

Meeting Land Valuation Challenges

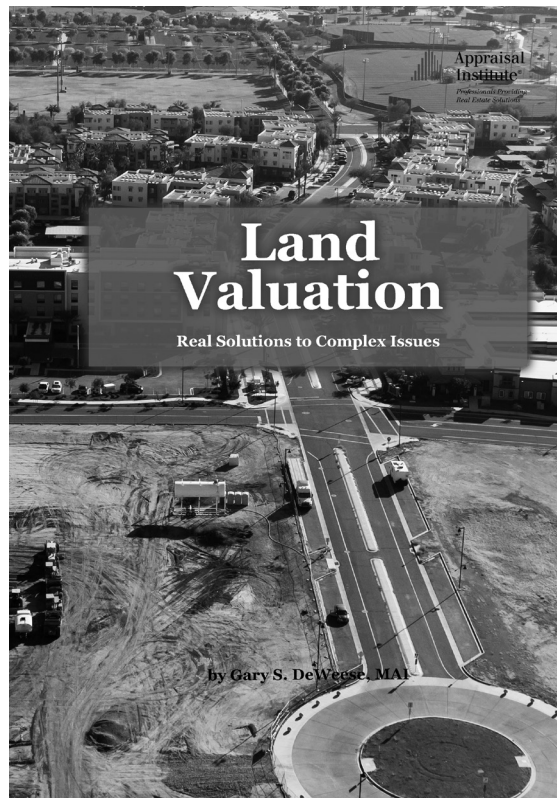
The Appraisal Institute's new text *Land Valuation: Real Solutions to Complex Issues* covers land valuation from the urban, suburban, or general rural parcel¹ perspective, including those parcels with special problems and challenges. There are seven major case studies to illustrate and help expand on the points discussed.

To get a good idea about what this volume holds for the reader, let's take a look at an overview of its content as indicated by its Table of Contents and Index.

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Chapter/Topic

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***Land Valuation: Real Solutions to Complex Issues* by Gary S. DeWeese, MAI**

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(\$105 for AI professionals)

1. This book does not give specialized attention to valuation of productive agricultural land or special-purpose land (e.g., mining, forestry) or value-in-use or value-to-user type situations. Unless otherwise stated, the term *value* in this review is synonymous with market value as commonly defined.

- 14. Evaluating Alternative Ground Lease Structures:
A Case Study
- 15. Use of the Cost Approach to Value Land
- 16. Special Issues in Land Valuation

Appendix A. Applicability and Limitations of Land
Valuation Methods

Appendix B. Web Soil Survey Data

Appendix C. Government Agencies and Regulations

The two-page Index also provides insight into the subjects, terms, and concepts presented, and helps the text's reader cross-reference discussions of a topic (Exhibit 1).

In assessing *Land Valuation: Real Solutions to Complex Issues* it is important to be aware of the significance of its topic. Practicing appraisers often value land,² either as a separate appraisal or as a component part of an improved property appraisal. However, some believe that land is more difficult to value than improved property depending on the situation. Therefore, it is crucial for appraisers to be familiar with the tools and techniques available for valuing land.

The process of estimating land value³ starts with an analysis—whether formal or informal—of the market, basically measuring the difference between supply and demand (*residual demand*). Such a market study is the content of **Chapter 1** of *Land Valuation*. Topics discussed there include:

- the distinction between market analysis and marketability analysis;
- the foundations of land valuation;
- the six-step market analysis process and the eight-step highest and best use analysis;

- the decision-making process;
- inferred demand analysis and fundamental demand analysis;
- the four levels of market studies;
- forecasting demand, supply, and the residual/marginal demand; and
- forecasting the subject capture portion of residual demand.

Ratio and segmentation methods of a fundamental demand study are included with rental apartment land examples.

Highest and best use is also examined in the first chapter, particularly what should be included in highest and best use conclusions. This topic is a logical follow-up to the market study discussion preceding it. Highest and best use should describe use(s), use timing, and likely buyers or land tenants. This helps in the selection of comparable sales and offerings and is of assistance in deciding on applicable tools and techniques available for appraisal of the land.

A helpful case study involving fundamental demand analysis follows in **Chapter 2**. The case involves a parcel with 57 developable acres, with three reasonable probable uses—multiunit rental housing, residential condominium single-unit buildings, and neighborhood shopping center use—analyzed over a five-year forecast period. The case study provides good examples of supply-demand studies for each property use and gives insight into topics discussed in Chapter 1.

The importance of understanding real estate market cycles is examined in **Chapter 3**. The aforementioned market study usually covers a time in the real estate market cycle, nationally

2. The distinction between *land* and a *site* is pointed out in the book's introduction: "Appraisers distinguish between *land*, which can be defined as the earth's surface, both land and water, and anything that is attached to it, whether by the course of nature or by human hands, and a *site*, which can be defined as land that is improved so that it is ready to be used for a specific purpose. However, many market participants do not distinguish between these two terms and often refer to land as a 'parcel' or 'site.' For this reason, these terms will be used interchangeably throughout this book." (Page xiv)

3. Also known as forming a supported opinion of value.

Exhibit 1 *Land Valuation Index Topics*

absorption	F-test	p-value
allocation method	functional obsolescence	quadratic curve
appropriate comparable sales	fundamental analysis	qualitative analysis
arm's-length transaction	future demand	quality of income
assemblage	graphic analysis	quantitative analysis
base rent	gross adjustments	quantity of income
bulk value	ground rent capitalization	ranking analysis
capture rate	grouped data analysis	raw land
coefficient of variation	highest and best use	real estate cycle
confidence interval	(conclusion; situations when the	recession
contaminated sites	highest and best use is not the	reconciliation
contraction	current use; three-part highest and	recovery
correlation	best use; zoning)	regression analysis
cost-related analysis	impaired value	regression output
curvilinear relationship	index rent	relative comparison analysis
data sources	inferred analysis	remediation cost
data verification	land productivity	remediation lifecycle
date of sale	land residual analysis	residual demand
demand	leased fee	reversion
depreciation	leasehold	sales comparison
development rights	linear regression	secondary data
discounted cash flow analysis	logarithmic curve	sequence of adjustments
duration of income	market analysis	site improvements
ecological land	market data grid	statistical analysis
elements of comparison	market delineation	supply
end user value	marketability study	supportable demand
entitled land	marketing time	surplus land
entitlements	net adjustments	tax increment financing (TIF)
entrepreneurial incentive	nontraditional units of comparison	transaction adjustments
environmental risk	number of adjustments	trend analysis
equilibrium	paired sales analysis	trendline
equilibrium vacancy	pandemic	t-statistic
excess land	participation rent	types of transactions
expansion	periodic accounting	unentitled land
exponential curve	physical depreciation	unimpaired value
exposure time	plottage value	units of comparison
external obsolescence	polynomial curve	value enhancement
extraction method	power curve	variance
feasibility rent	present value analysis	wholesale value
fee simple	primary data	yield capitalization
financial feasibility	profit	zoning
finished land	property adjustments	

and locally. The text cautions that “fundamental demand analysis may indicate a current and rising demand for office space, but if the economy is entering a contraction phase, then demand may not materialize as forecast. In addition, investment risk changes throughout market cycles, which impacts selection of the appropriate capitalization rate and discount rate. Highest and best use can, and probably will, change during market cycles.” (Page 31) The four stages of the real estate market cycle (expansion, contraction, recession, and recovery) are explained, supplemented by illustrative tables and graphs. External obsolescence and external enhancement and the dynamic nature of land value are discussed, with some thoughts about the theory of land value change versus investor behavior. (Pages 32–35)

The sales comparison approach is the gist of **Chapter 4**. Sales comparison is the method frequently preferred and used by appraisers (and informally by non-appraisers). However, as the author comments, “The most challenging aspect of sales comparison is finding verifiable and comparable sales data and making the correct adjustments to the comparables. A lack of data and comparability to support adjustments may weaken the resulting value conclusion.” (Page 37) Fortunately some alternative techniques are described later.

The material in this chapter covers the basics, with topics ranging from what is a comparable sale to the sales comparison process; from analysis of sales and comparison adjustments to data resources and data gathering; from types of transactions that may be considered to data verification. Special issues relating to zoning and land use controls/regulations/restrictions are examined, providing the reader with some excellent food for

thought in applying the comparison process. Units of comparison and the rationale for their use is explored.

The discussion then delves into determining the best unit of comparison using the coefficient of variation.⁴ The text takes up the issue of how many comparable sales are needed—a matter of frequent concern—along with elements of comparison and types of adjustments, which include transactional adjustments (property rights conveyed, financing terms, expenditures made immediately after purchase, and market conditions), and property adjustments (location, physical property characteristics, use/zoning, features and amenities, and non-realty items). (Figure 4.2)

Chapter 5, “The Adjustment Process,” follows the basic sales comparison material and addresses topics such as the sequence of adjustments, examining sales to identify the necessary adjustments, types of adjustments, adjustment grid examples, quantitative and qualitative adjustment techniques, extraction of adjustments (with examples for office and industrial properties), and grouped data analysis. Other helpful comparison adjustment topics include

- present value analysis,
- statistic and graphic analysis (with example) including curvilinear graphic analysis,
- qualitative analysis including trend and relative comparison analysis, and
- ranking analysis.

The section closes with a discussion of reconciliation of value indications.

The foundational sales comparison chapters are followed in **Chapter 6** by a sales comparison case study, which adds color to the sales comparison

4. *Coefficient of variation* “in statistics, [is] the ratio of a measure of absolute dispersion to the appropriate average, usually expressed as a percentage; computed from either the quartile or the mean deviation, but usually expressed as a ratio of the standard deviation to the mean; a measure of relative dispersion.” (Page 45)

picture. The case study walks readers through considerations related to location, market conditions, highest and best use, and comparable sales analysis that utilizes an adjustment grid.

Chapter 7 covers additional land valuation methods beyond sales comparison that can be used to support an opinion of land value, depending on the situation. These include market extraction, allocation, land residual analysis, and ground rent capitalization methods. It is noted that while land residual analysis may be used for estimating land value, it is most often used in testing the feasibility of alternative uses of a site in highest and best use analysis. (Page 89) Ground rent capitalization is used primarily for parcels that are covered by a long-term land lease, or ground lease. (Page 91) The discussion in this chapter includes examples that boost understanding of the concepts and related methodologies

Chapters 8 and 9 logically follow the previous chapter and cover yield capitalization, which in essence values land based on the future net income-producing benefits of developing that land. In essence, the discussion takes the reader from static capitalization, on to the more dynamic yield capitalization, which may consider income specified over time, and yield rather than simple capitalization rate. Examples of discounted cash flows, the yield model, as well as extraction of entrepreneurial incentive and profit, and the yield or discount rate, are presented and discussed.

Chapter 9 provides a case study involving yield capitalization. The illustrative case study involves alternative development uses—apartments and condominiums—and walks the reader through the market analysis and fundamental demand analysis. The yield capitalization technique can be complex, but it usually does not need to be since it reflects the actual land development process and the reasoning of developers. Yield capitalization is a basic discounted cash flow procedure; in the text, the steps are shown on pages 99–100.

This section of the book also addresses valuation challenges related to unentitled land. It notes that the uncertain impact of yet-unknown entitlements (government permissions for development intensity and requirements) on productivity—and value—arises from quantitative and qualitative productivity. For unentitled land, “the appraisal would be subject to an extraordinary assumption because the appraiser’s estimate may or may not come to fruition.” (Page 100)

Chapter 10 uses a case study example to dive deeper into determining highest and best use in a common situation where there is an uncertain environment that is not appropriate for traditional methods of determining highest and best use. In the case study, zoning is broadly described with a wide range of possible mixed uses, and the only land sales occurred before the market underwent significant major changes. The only information available is sparse with conflicting data. It’s an interesting case study with value for the reader.

Regression analysis is the focus of **Chapter 11**. This statistical technique is for analyzing market sales (and sometimes offering information) to arrive at an indication of value of the appraised property. Land value may be influenced by many things, including physical, locational, legal and market characteristics; views; macro and micro area land uses; and various demand factors. When such influences are available for comparable properties and the appraised property, and sufficient comparable properties are available, statistical tools may sometimes be used to provide an indication of appraised land value. Statistics can be used to help find relationships between influencing factors and sales prices; the relationships may be linear or curvilinear. Chapter 11 provides an illuminating case study involving graphic and regression analysis.

Chapter 12 tackles the challenge of incorporating nontraditional units of comparison in land valuation. The included case involves a commer-

cial building pad with the tenant pursuant to a ground lease—a situation with scarce comparable data and other rather undernourished data. The case brings out the use of the t-statistic and t-distribution, the F-statistic and distribution, tenant credit, and other helpful points.

“Valuing the Leased Fee Interest in Land Subject to a Long-Term Ground Lease” provides the grist for **Chapter 13**, which explores characteristics and benefits of modern long-term land leases. The various property interests under a ground lease (leased fee, leasehold, and sometimes subleasehold) are presented along with the concept of the value of financial benefits accruing to the landowner (landlord, lessor) under a ground lease. The chapter discusses income stream timing and risk, quality and duration, and applicable yield rate considering lease terms and conditions, base rent, additional rent, participation provisions, future readjustments in rent and terms, expected reversion and applicable yield rate.

Building on Chapter 13, **Chapter 14** examines alternative ground lease structures utilizing a real estate consultant’s case study. Three different ground lease structures are addressed in the case. The text then moves on to use the cost approach to value land in **Chapter 15**. Even though a cost approach *can* be used to value land, it is used infrequently. Nonetheless, as the discussion demonstrates, cost approach components may have a role in several land valuation techniques.

Chapter 16 tackles a number of special issues in land valuation—items appraisers should be aware of, and take into consideration, when needed. The issues generally relate to situations involving the following:

- Contaminated sites and the associated issues of environmental risk, impaired value, remediation cost, remediation lifecycle, source and proximate sites, unimpaired value, and USPAP Advisory Opinion 9.
- A current use that is different than the highest and best use. As stated, “highest and best

use is not necessarily always a current use. Highest and best use can be a future use, such that a future use value would need to be discounted to present value dollars.” (Page 173)

- Excess and surplus land; both types of land are part of an existing ownership but are not needed to support the highest and best use of the property as improved. (Page 174)
- Plottage value
- Development rights or entitlements, including air rights, subsurface rights (Page 179)
- Tax increment financing (TIF) districts (Pages 181–182, with diagram and examples)
- Ecological land, which differs from other types of land in its ability to nurture a characteristic natural plant or animal community.

Finally, wrapping up *Land Valuation: Real Solutions to Complex Issues* is a series of informative appendices.

Appendix A, “Applicability and Limitations of Land Valuation Methods,” describes major land valuation techniques as well as their applicability and limitations.

Appendix B, “Web Soil Survey Data,” provides information on the Web Soil Survey (WSS) of the US Department of Agriculture’s Natural Resources Conservation Service. Soil data may be pertinent to valuation of a parcel. This appendix includes data and maps, and numerous links to specialized resources. The WSS notes the role of soil quality in land valuation: “In appraising the income potential of farmland it is essential to distinguish between income differences caused by soil properties and those caused by management. If two farms are managed in much the same way and still show differences in income, it is likely that the soils differ in inherent productivity. ... Soil surveys available from the Natural Resources Conservation Service can help bankers, loan

companies, tax assessors, farmers, and others who need to know about the productivity of farmland obtain reliable estimates of the potential productivity of soils in their area.” (Page 187)

While Appendix B addresses the role of soil quality on land productivity, **Appendix C** addresses “Government Agencies and Regulations,” which have the potential to impact productivity. This appendix provides a concise resource for locating information on state and national regulations involving land and its value.

Conclusion

Land Valuation: Real Solutions to Complex Issues augments *The Appraisal of Real Estate*, fifteenth edition. It provides a number of case studies and examples that help readers’ understanding and application of the land valuation tools and techniques available. Further, this publication is a good resource for students, appraisers, and others involved in land valuation and understanding land valuation techniques.

About the Author

Dan L. Swango, PhD, MAI, SRA (Retired), is president of Swango Real Estate Counseling and Valuation International in Tucson, Arizona. He is experienced in valuation and consulting involving equity investment, debt security, risk reduction, profit optimization, estate planning and settlement, buy/sell opportunities, and eminent domain. Swango is an instructor and communicator with domestic and international experience. He is namesake of *The Appraisal Journal’s* Swango Award, past Editorial Board chair and editor-in-chief of *The Appraisal Journal*, and a current member of the *Journal’s* Review Panel. **Contact: danswango@yahoo.com**