its publication, “Understanding the Appraisal.”¹

¹ The Appraisal Institute, “Understanding the Appraisal,” brochure, 2013, page 8.



We offer the following comments and highlights for each of the core elements of the appraisal process identified in the Appraisal Institute brochure to lay a foundation for what is common among valuation professionals, and how we have tailored the analysis to accommodate the uniqueness of the asset classes and the ownership structure:

Element of the Appraisal Process	Comments/Highlights
<i>Identification of the Problem</i>	Why is the appraisal being completed? Who is it for? How will it be used by the intended users? Effective date? Special assumptions or conditions applicable?
<i>Scope of Work Determination</i>	How much work must be done in each of the areas of the appraisal to result in a reliable and appropriate valuation?
<i>Data Collection and Property Description</i>	Gathering information about the property that is the subject of the appraisal, its environs and its marketplace.
<i>Data Analysis</i>	Evaluation of market conditions and formulation of the highest and best use of the property being appraised.
<i>Site Value Opinion</i>	For an improved property, the value of the land as if vacant and available for development to its highest and best use.
<i>Application of the Approaches to Value</i>	Typically, one or more of the three traditional approaches (methods) of valuation – the Cost Approach, the Sales Comparison Approach and the Income Approach to value.
<i>Reconciliation of Value Indications and Final Opinion of Value</i>	Where two or more approaches to value are used, they are reconciled to a point estimate of value for the property that is the subject of the appraisal.
<i>Report of Defined Value</i>	Traditionally, the appraisal analysis is conveyed in a written form or narrative appraisal report. There are relevant standards for the content of a written appraisal report.

The three traditional valuation methods—Cost, Sales Comparison, and Income—are a reflection of three perspectives on the value in exchange of real property. A Cost Approach analyzes what it would cost to recreate the subject property through new construction and an analysis of losses in value from a variety of sources (physical depreciation and obsolescence). The Cost Approach reflects the principle of substitution, i.e., the ability of a buyer to obtain similar property by reconstructing or replicating the features and capabilities of the subject property.

The Sales Comparison Approach estimates the value of the subject property by comparison with similar properties, making adjustments to the comparable sales to compensate for differences between subject property and comparable property. It reflects the ability of a buyer to purchase alternative properties to the subject, and values the subject based on the asking and sales prices of similar property.

Finally, the Income Approach estimates the market value of the subject property based upon its ability to generate net operating income and to be resold at the end of an investment holding period. The Income approach to value is based on the principle of anticipation, in which the buyer bases his or her opinion of value upon future rents and profits from resale of the subject property.

In this TLPA, we have used the Income Approach to estimate Trust Value of each asset class. We have considered but have not used either the Sales Comparison Approach or the Cost Approach, as explained further below.

The Income Approach best captures the critical attributes of the value of each asset class—i.e., its ability to generate net income for distribution among trust beneficiaries—and the net income stream from asset class operations takes fully into account the statutory, regulatory, policy, and management practices utilized by the Trust Manager, both at present, and in recent years. Because the Income Approach reflects the fullest extent of asset class operations—both good and bad—we have relied upon this valuation methodology for each of our asset classes.

Because of the character of each of the trust land asset classes, the Cost Approach to value is either not applicable or is not believed to be a reliable indicator of value. This is largely true because most of the trust land asset classes are not improved with building improvements whose cost new and/or depreciation can be estimated based on substitution. Insofar as a Cost Approach also includes an estimate of the value of the vacant and available land, the value of which is commonly estimated via Sales Comparison methods, it is duplicative with the Sales Comparison Approach described below.

The Sales Comparison Approach is applicable and might be used to value the trust land asset classes, but the restrictions upon the sale of the trust lands, as well as other conditions under which we value the asset classes, render a Sales Comparison Approach analysis a less reliable indicator of value, and we have not included this approach to value.

FACTORS INFLUENCING THE SELECTION OF OUR METHODOLOGY

In the Introduction to the TLPA, we discussed our decision to use the terminology “Trust Value” and not “Market Value.” This was done for the following reasons:

- (1) To clearly communicate to the reader of the TLPA that the circumstances and conditions of the trust land valuation completed in the TLPA were different from in a conventional appraisal analysis and report;
- (2) To remind the reader that the restrictions upon sale of trust lands has a pervasive and material impact upon the value of the trust land assets;
- (3) That the (i) statutes, (ii) regulations, (iii) policies, and (iv) management practices utilized by the Trust Manager are or may be materially different from private owners of otherwise similar natural resource lands, and this has, or may have, a material impact upon the value of the trust land asset classes; and
- (4) That we have valued each asset class in aggregate (i.e., its total acreage) and not individual parcels or tracts, and accordingly, we have either abbreviated or eliminated many of the typical steps and processes in a market value appraisal analysis and report.

DISCUSSION

As a practical matter, our options for valuation of any of the asset classes were to use the Income Approach and the Sales Comparison Approach. Use of Sales Comparison—i.e., the comparison of the trust land asset class with sales of private land of similar use—is or was made much less reliable and meaningful because of the restrictions upon the sale of the trust lands. Were we to have used the Sales Comparison Approach in the TLPA, we would have to make significant adjustments to the indications of value from private sales of similar lands to compensate for *not only* physical, locational, and other value influence, *but also* the restrictions upon the sale of the property. We have described these restrictions in detail in Appendix A to the TLPA, and have characterized them as a significant influence upon the value of the trust lands. Furthermore, our Sales Comparison Approach adjustments would have to take into account the difference in the size of our property comparisons and the asset class under analysis; we anticipate that were we to do so, an additional significant adjustment would be incorporated to reflect the size of the asset class (in acres) versus the size of the comparable transactions relied upon.

Consequently, a Sales Comparison Approach analysis used in the TLPA would include three types of adjustments: 1) for usual and customary differences in physical, locational, and other economic characteristics; 2) for the inability to sell the land at a later date; and 3) for the dramatic difference in parcel size between comparable sales and the size of the asset class (in acres). In our judgment, the size of the combined adjustments would be so great as to call into question the reliability of the conclusions of value of a Sales Comparison Approach analysis. Accordingly, we have omitted this approach to value in this TLPA.

By contrast, the Income Approach analysis does not share these weaknesses and provides a much cleaner and more direct means by which to value each asset class. Because of the consistent operation of each of the asset classes by the Trust Manager, we have access to revenue, operating expense, and net operating income data, and we have evaluated these revenue and expense categories for the period 2007 through 2018. These revenues, operating expenses, and net income of each asset class reflect a full implementation of the applicable statutes, regulations, policies, and management practices that govern the operation of the asset classes, and we have a comparatively strong ability to anticipate future revenues, operating expenses, and net operating incomes for the foreseeable future. The net income forecast that emerges from the evaluation of historical operations is not affected by the inability to sell the trust lands within any asset class. As described in more detail in the following Financial Rate of Return chapter, suitable rates of return from similar lands can be reliably applied to our forecast of net operating income, and we can estimate a Trust Value that embodies both the net operating income potential as well as the restrictions upon sale of the trust lands.²

OTHER METHODOLOGY NOTES

Frequent users of appraisals will understand that our definition of Trust Value is largely a “value in use” definition and not a “value in exchange” definition (as is a market value appraisal analysis). This is consistent with the idea that the severe restrictions upon the sale of the trust lands means that a) they cannot be sold (i.e., no value in exchange) and b) they will be held in perpetuity (i.e., value in use).

Closely related to the idea of value in exchange is the concept of highest and best use, which is the ability (in an appraisal context) of the buyer to put the property to its highest (i.e., most profitable) use. This TLPA analysis, estimating Trust Value, evaluates the trust land asset classes in their current use only, and does not include any investigation or analysis into alternative uses different from the uses employed within the asset class (e.g., agricultural land use for land within the agricultural land asset class). Given that the objective of the analysis is to estimate the trust value of each asset class portfolio as economic units, this position is appropriate.

Income Capitalization and Discounted Cash Flow Analysis

Within the Income Approach analysis, this TLPA Trust Value analysis relies upon the use of direct capitalization. Direct capitalization of stabilized net operating income means the division of an estimate of net operating income by a financial rate of return, specifically called a “capitalization rate” or “cap rate.” The resulting product is then an indication of the value of the property.

Direct capitalization is an alternative to discounted cash flow analysis, which is another form of income approach valuation. Discounted cash flow analysis provides for the individual discounting of expected annual cash flows from property operations and from the future sale of the property, all discounted to a net present value (i.e., the indicated value), at a selected discount rate. Direct capitalization and discounted cash flow analysis are both commonly used appraisal methods within the Income

² We should also note that our Income Approach analysis does not directly address any impact on Trust Value that might arise from the size of the asset class (versus the size of a typical transaction involving similar lands). To a large extent, recognition of a size adjustment is related to the operational efficiency of the asset class holding, and to a smaller extent, the actual size difference between the trust land holding and the typical transaction size within the asset class. In short, the traditional size adjustment seen in many real estate appraisal is rendered moot by the inability to sell the lands within the asset class. What matters is net operating income, and the higher the net operating income, the higher the Trust Value.

Approach and each has specific strengths and weaknesses. Both direct capitalization and discounted cash flow analysis are discussed in much greater length in the following Financial Rate of Return chapter, which follows. Both methods are used in the Timber Asset Class valuation chapter.

Income Approach Analysis and the Timber Asset Class

As described above, this TLPA Trust Value analysis uses direct capitalization of expected net operating income as its sole valuation methodology. Within the Timber Asset Class valuation, however, our Income Approach analysis is expanded. We have added a second form of Income Approach analyses to the Timber Asset Class valuation, which is commonly referred to as a Whole Property Value method by experienced forest and timberland appraisers. More specifically, this analysis is a form of income residual analysis, in which the land is valued based upon its ability to grow marketable timber, have the timber harvested and sold at market price, less the costs of harvesting and silviculture, and with cash flows discounted to a net present value. This net present value indication, however, represents only the value or worth of the timber which has been (or will be) sold, so the value of the underlying timberland (without timber) is added to the net present value amount. The contribution of the net present value of timber sold and the underlying timberland value together forms an indication of value for the “whole property value” of the timberland.

By contrast, for timberland, the Income Approach analysis using direct capitalization forecasts a stabilized net operating income from timber operations on a perpetual basis and this net operating income is capitalized to an indication of value via direct capitalization. The two indications (whole property value and direct capitalization) are then reconciled to a point estimate of value for the

Timber Asset Class.

Finally, as a reasonableness check on the conclusion of value, the indicated value of the Timber Asset Class is informally compared with the reported sales prices of timberland located around the country, as reported by large institutional timber owners and integrated forest products companies.

THE VALUE OF ECOSYSTEM SERVICES

Among the mandates of the enabling legislation for the TLPA cited in the Introduction chapter was the following: “The analysis must also estimate the value of ecosystem services and recreation benefits for asset classes that produce these benefits.” This mandate gives rise to our evaluation of the worth or value of ecosystem services within the TLPA. This analysis is transmitted under a separate cover.

This part of our report discusses the dollar-equivalent value of ecosystem services, such as natural systems found on trust lands that offer benefits such as natural crop pollination, clean air, extreme weather mitigation, and mental and physical well-being. Collectively, these benefits are known as ecosystem services, and they are grouped into four broad categories: (i) *provisioning* the production of food and water; (ii) *regulating* to control climate change and disease; (iii) *supporting*, such as the habitat and refugia for both plant and animal species; and (iv) *cultural*, including aesthetic, science/education, and recreation and tourism. Two ideas around the value of ecosystem systems are particularly important: 1) that the natural environment provides “services” to the surrounding environment that have economic value or worth, and 2) that these benefits are nonexclusive to the recipients or beneficiaries (i.e., the benefits are available to all without payment or compensation).

As an attribute of property, particularly large contiguous tracts of land, it has been recognized for at least two generations that the worth or value of the nonexclusive benefits of land can or should be evaluated and considered by landowners, managers, and other stakeholders when long-range planning or benefit-cost analysis of the lands is underway. In Deloitte's 1996 Economic Analysis of the trust land portfolio, these property attributes were referred to as "nonmarket" values, and dollar equivalent amounts of these values were provided. Generally, using the terminology of the time, these nonmarket benefits could be divided into two groups—those arising from nonrevenue use of the lands, and those arising from nonuse or existence benefits. Use-based benefits are more obvious and result from the ability to use lands for recreational service or other activities, either today or in the future. Existence-based benefits are a reflection of the worth or value of these lands to people who (a) may not or will not actively use or interact with these lands, but for whom (b) the mere existence today and continuing in the future has or will have monetary value.

Through additional academic research and evolution of the body of thought around nonmarket valuation of land, the term "ecosystem services" came into use, and the concepts and a structure for analysis were implemented in the Millennium Ecosystem Assessment of 2001.³ Since that project, "ecosystems services" is a general term describing

a body of human benefits (i.e., services) that can be realized by humans to improve human existence. Some, but not all of these benefits may give rise to a measurable economic output or benefit, because the service provided by the natural environment has a measurable economic benefit either through direct production of a good or product, or because it allows society to avoid or discharge certain dollar costs.

One example of an ecosystem service is the service of carbon sequestration, i.e., the ability of a forestland to remove carbon dioxide from our atmosphere. The value of forestlands' ability to remove carbon can be estimated based upon academic studies that seek to measure the social cost of carbon, based on a variety of methodologies.

In the valuation of ecosystem services the actual valuation methods used are "benefit-transfer" and "consumer surplus." Benefit-transfer analysis assigns an economic value to the benefit and applies it to the applicable ecosystem service based upon the value and volume of the benefit that is transferred. Consumer surplus is estimated through the value that people place on their experiences above what they paid for those experiences and is used as a measure of social welfare. The specific methods used in this TLPA are described at greater length in our Ecosystem Services chapter (under separate cover).

³ From the Millennium Ecosystem Assessment website: "The Millennium Ecosystem Assessment (MA) was called for by the United Nations Secretary-General Kofi Annan in 2000. Initiated in 2001, the objective of the MA was to assess the consequences of ecosystem change for human well-being and the scientific basis for action needed to enhance the conservation and sustainable use of those systems and their contribution to human well-being. The MA has involved the work of more than 1,360 experts worldwide. Their findings, contained in five technical volumes and six synthesis reports, provide a state-of-the-art scientific appraisal of the condition and trends in the world's ecosystems and the services they provide (such as clean water, food, forest products, flood control, and natural resources) and the options to restore, conserve or enhance the sustainable use of ecosystems." See: <https://www.millenniumassessment.org/en/About.html>

Trust Value versus Ecosystem Services Values

Much has been written about the merits of valuing ecosystem services and how that financial analysis should be used with respect to market value estimates for real property. This is a controversial topic among academics, policymakers, appraisers, and property owners, and has been so for at least a generation. Other than to acknowledge the debate, the purpose of this discussion is not to argue for or against one position or another, but to clearly and concisely remind the reader that the dollar amounts of the Trust Value analysis of this TLPA should not be compared directly to (or against) the indications of value in the Ecosystem Services analysis. Although both analyses results in dollar estimates, the amounts are not directly comparable; the reader needs to understand a very critical difference between the two types of dollar estimates, as we explain below.

We have noted earlier that our term of choice, Trust Value, is derived from the concepts underlying Market Value in exchange, but in fact is a specialized term that is intended to remind the reader that our value estimate is most likely different from a conventional market value estimate because (a) the sale of trust lands is so heavily restricted, and (b) the term is effectively describing the value of the trust lands in perpetuity as presently used and not in some alternative use. Notwithstanding these important distinctions, Trust Value is intended to be a cash equivalent estimate of value to the owners, managers, and beneficiaries of the lands (State of Washington, DNR including Board of Natural Resources, and beneficiaries). Accordingly, both market value and Trust Value express the value or worth of the trust land asset classes on a direct and *exclusive* basis to the owners, managers and beneficiaries. They are the “owners” of those property benefits and they enjoy those benefits exclusively.

By contrast, ecosystem services represent dollar estimates of benefits that are “*nonexclusive*” and which are derived from the trust land asset classes but whose benefits are available to any member of society who use and who may not use the lands, but either directly or indirectly receives benefits from the lands. There is no exclusivity associated with an ecosystem service, whether the dollar equivalencies are expressed on an annualized basis (i.e., worth or value per year or interval of time) or on a capitalized (lump-sum) basis.

As utilized in this TLPA, the exclusivity of the benefits of ownership to the Trust Manager and the beneficiaries should be contrasted with the nonexclusive benefits of ecosystem services to all members of society able to receive those nonexclusive benefits.

CHAPTER-CONCLUDING REMARKS

In this TLPA, we have used a specialized term, Trust Value, to describe the nature of the benefits of ownership and operation of the trust land asset classes in order to distinguish it from a conventional market value definition used in most real estate appraisals. Trust Value, as a term, reminds the reader that the ability to sell trust lands is heavily restricted, and that the analysis is effectively a value in use analysis, assuming perpetual operation in their current use categories.

We have used the Income Approach to value as our primary valuation methodology, having concluded that the Cost Approach is not applicable and that use of the Sales Comparison Approach would result in the application of so many adjustments that its conclusions may not be credible. The Income Approach has the added benefit of fully reflecting the burdens and unique regulatory status of the trust lands and benefits from the extensive data on revenues, operating expense, and net operating incomes associated with each asset class.

The values associated with the Trust Value of each asset class and the ecosystem services values are different and cannot be directly compared. Like market value, our term Trust Value conveys the worth of value of the *exclusive* benefits of ownership and operation. Ecosystem services value estimates are *nonexclusive* and the worth of those benefits are shared by all members of society.