Capital Layer Evaluations: Hotels and More

by Tom Troll

Abstract

Historically, the valuation of hotels, nursing homes, and other types of complex properties has been constrained because of the challenges in analyzing and separating values between tangible and intangible components as well as separating values among the tangible assets. This article presents a potential approach, capital layer evaluations, for valuation of such properties where enterprise valuation by income capitalization is viable. The capital layer evaluations method logically segregates enterprise net income into four components: land, real property improvements, furniture, fixtures and equipment, and business assets. Once net income is componentized, traditional valuation methods and processes are employed to arrive at the enterprise value and the values of the component capital layers. Throughout the process, property tax impacts to net productivity and value are considered and appropriately addressed. Capital layer evaluations offer a new perspective and potential solution to issues that have challenged valuers of complex enterprises for decades.

Introduction

The discussion about how hotels and motels should be valued spans decades. Everyone agrees that these are complex enterprises that involve tangible real property, tangible personal property, and intangibles related to the business portion of the enterprise. Most agree that capitalizing enterprise net operating income at an appropriate enterprise overall capitalization rate is a rational, if not preferred, method of valuation for the enterprise. However, the pundits remain divided as to the contributory influences and the appropriate methods to analyze the component values that comprise the enterprise.[1]

For the following discussion, preconceptions will be put aside about whether the real property or the business is the primary contributor to value. Instead, the discussion will consider that enterprises, such as hotels, are comprised of four layers of capital: land, real property improvements, furniture, fixtures and equipment (FF&E), and business. Each capital layer has expectations relating to recapture of, and return on, the investment without regard to who owns each or all of the layers. It is further considered that investment yield rate expectations can vary by capital layer—again, without regard to who owns each or all of the layers. Exhibit 1 shows the relationship of each capital layer to the type of property interest.

In the discussion, it is assumed that enterprise overall capitalization rates are generally discoverable in most markets while the component rates are much more elusive. It is also assumed that regardless of valuation function, it is advisable to exclude actual property taxes from operating expenses and to correlate the property tax expense estimate with the value of taxable assets in the evaluation (i.e., typically all tangible real and personal property, but, in some cases, only tangible real property).

Exhibit 1 Capital Layers

Land: Tangible Real Property
Improvements: Tangible Real Property
FF&E: Tangible Personal Property
Business: Intangible Assets

1. For a summary of the issues, see Chapter 35 in *The Appraisal of Real Estate*, 14th ed. (Chicago: Appraisal Institute, 2013).

Methodology Overview

This article presents a potential approach, capital layer evaluations, for valuation of complex properties. The capital layer evaluations method logically segregates the enterprise net income into the four components: land, real property improvements, FF&E, and business (intangible) assets. Once net income is componentized, traditional valuation methods and processes are employed to arrive at the enterprise value and the values of the component capital layers. As Henry Ford said, "Nothing is particularly hard if you divide it into smaller jobs." Therefore, below is a quick overview of capital layer evaluations methodology, including the eight basic steps.

1. Develop an estimate of enterprise net operating income (NOI) from all sources—not just real property—after capital reserves, both before and after property taxes. The usual exclusions from operating expenses apply: debt service (interest and principal payments), depreciation, and income taxes.

		Potential Gross Income (including business income)
	Less:	Allowance for Vacancy and Collections Losses
	Equals:	Effective Gross Income (EGI)
	Less:	Operating Expenses (except property taxes)
	Less:	Capital Reserves
	Equals:	Enterprise NOI Before Property Taxes
[Iterative]	Less:	Property Taxes on Taxable Tangible Assets
[Iterative]	Equals:	Enterprise NOI After Property Taxes

2. Develop an enterprise overall capitalization rate (OAR) and an estimate of enterprise value.

[Iterative]		Enterprise NOI / Enterprise OAR = Enterprise Value

3. Estimate the net income necessary to service the tangible layers of capital and extract the residual net income attributable to the business (intangible) layer of capital.

[Iterative]		Enterprise NOI After Property Taxes
	Less:	Net Income Attributable to the Land
	Less:	Net Income Attributable to the Real Property Improvements
	Less:	Net Income Attributable to the FF&E (personal property)
[Iterative]	Equals:	Residual Net Income Attributable to the Business

4. [Iterative] Extract the business capitalization rate from the enterprise overall capitalization rate.

5. [Iterative] Estimate the value of the business (intangible layer) using capitalization.

6. [Iterative] Extract Total Tangible Asset Value.

[Iterative]		Enterprise Value Developed by Capitalization
[Iterative]	Less:	Business Value Developed by Capitalization
[Iterative]	Equals:	Total Tangible Value

7. Estimate the value of the FF&E and the land. Deduct both from Total Tangible Value.

[Iterative]		Total Tangible Value
	Less:	Value of FF&E
	Equals:	Total Real Property Value
	Less:	Value of Land
[Iterative]	Equals:	Value of Real Property Improvements

8. Estimate Total Taxable Tangible Value.

[Iterative]		Total Tangible Value
[Iterative]	Less:	Tangible Value Not Taxable (if any)
[Iterative]	Equals:	Total Taxable Tangible Value

Note that all the preceding steps and stages identified as "[Iterative]" are part of a trial and error, iterative process relating to property taxes, which will be discussed later.

Case Study: Hotel Property

To demonstrate the capital layer evaluations method, let us introduce a case study example of an actual property. As Exhibit 2 shows, the subject is an older, non-flagged hotel located in a central business district (CBD).

Capital Layer Evaluation Step 1: Estimate Enterprise NOI before Property Taxes

The analysis begins with an estimate of enterprise net operating income before property taxes. It is assumed that the reader understands the basics relating to the development of net operating income, so no discussion relating thereto is presented. To begin, review Exhibit 3, which shows the data used in the income analysis for the subject property. The boxes to the left of the computations (here and in the subsequent exhibits) provide a summary of the process within the display. The income analysis produces a net income of approximately $1.9 million after reserves and before property taxes.

The iterative process related to asset property taxes impacts many segments of the overall analysis. Therefore, it is appropriate to identify the issues related to property taxes before proceeding.

Property Tax Issues. Simply stated, the challenge involving property taxes relates to multiple, interdependent unknowns. Value is a function of net productivity while taxes are a function of taxable value and tax rate. However, property taxes negatively impact both net income and value. Only through an iterative, trial and error process can the property tax dilemma be reasonably addressed.

In scenarios involving (essentially) real property only, the problem is easily addressed by loading the overall capitalization rate for taxes (either full load or owner-portion load, depending on whether taxes are included in or reimbursed in the lease structure).

Apart from typical built-to-rent income properties (office buildings, apartment complexes, shopping centers, warehouses), intangible income and value often constitute a substantial portion of enterprise value and sale price when or if such enterprises sell. Sales of enterprises involving substantial intangible income and value skew traditional appraisal yardsticks of value, such as price per unit and capitalization rate.

Applying a loaded capitalization rate to enterprise net income attributable to both tangible and intangible assets will in effect tax all assets, both tangible and intangible. Not only are intangible assets not subject to property taxation, there are situations where tangible personal property assets are partially or totally excluded

Exhibit 2 Case Study Hotel Facility Specifications

Location:	Major CBD
Structure Age:	90 years
Flag:	None
Land:	5,000 sq. ft.
Floors:	12
Rooms:	93
National Reservations System:	None
Parking:	None on site Contract with garage 1 block away not renewed by garage purchaser
Replacement Costs:	$5.5 million Total rehab of public areas & replacement of all FF&E except kitchen completed 1 year prior to evaluation
	$1.625 million Total kitchen renovation commencing at time of evaluation

Exhibit 3 Case Study Hotel Property Income Analysis—Net Income Before Taxes

Income Analysis

Project:	**No Flag Hotel**	Gross Bldg Area:	**58,250**
Economic Unit:	**Name Withheld**	# of Rooms:	**93**
Type Property:	**Old Hotel Renovated**	Actual Occ %:	**76.15%**

				Market			% of EGI
Income	Room Revenues	Rooms	ADR	Mkt Occ %	Rev/PAR	Eff Rm Rev	
Room Types, Rates & Occupancy	Avg Room Sales	93	$198.43	76.15%	$151	$5,129,416	80.58%
	Room Revenues	93	**$198.43**	**76.15%**	$151	**$5,129,416**	80.58%
Other Income	**Ancillary Income**			% Rm Rev	$/Room/Yr		
	Food & Beverage				$12,407	$1,153,832	18.13%
	Other Dept				$0	$0	0.00%
	Other				$887	$82,515	1.30%
Effective Gross	**Effective Gross Income**				$68,449	$6,365,763	100.00%
Less Departmental Expenses	**Departmental Expenses**			% Dept Rev	$/Room/Yr		
	Rooms				$12,702	-$1,181,297	18.56%
	Food & Beverage			94.63%		-$1,091,854	17.15%
	Other Dept				$332	-$30,910	0.49%
	Other				$179	-$16,639	0.26%
	Total Department Expenses				$24,954	-$2,320,700	36.46%
Less Undistributed Expenses Excluding Property Taxes	**Undistributed Operating Expenses**			% EGI	$/Room/Yr		
	Administrative				$7,699	-$716,032	11.25%
	Marketing				$2,189	-$203,561	3.20%
	Management			4.00%		-$254,831	4.00%
	Utilities				$1,743	-$162,141	2.55%
	Maintenance				$3,873	-$360,204	5.66%
	Security				$0	$0	0.00%
	Franchise Fee				$0	$0	0.00%
	Misc Operating				$272	-$25,312	0.40%
	Insurance				$1,074	-$99,913	1.57%
	Capital Reserves			5.00%		-$318,288	5.00%
	Total Undistributed Expenses Before Prop Taxes				$23,014	-$2,140,282	33.62%
	Net Income After Reserves, Before Property Taxes					**$1,904,781**	

from taxation. Therefore, loading the capitalization rate is not an accurate reflection of the property tax impact on value in cases involving substantial intangible assets.

Also, using actual taxes is not correct, because that assumes that current taxable value(s) are correct. It is also inappropriate to simply use cost new, even in a proposed or new property, as the basis of value and taxation because value is a function of productivity, not cost. It is very possible to overbuild and incur costs that are not reflected in value (i.e., functional obsolescence due to an excess). Finally, an enterprise capitalization rate developed on an after-property-tax basis cannot be applied to net income before property taxes because that violates accepted appraisal methodology. Fortunately, the dilemma can be addressed relatively easily using an iterative, trial and error process.

Recall that in this model enterprise net income is developed before taxes. The iterative process then begins with testing an initial estimate of taxable value, calculating the taxes on that test value, and using the resulting taxes in the evaluation. At the end of the evaluation, the resulting taxable value is developed. The trial and error, iterative process (Exhibit 4) continues until the taxable value at the end of the process equals the initial test value used to estimate property taxes. As will be shown later, the iterative process can be done manually or automated, using standard tools in most spreadsheet applications. (The results of the iterations from the case study example are shown in Exhibit 5.)

Capital Layer Evaluation Step 2: Develop Enterprise Overall Capitalization Rate and Estimate of Enterprise Value

For purposes of this article and the example analysis, assume that a 10% overall enterprise capitalization rate is projected as reasonable and well within market parameters at the time of the analysis for the subject (12-story, 90-year-old hotel with no parking, and built on a 5,000-square-foot lot). Therefore, the estimate of enterprise value using capitalization is summarized as shown in Exhibit 5.

Capital Layer Evaluation Step 3: Estimate Net Income Necessary to Service Tangible Capital Layers and Extract the Residual Income Attributable to the Business

Capital layer attributable to land. It is generally accepted that land tends to not depreciate and that recapture of the land component will be realized at whatever future date the asset is sold. Therefore, the primary consideration for the land capital layer is return on investment during the holding period. While land values and land capitalization rates are subject to change over time, we are concerned with the Year 1 cash flow for the land at this point.

It is also generally accepted that during the evaluation of highest and best use of the land as vacant, land is the last of the agents of production to receive net benefits. Hence, the determination of highest and best use of land as vacant

Exhibit 4 Concept of Iterative Process Relating to Property Taxes

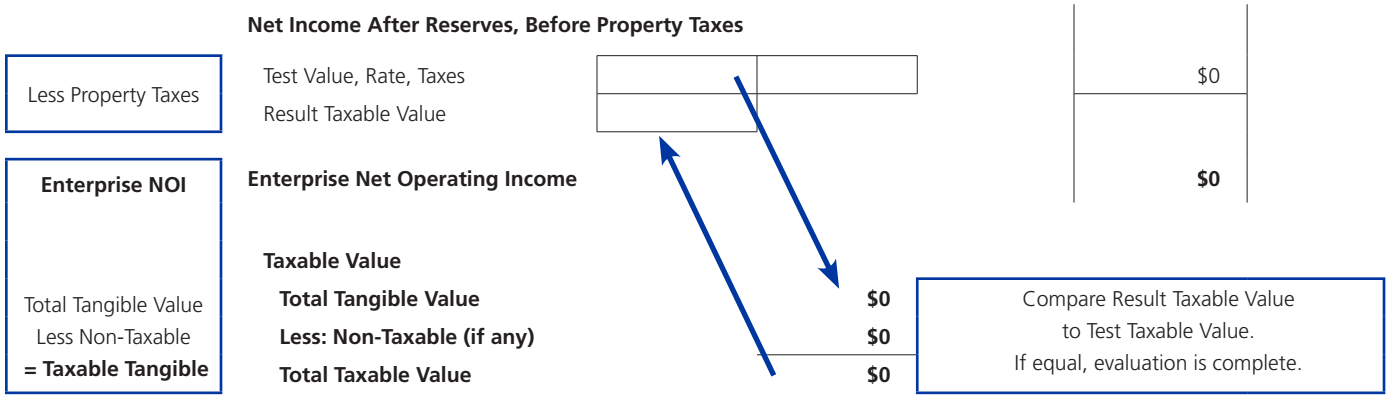
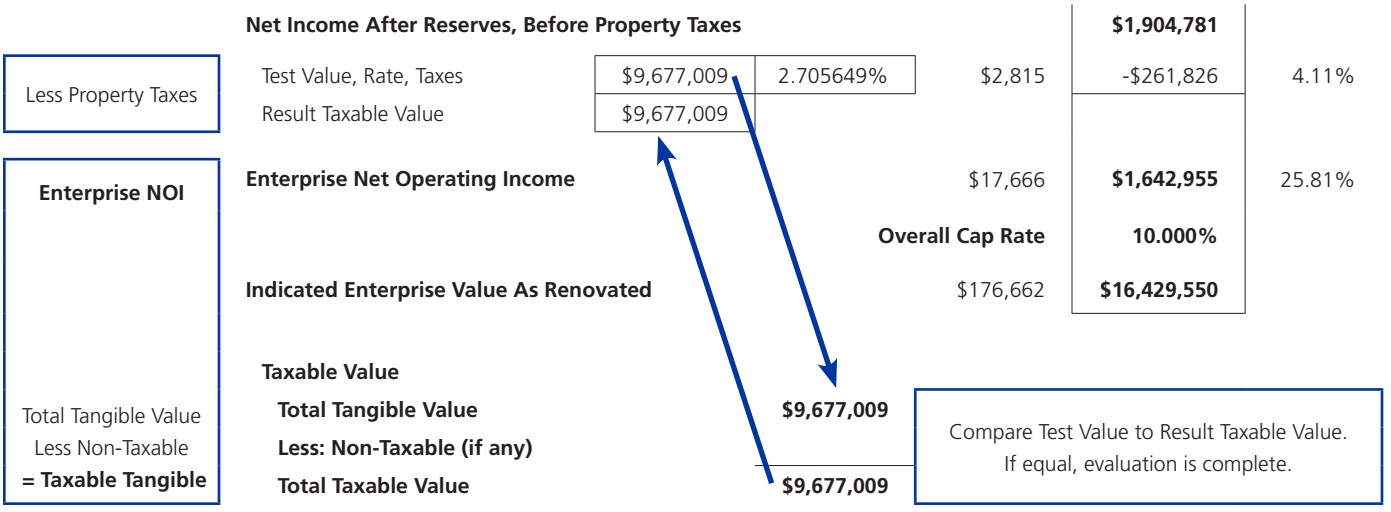


Exhibit 5 Results of Property Tax Iterations and Estimate of Enterprise Value



becomes that use that generates the highest net value to the land. During this highest and best use, land residual process, the land is patient and ignorant. At the point that the land's highest and best use and its value are identified, however, land becomes knowledgeable and demanding of its net benefits ahead of the improvements. Therefore, the Year 1 net productivity owed to the land component can be calculated by multiplying the value of the land as if vacant by the market land capitalization rate (both as of the valuation date).

Capital layer attributable to real property improvements. The second layer of hotel capital consists of the real property improvements. Without the real property improvements there is no hotel and no business. It follows, therefore, that real property improvements are ahead of the business in terms of the priority of the receipt of net benefits. It also follows that a passive investor in this layer of the enterprise would prudently seek recapture of, and a return on, capital.

Instead of assigning expenses as being indicative of component values or projecting future benefits, allocations, reversions, etc., this capital layer can simply be amortized for purposes of allocation of enterprise net operating income. The real property improvements are long-term assets that should be amortized over an extended period. The amortization period can vary by property and specific circumstance, but it is essentially the typical economic life of a new hotel of similar quality and type of construction as the subject property (absent major incurable obsolescence, whether functional or external).

For example, newer Class A, Tier 1 assets could be amortized over 45–60 years. Older Class A and newer Class B, Tier II assets might logically be amortized over 35–50 years, with older Class B and all Class C, Tier III assets amortized over 30–40 years. These are wide ranges, certainly, but well within the scope of a professional analyst to refine and justify based on construction type, quality, age, and remaining economic life of the improvements as well as location and market trends. There are additional checks and balances that will be discussed later.

Cost new of real property improvements are amortized over a typical period of economic life solely for the purpose of income allocation (as contrasted with valuation). Therefore, it is appropriate to use replacement cost new of the real property improvements as of the valuation date as the capital amount to be amortized. The actual value of the real property improvements will be addressed differently later.

The last component of the amortization puzzle relates to the appropriate yield rate for the capital layer for real property improvements (which is not known and is not readily available). What is reasonably available is the enterprise yield rate for similar hotels. Therefore, assume for the moment that the yield rate on the real property improvements might approach, but should not

exceed, the enterprise yield rate for the tier and class of the subject hotel. The enterprise yield rate then tends to set an upper limit of amortization yield rate for the real property improvements' layer of capital.

Recognize that while the investment in real property improvements is being amortized for purposes of allocation of enterprise net income, no actual rental or transfer of ownership of the real property improvements is contemplated. Nor is this allocation meant to imply a fixed or restricted income for the real property improvements. Therefore, it is appropriate to consider the amortization yield rate for this capital layer as a floor yield rate, not a target or cap. With no actual limit being placed on future income or disposition proceeds attributable to the real property improvements, any future net benefits that exceed the floor amortization benefits increase the profit and the realized yield rate on this capital layer.

Depending on the specific property, location, and market conditions, a cogent argument exists that the floor amortization rate for real property hotel improvements should be less than the enterprise hotel yield rate but somewhat competitive with investments in other real property types in (essentially) the same quality tier and risk class as the subject. That is, the floor yield rate for a Class A, Tier 1 hotel should somewhat reflect yield rates available in other real property types of Class A, Tier 1 quality. Class B, Tier II and Class C, Tier III floor yield rates for hotels should somewhat reflect the yield rates available in other real property types in those respective tiers. For example, the quarterly Situs RERC Real Estate Report includes summaries of market data relating to pre-tax yields (internal rate of return) and going-in capitalization rates for each region of the United States for each of three tiers of property quality and class. Exhibit 6 shows an excerpt from the Situs fourth quarter 2015 report for Tier 1 properties in the South Region. (Note, Exhibit 6 data relates to a different property class and tier than the case study property in this article.)

Hotels tend to exhibit higher going-in capitalization rates and higher yield-rate expectations than other property types in the same quality tier. Logically, much of this difference is attributable to the risks and intangible components inherent to hotels compared to the other property types shown.

Returning to capital layer evaluations, the floor yield rate for real property improvements tends to fall within a relatively narrow range between the enterprise yield rate on the high side

Exhibit 6 Example of Capitalization Rate and Yield Rate Market Data

Situs RERC® Regional Investment Criteria - 4Q 2015 | First-Tier[1] Investment Properties

	Office		Industrial			Retail			Apartment	Student Housing	Hotel
	CBD	Suburban	Warehouse	R&D	Flex	Regional Mall	Power Center	Neigh/ Comm			
South Investment Criteria											
Pre-tax Yield (IRR) (%)											
Range	5.5 - 9.3	6.5 - 11.0	6.0 - 10.3	7.0 - 10.0	7.3 - 10.3	6.0 - 10.3	7.0 - 10.5	6.5 - 10.3	5.8 - 9.8	7.0 - 9.5	8.0 - 10.5
Average	7.9	8.9	8.6	8.7	8.9	8.2	8.7	8.7	7.8	8.1	9.3
Going-In Cap Rate (%)											
Range	5.0 - 8.5	6.0 - 9.5	5.0 - 8.3	6.0 - 9.0	6.0 - 9.0	5.0 - 8.3	5.5 - 8.3	5.5 - 9.0	4.0 - 7.3	5.0 - 8.5	6.5 - 8.5
Average	6.7	7.3	7.0	7.4	7.3	6.6	6.9	7.0	5.9	6.9	7.7
Terminal Cap Rate (%)											
Range	5.0 - 9.0	6.5 - 10.0	5.5 - 9.3	6.5 - 9.5	6.5 - 9.5	6.0 - 9.3	6.3 - 9.5	6.0 - 9.3	5.0 - 8.5	5.5 - 9.0	7.0 - 9.3
Average	7.4	8.0	7.6	8.0	7.9	7.5	7.7	7.6	6.6	7.5	8.2

[1] First-tier investment properties are defined as new or newer quality construction in prime to good locations.
A list of Situs RERC® Defined Regions is located in the back of this report in the "Scope and Methodology" section.

and at or slightly below the yield rates for other types of real property of the same class and tier as the subject. The "at or below" acknowledges that, in some cases, the upside potential of the subject hotel real property improvements is sufficient to justify a floor amortization yield rate somewhat below the prevailing target yield rates of other property types of similar class and grade as the subject hotel.

Based on the Situs RERC data above, the floor rate for a Tier 1 hotel in the South region for the fourth quarter of 2015 might fall between 7.0% and 8.5%, depending on the market, specific characteristics, and location of the hotel being valued. As with almost any complex asset, valuation training, experience, and judgment are crucial components of the process and conclusions.

Capital layer attributable to FF&E (personal property). The third layer of hotel capital consists of FF&E. Like the real property improvements, there is no hotel business without the FF&E. And, like the real property improvements, the replacement cost new of the FF&E is amortized to provide a recapture of, and return on, this layer of capital. In this case, though, the FF&E yield rate is the target, not floor rate of profit.

The FF&E component varies significantly according to type and quality of hotel. While creating a reasonable schedule of costs and lives for the FF&E layer may take time, it is a fairly basic process for a professional appraiser or hotel investment analyst.

As before, the enterprise yield rate tends to set an upper limit for the FF&E because of the risk associated with the intangible business component compared to the FF&E. Further, the yield rate for FF&E should be somewhat higher than the floor yield rate applied to real property improvements because the FF&E rate is the target, not the floor rate. Finally, used FF&E tends to lose value quickly and lacks the appreciation opportunity inherent in the real property improvements. Therefore, the range of applicable yield rates for the FF&E layer of capital is narrower than for the real property improvements.

Note, the amortization of cost new of real property improvements and FF&E assets does not mitigate the appropriateness of or the need to deduct capital reserves when developing the net operating income for the enterprise. Amortization of the capital layers for the real property improvements and FF&E provide recapture of and return on prior investments made in those capital layers.

Capital reserves are directed toward the future replacements within those capital layers. Such replacements are necessary for the preservation of wealth and continued competitive operation of the hotel. The absence of a funded capital reserve would periodically have a negative impact on the net income for the total enterprise and, correspondingly, the component layers of capital. In short, it is not double counting to amortize past investments for purposes of income allocation while reserving for future capital replacements out of net income annually.

Capital layer income allocation summary. Of the four capital layers defined, the recapture of, and return on, three of them have been addressed. Deducting the Year 1 return on the land capital layer plus the floor amortization of replacement cost new of real property improvements plus the amortization of replacement cost new of FF&E leaves the net operating income attributable to the business components (intangible assets) of the enterprise (a hotel, in this example, but essentially any property type involving significant intangible value).

The business component is the last layer of capital, with the lowest priority in terms of the receipt of net benefits. This is logical because the business does not exist without the investment in and preservation of the other three capital layers. It should also follow that in cases of different owners of the various layers of the hotel enterprise, the business would have to pay rent on the land, rent on the real property improvements, and rent on the FF&E before paying itself. Otherwise, the business would be unable to use the other components and would cease to exist. Exhibit 7 shows the application of this approach, with allocations to the land, real property improvements and FF&E of the case study property. Keep in mind that the final results are after the iterative process relating to property taxes. (The iterative process is presented in detail later.)

The land was valued using the sales comparison approach. Applying the land capitalization rate from the market indicates that the capital layer for land should receive the cash flow shown.

The replacement cost new of the real property

Exhibit 7 Allocations of Net Income to Tangible Layers and Extraction of Business Net Income

	Net Income After Reserves, Before Property Taxes					**$1,904,781**
Less Property Taxes	Test Value, Rate, Taxes	$9,677,009	2.705649%		$2,815	-$261,826
	Result Taxable Value	$9,677,009				
Enterprise NOI	**Enterprise Net Operating Income**				$17,666	**$1,642,955**
					Overall Cap Rate	**10.000%**
	Indicated Enterprise Value As Renovated				$176,662	**$16,429,550**
	Enterprise Component Cash Flow Analysis					
Less Land Cash Flow						**Cash Flow**
	LAND	**Market Land Value**	**Land Rate**			
		$1,000,000	6.000%			**$60,000**
Less Real Prop Imp Cash Flow	**REAL PROPERTY IMP**	**Cost New**	**Years**	**Yield Rate**		
	(quarterly compounding)	$7,281,250	30	8.000%		**$642,151**
Less FF&E Cash Flow	**FF&E Per Room**	$25,000				
	Total FF&E	$2,325,000	10	8.500%		**$347,465**
	(quarterly compounding)					
	TANGIBLE ASSET CASH FLOW					**$1,049,616**
Equals **Intangible Cash Flow**	ENTERPRISE NET OPERATING INCOME				$1,642,955	
	LESS: TANGIBLE ASSET CASH FLOW				-$1,049,616	
	BUSINESS NET INCOME					**$593,339**

improvements was estimated using Marshall Valuation Service. The estimate of reasonable cash flow for the real property improvements is based on a 30-year amortization at a floor yield rate of 8% (compounded quarterly). Remember, the subject is a 90-year old, 12-story hotel with no parking, built on a 5,000-square-foot lot. These factors resulted in a shorter amortization period and higher floor yield rate than one might expect based solely on the economic performance exhibited by the example property.

The FF&E cost new used in the example is based on the recently completed replacements. The cash flow calculation to FF&E is based on a 10-year amortization at a target yield rate of 8.5% (compounded quarterly).

The analysis in Exhibit 7 represents the estimated net income (cash flow) attributable to, and necessary to service, each of the tangible asset layers. By deducting tangible cash flow allocations from the total enterprise net operating income, an estimate of the net productivity attributable to the business (intangible) assets can be developed.

The preceding allocations of net income for the tangible assets are not a function of, or impacted by, the enterprise net operating income. Any enterprise net income remaining after deduction of the tangible assets' income is residual business (intangible) income. Also, the residual business net income could be relatively small or even negative in start-up and turnaround situations until such point as stabilized operations are attained. Given that there is no business without the tangible assets, this possibility should be logical. In such scenarios, the

appraiser may need to project the income, expenses, and values as if the property has attained stabilized operations and include a hypothetical condition in the valuation in compliance with Uniform Standards of Professional Appraisal Practice. Depending on the specific situation, the appraiser may also need to consider time-value discounting if providing a current, as is value.

Capital Layer Evaluation Steps 4 and 5: Extract the Business Capitalization Rate and Estimate the Business Value Using Capitalization

The enterprise capitalization rate is the projected Year 1 cash flow rate for the total enterprise, which consists of the four layers of capital. It stands to reason that the cash flow rates of the component capital layers are represented in, and contribute to, the enterprise overall capitalization rate for hotels.

By applying a concept similar to a reverse cash flow band of investments, it is possible to isolate and extract the implied business capitalization rate. In this case, however, the weighted contributions to the overall rate are simply the percent that each tangible property component's cash flow (developed previously) represents of the Year 1 enterprise net income.

After estimating the contributions of weighted cash flow rates for the initial three tangible capital layers, the remaining contribution is attributable to the business. The business contribution to the enterprise capitalization rate, divided by the percent that business net income is of total enterprise net income, equals the business capitalization rate.[2]

The value of the business (intangible assets) becomes the simple capitalization of the business net income divided by the business capitalization rate—or, if you prefer, the business net income times the multiplier for earnings before interest, taxes, depreciation, and amortization (EBITDA). Exhibit 8 shows the extraction of the business capitalization rate from the case study hotel.

Note that the weighted average concept used in capital layer evaluations does not correlate component weights to a denominator tied to total value as in traditional cash flow band of investments. The weights used in this presentation are tied to Year 1 component cash flows relative to total enterprise cash flow since component cash flows were not developed relative to total value.

The enterprise overall capitalization rate is the Year 1 cash flow rate for the total enterprise. Within the enterprise capital rate are the contributions of the four layers of capital: land, real property improvements, FF&E, and business. The cash flow to land is based on land value and the initial market land capitalization rate. The cash flow attributable to real property improvements is based on amortization of cost new at a floor yield rate. The cash flow attributable to FF&E is based on amortization of cost new at an appropriate target yield rate for that component. The business net income is the residual net income after deducting the cash flows for the three tangible components from total enterprise net operating income. When added, the weights of the four layers of capital total 1 or 100% of enterprise cash flow, but none of the weights are based on their respective capital layer's ratio or relationship to total value.

Traditional allocations of improvements versus land, or market allocations of mortgage capital versus equity capital, are tied to value and do not apply in situations where substantial net income and value are related to intangible assets. The reason is that there are no rules of thumb or market weights for components (such as mortgage and equity ratios) that relate those components to enterprise value. It is this weighting between tangible and intangible components, plus the weighting within the three tangible components, that create challenges in valuing the multiple components of complex enterprises with both substantial tangible and intangible assets.

Capital Layer Evaluation Step 6: Extract Total Tangible Asset Value

Next, the total tangible asset value is extracted. The business value, developed by capitalization, is subtracted from the enterprise value, also developed by capitalization. Exhibit 9 shows the extraction of the total tangible asset value for the case study hotel property.

2. For investment bankers, the reciprocal of the business capitalization rate (1/business capitalization rate) is the EBITDA multiplier for the business value after capital reserves.

Exhibit 8 Example Extraction of Business Capitalization Rate and Value of Business

Intangible Cash Flow	**BUSINESS NET INCOME**				**$593,339**
Enterprise Cash Flow Rate	**Weighted Avg Cash Flow Rate Analysis**				
Less Land Contribution	Enterprise OAR			0.100000	
Less Real Prop Imp Contrib		% of Yr 1 Cash Flow	Rate	Contribution to R	
Less FF&E Contrib	Land	3.652%	6.000%	0.002191	
= Intangible Contrib	Real Prop Improvements	39.085%	8.819%	0.034470	
÷ Bus Cash Flow %	FF&E	21.149%	14.945%	0.031606	
= Business Cap Rate	Intangible Contribution	36.114%		0.031733	
		100.00%		**Business Cap Rate**	**8.787%**
			Bus EBITDA Multiplier	11.3806	
Bus NOI					
÷ Bus Cap Rate			Business NOI	Bus OAR	
= **Business Value**	**BUSINESS (INTANGIBLE) VALUE**		$593,339	8.787%	**$6,752,541**

Exhibit 9 Extraction of Total Tangible Asset Value

	Enterprise Component Value Analysis			
			Per Room	
Enterprise Value	**Indicated Enterprise Value As Renovated**		$176,662	**$16,429,550**
Less Intangible Value	**Less: Business (Intangible) Value**	41.100%	$72,608	**-$6,752,541**
= Tangible Asset Value	**Tangible Asset Value**		$104,054	**$9,677,009**

Capital Layer Evaluation Step 7: Estimate FF&E Value and Land Value to Extract Value of Real Property Improvements

To estimate the value of real property improvements, the FF&E value and the land value are subtracted from the tangible asset value.

Capital layer—FF&E (personal property). The value of FF&E is the replacement cost new of the FF&E as of the valuation date, less accrued depreciation as of the same date. Since physical age and effective age can differ, the recommended formulas for estimating depreciation and the value of FF&E are as follows:

$$\% \text{ Depreciation} = \frac{\text{Effective Age}}{(\text{Effective Age} + \text{Remaining Economic Life})}$$

$$\text{FF\&E Value} = \text{FF\&E Cost New} \times (1 - \% \text{ Depreciation})$$

One could possibly argue in favor of accelerated depreciation based upon an observation that FF&E tends to lose value quickly and that the sale of used FF&E might not recover the unamortized capital using straight-line depreciation. However, in the absence of a liquidation scenario, straight-line depreciation closely approximates the value in use of FF&E during a normal life/replacement cycle. Therefore, straight-line depreciation is recommended in valuing the FF&E.

Capital layer—land. Land is most often and most accurately valued by a sales comparison approach with full consideration of the highest and best use of the land as if vacant.

Capital layer—real property improvements. At this point, we can deduct the land value and the FF&E value from the total tangible value to extract the value of the real property improvements, as shown in Exhibit 10. Note that the indicated value of the real property improvements compared to the cost new estimate of those improvements provides a very nice opportunity for extraction of depreciation for use in the cost approach for the real property improvements.

Capital Layer Evaluation Step 8: Estimate Total Taxable Tangible Value

Once the values of the tangible capital layers are developed, it is necessary to determine the value of tangible assets that are subject to property taxation. Exhibit 11 shows the process for estimating the total taxable tangible value. Keep in mind that some states tax all tangible assets, while others do not. Therefore, the appraiser must determine which tangible assets are not taxable and deduct the value(s) of nontaxable tangible assets from the total tangible asset value.

Iterative Process

The preceding exhibits and analyses for the example property are based on the results of the iterative process referenced throughout this article. It is now time to discuss that iterative process in detail and to demonstrate a manual iterative process as well as a more automated approach using standard spreadsheet tools.

In order to develop an estimate of enterprise value, the iterations to resolve the property tax issue must be used. Anyone who has manually calculated an investment yield rate understands that you must discount future benefits to a present value at a test yield rate that is below the actual yield rate and a second test rate that is above the actual yield rate. Then, using iterations and/or interpolation, an approximation of yield rate is possible with the most accurate interpolation results occurring when the test rates used are relatively close to the actual yield rate. The process of testing rates becomes one of trial and error.

To address the property tax dilemma presented by complex enterprises, such as hotels and nursing homes, we rely on trial and error because of multiple interdependent unknowns. In this case, the iterative process continues until the total taxable value *after property taxes* equals the test value used in projecting property

Exhibit 10 Extraction of Value of Real Property Improvements

Enterprise Component Value Analysis

			Per Room	
Enterprise Value	**Indicated Enterprise Value As Renovated**		$176,662	**$16,429,550**
Less Intangible Value	**Less: Business (Intangible) Value**	41.100%	$72,608	**-$6,752,541**
= Tangible Asset Value	**Tangible Asset Value**		$104,054	**$9,677,009**
	Tangible Asset Value		**$9,677,009**	
	FF&E Cost New	$2,325,000		
Less	**FF&E Depreciation**	-$232,500		
FF&E Value	**FF&E Value**	$2,092,500	**-$2,092,500**	
= Real Property Value	**Total Real Property Value**		**$7,584,509**	
Less				
Land Value	**Land Value**	**$1,000,000**	**-$1,000,000**	
= Real Prop Imp Value	**Real Property Improvement Value**		**$6,584,509**	

Exhibit 11 Estimate of Total Taxable Tangible Value

	Enterprise Component Value Analysis			
			Per Room	
Enterprise Value	**Indicated Enterprise Value As Renovated**		$176,662	**$16,429,550**
Less Intangible Value	**Less: Business (Intangible) Value**	41.100%	$72,608	**-$6,752,541**
= Tangible Asset Value	**Tangible Asset Value**		$104,054	**$9,677,009**
	Taxable Value			
Total Tangible Value	**Total Tangible Value**	**$9,677,009**	Compare Test Value to Result Taxable Value. If equal, evaluation is complete.	
Less Non-Taxable	**Less: Non-Taxable (if any)**			
= Taxable Tangible	**Total Taxable Value**	**$9,677,009**		

taxes in the evaluation operating statement.

Recall that Exhibit 4 shows the concept of the iterative process and what happens between estimating a test taxable value and extracting the resulting taxable value at the end of the analysis. If the taxable value result at the end of the analyses equals the test value used to estimate property taxes in the beginning of the analyses, the evaluation is complete. However, if the values are not the same, additional iterations are required until the test and result values match. Exhibit 12 shows the iterative process results for the case study hotel. Exhibit 13 provides a concise summary of the iterative process.

Manual and Automated Iterative Processes

The iterative process to determine taxable value can be done manually or using the standard automated tools in most spreadsheet applications. Exhibit 14 shows a manual iteration where the initial test value is zero. By inputting test values in the projected operating statement, the iterative process continues until the evaluation taxable value equals the test taxable value.

Manual iterative process. Although the manual iterative process may sound cumbersome and inelegant, it typically takes very little time. For example, without any property taxes, the total taxable value indicated in Exhibit 14 is $9,710,011. It should be obvious that including property taxes in operating expenses will lower this value. Therefore, pick an initial test value below $9,710,011, for example, $9,500,000. The estimate increases operating expenses for taxes and lowers both net income and the value indication. The summary results of the first value test are as follows:

Test Value, Rate, Taxes	$9,500,000
Result Taxable Value	**$9,677,827**

Since the indicated value is above the test value, the test value needs to be increased. Conversely, if the test value exceeds the resulting value, the test value would need to be reduced. Let's increase the test value to $9,600,000, which yields the following results:

Test Value, Rate, Taxes	$9,600,000
Result Taxable Value	**$9,677,524**

You can see that the resulting value continues to hover around $9,677,000. The reason is that the major impacts are to business value, not taxable value. Next, let's test $9,677,000.

Test Value, Rate, Taxes	$9,677,000
Result Taxable Value	**$9,677,009**

Then, let's test the prior result, $9,677,009.

Test Value, Rate, Taxes	$9,677,009
Result Taxable Value	**$9,677,009**

Since the values are now equal, the evaluation is complete.

Automated spreadsheet solution. Although the total time elapsed to test multiple values manually was very short, an even easier alterative

Exhibit 12 Results of Iterative Process for Example Property

	Net Income After Reserves, Before Property Taxes			**$1,904,781**	
Less Property Taxes	Test Value, Rate, Taxes	$9,677,009	2.705649%	-$261,826	4.11%
	Result Taxable Value	$9,677,009			
Enterprise NOI	**Enterprise Net Operating Income**		$17,666	**$1,642,955**	25.81%
			Overall Cap Rate	**10.000%**	
Enterprise Value Less Intangible Value	**Indicated Enterprise Value As Renovated**		$176,662	**$16,429,550**	
	Less: Business (Intangible) Value	41.100%	$72,608	**-$6,752,541**	
= Tangible Asset Value	**Tangible Asset Value**		$104,054	**$9,677,009**	

	Taxable Value		
Total Tangible Value	**Total Tangible Value**	**$9,677,009**	Compare Test Value to Result Taxable Value. If equal, evaluation is complete.
Less Non-Taxable	**Less: Non-Taxable (if any)**		
= Taxable Tangible	**Total Taxable Value**	**$9,677,009**	

Exhibit 13 Iterative Process Summary

	Net Income After Reserves, Before Property Taxes			
Less Property Taxes	Test Value, Rate, Taxes			$0
	Result Taxable Value			
Enterprise NOI	**Enterprise Net Operating Income**			**$0**

Steps between the estimate of enterprise NOI and extraction of taxable value

- Develop enterprise capitalization rate and estimate enterprise value
- Estimate the net income necessary to service the tangible layers of capital
- Extract business net income
- Extract business capitalization rate
- Develop business value using capitalization
- Extract total tangible value
- Develop value of FF&E
- Extract total real property value
- Develop value of land
- Extract value of real property improvements

	Taxable Value		
Total Tangible Value	**Total Tangible Value**	**$0**	Compare Test Value to Result Taxable Value. If equal, evaluation is complete.
Less Non-Taxable	**Less: Non-Taxable (if any)**	**$0**	
= Taxable Tangible	**Total Taxable Value**	**$0**	

Exhibit 14 Beginning of Manual Iteration Example, Initial Test Value = $0

	Net Income After Reserves, Before Property Taxes				**$1,904,781**	
Less Property Taxes	Test Value, Rate, Taxes	$0	2.705649%	$0	$0	0.00%
	Result Taxable Value	$9,710,011				
Enterprise NOI	**Enterprise Net Operating Income**			$20,482	**$1,904,781**	29.92%
				Overall Cap Rate	**10.000%**	
	Indicated Enterprise Value As Renovated			$204,815	**$19,047,810**	
	Enterprise Component Cash Flow Analysis					
Less Land Cash Flow					**Cash Flow**	
	LAND	**Market Land Value**	**Land Rate**			
		$1,000,000	6.000%		**$60,000**	
Less Real Prop Imp Cash Flow	**REAL PROPERTY IMP**	**Cost New**	**Years**	**Yield Rate**		
	(quarterly compounding)	$7,281,250	30	8.000%	**$642,151**	
Less FF&E Cash Flow	**FF&E Per Room**	$25,000				
	Total FF&E	$2,325,000	10	8.500%	**$347,465**	
	(quarterly compounding)					
	TANGIBLE ASSET CASH FLOW				**$1,049,616**	
Equals **Intangible Cash Flow**	ENTERPRISE NET OPERATING INCOME			$1,904,781		
	LESS: TANGIBLE ASSET CASH FLOW			-$1,049,616		
	BUSINESS NET INCOME				**$855,165**	
Enterprise Cash Flow Rate	**Weighted Avg Cash Flow Rate Analysis**					
	Enterprise OAR			0.100000		
Less Land Contribution		% of Yr 1 Cash Flow	Rate	Contribution to R		
Less Real Prop Imp Contrib	Land	3.150%	6.000%	0.001890		
	Real Prop Improvements	33.713%	8.819%	0.029732		
Less FF&E Contrib	FF&E	18.242%	14.945%	0.027262		
= Intangible Contrib	Intangible Contribution	44.896%		0.041116		
÷ Bus Cash Flow %		100.00%		**Business Cap Rate**	**9.158%**	
= Business Cap Rate			Bus EBITDA Multiplier	10.9193		
Bus NOI						
÷ Bus Cap Rate			Business NOI	Bus OAR		
= **Business Value**	**BUSINESS (INTANGIBLE) VALUE**		$855,165	9.158%	**$9,337,799**	

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Exhibit 14 (*continued*)

	Enterprise Component Value Analysis			
			Per Room	
Enterprise Value Less Intangible Value	**Indicated Enterprise Value As Renovated**		$204,815	**$19,047,810**
	Less: Business (Intangible) Value	49.023%	$100,406	**-$9,337,799**
= Tangible Asset Value	**Tangible Asset Value**		$104,409	**$9,710,011**
	Tangible Asset Value		**$9,710,011**	
	FF&E Cost New	$2,325,000		
Less	**FF&E Depreciation**	-$232,500		
FF&E Value	**FF&E Value**	$2,092,500	**-$2,092,500**	
= Real Property Value	**Total Real Property Value**		**$7,617,511**	
Less				
Land Value	**Land Value**	**$1,000,000**	**-$1,000,000**	
= Real Prop Imp Value	**Real Property Improvement Value**		**$6,617,511**	
	Taxable Value			
Total Tangible Value	**Total Tangible Value**	**$9,710,011**	Compare Test Value to Result Taxable Value. If equal, evaluation is complete.	
Less Non-Taxable	**Less: Non-Taxable (if any)**			
= Taxable Tangible	**Total Taxable Value**	**$9,710,011**		

exists using a spreadsheet such as Excel. For the automated process, set the cells for "Test Value, Rate, Taxes" and "Result Taxable Value" (shown at top of Exhibit 14) equal to the cell reference for "Total Taxable Value" (bottom of Exhibit 14). You will receive a Circular Error message. From the spreadsheet menu, select Tools, Options, Calculation. Under Calculation options click the Iteration box. Excel then will do the necessary trial and error iterations for you automatically.

As stated, when the results in Taxable Value and Test Value cells match, the process is complete because the test value and taxes thereon result in a taxable value after property taxes equal to the test value. Exhibit 15 shows the total analysis for the case study hotel property using capital layer evaluations.

Sensitivity Analysis

Considering the preceding discussion, the natural next question relates to the sensitivity of capital layer evaluations. Let's investigate that issue.

Through the iterative process the enterprise net operating income before property taxes should not change, but property taxes will change, thereby altering enterprise net operating income after property taxes and enterprise value.

The land value, land capitalization rate, FF&E cost, and FF&E amortization should be reasonably straightforward and not subject to material variances for a given property at a given point in time. However, the amortization period and floor yield rate for real property improvements might be subject to wider variances that, in turn, would alter business income, business capitalization rate, and business value.

A change in business value changes the total tangible value. This is because a change in business value changes the value for real property improvements, which changes taxable value, which changes property taxes, enterprise value, and business value (the iterative impacts).

Therefore, to test sensitivity, let's make material changes relating to the amortization period and floor yield rate applied to the example hotel's real property improvement. In this sensitivity analysis, the amortization of cost new of real

Exhibit 15 Valuation Example Using Capital Layer Evaluations

Income Analysis

Project:	**No Flag Hotel**	Gross Bldg Area:	**58,250**
Economic Unit:	**Name Withheld**	# of Rooms:	**93**
Type Property:	**Old Hotel Renovated**	Actual Occ %:	**76.15%**

Income			Market				% of EGI
Room Types, Rates & Occupancy	Room Revenues	Rooms	ADR	Mkt Occ %	Rev/PAR	Eff Rm Rev	
	Avg Room Sales	93	$198.43	76.15%	$151	$5,129,416	80.58%
	Room Revenues	93	**$198.43**	**76.15%**	$151	**$5,129,416**	80.58%
Other Income	**Ancillary Income**			% Rm Rev	$/Room/Yr		
	Food & Beverage				$12,407	$1,153,832	18.13%
	Other Dept				$0	$0	0.00%
	Other				$887	$82,515	1.30%
Effective Gross	**Effective Gross Income**				$68,449	$6,365,763	100.00%
Less Departmental Expenses	**Departmental Expenses**			% Dept Rev	$/Room/Yr		
	Rooms				$12,702	-$1,181,297	18.56%
	Food & Beverage			94.63%		-$1,091,854	17.15%
	Other Dept				$332	-$30,910	0.49%
	Other				$179	-$16,639	0.26%
	Total Department Expenses				$24,954	-$2,320,700	36.46%
Less Undistributed Expenses Excluding Property Taxes	**Undistributed Operating Expenses**			% EGI	$/Room/Yr		
	Administrative				$7,699	-$716,032	11.25%
	Marketing				$2,189	-$203,561	3.20%
	Management			4.00%		-$254,831	4.00%
	Utilities				$1,743	-$162,141	2.55%
	Maintenance				$3,873	-$360,204	5.66%
	Security				$0	$0	0.00%
	Franchise Fee				$0	$0	0.00%
	Misc Operating				$272	-$25,312	0.40%
	Insurance				$1,074	-$99,913	1.57%
	Capital Reserves			5.00%		-$318,288	5.00%
	Total Undistributed Expenses Before Prop Taxes				$23,014	-$2,140,282	33.62%
	Net Income After Reserves, Before Property Taxes					**$1,904,781**	

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Exhibit 15 (*continued*)

	Net Income After Reserves, Before Property Taxes				**$1,904,781**	
Less Property Taxes	Test Value, Rate, Taxes	$9,677,009	2.705649%	$2,815	-$261,826	4.11%
	Result Taxable Value	$9,677,009				
Enterprise NOI	**Enterprise Net Operating Income**			$17,666	**$1,642,955**	25.81%
				Overall Cap Rate	**10.000%**	
	Indicated Enterprise Value As Renovated			$176,662	**$16,429,550**	
	Enterprise Component Cash Flow Analysis					
Less Land Cash Flow					**Cash Flow**	
	LAND	**Market Land Value**	**Land Rate**			
		$1,000,000	6.000%		**$60,000**	
Less Real Prop Imp Cash Flow	**REAL PROPERTY IMP**	**Cost New**	**Years**	**Yield Rate**		
	(quarterly compounding)	$7,281,250	30	8.000%	**$642,151**	
Less FF&E Cash Flow	**FF&E Per Room**	$25,000				
	Total FF&E	$2,325,000	10	8.500%	**$347,465**	
	(quarterly compounding)					
	TANGIBLE ASSET CASH FLOW				**$1,049,616**	
Equals **Intangible Cash Flow**	ENTERPRISE NET OPERATING INCOME			$1,642,955		
	LESS: TANGIBLE ASSET CASH FLOW			-$1,049,616		
	BUSINESS NET INCOME				**$593,339**	
Enterprise Cash Flow Rate	**Weighted Avg Cash Flow Rate Analysis**					
	Enterprise OAR			0.100000		
Less Land Contribution		% of Yr 1 Cash Flow	Rate	Contribution to R		
	Land	3.652%	6.000%	0.002191		
Less Real Prop Imp Contrib	Real Prop Improvements	39.085%	8.819%	0.034470		
Less FF&E Contrib	FF&E	21.149%	14.945%	0.031606		
= Intangible Contrib	Intangible Contribution	36.114%		0.031733		
÷ Bus Cash Flow %		100.00%		**Business Cap Rate**	**8.787%**	
= Business Cap Rate			Bus EBITDA Multiplier	11.3806		
Bus NOI ÷ Bus Cap Rate = **Business Value**			Business NOI	Bus OAR		
	BUSINESS (INTANGIBLE) VALUE		$593,339	8.787%	**$6,752,541**	

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Exhibit 15 (*continued*)

	Enterprise Component Value Analysis			
			Per Room	
Enterprise Value	**Indicated Enterprise Value As Renovated**		$176,662	**$16,429,550**
Less Intangible Value	**Less: Business (Intangible) Value**	41.100%	$72,608	**-$6,752,541**
= Tangible Asset Value	**Tangible Asset Value**		$104,054	**$9,677,009**
	Tangible Asset Value		**$9,677,009**	
	FF&E Cost New	$2,325,000		
	FF&E Depreciation	-$232,500		
Less FF&E Value	**FF&E Value**	$2,092,500	**-$2,092,500**	
= Real Property Value	**Total Real Property Value**		**$7,584,509**	
Less Land Value	**Land Value**	**$1,000,000**	**-$1,000,000**	
= Real Prop Imp Value	**Real Property Improvement Value**		**$6,584,509**	
	Taxable Value			
Total Tangible Value	**Total Tangible Value**	**$9,677,009**	Compare Test Value to Result Taxable Value. If equal, evaluation is complete.	
Less Non-Taxable	**Less: Non-Taxable (if any)**			
= Taxable Tangible	**Total Taxable Value**	**$9,677,009**		

property improvements is increased by 50% (from 30 years to 45 years) and the floor yield rate on real property improvements is decreased by 12.5% (from 8.0% to 7.0%). Keep in mind that these changes to test sensitivity are significantly more than would be typical for a market range for a specific property at a specific point in time. Also, realize that such material changes in a valuation using traditional techniques would be likely to result in major value swings. Nonetheless, the results in a capital layer evaluation are likely to surprise.

As shown in Exhibits 16 and 17, extending the amortization of real property improvements 50% (from 30 years to 45 years) and lowing the floor yield rate by 12.5% (from 8.0% to 7.0%) changes enterprise value upward only by 0.53%. It changes business net income upward by 19.83%, but only changes business value upward by 6.13%, Other changes include total tangible value down by only 3.32%, real property improvement cash flow down by 16.97%, real property improvement value down by only 4.88%; and total tangible taxable value down by only 3.32%.

The material changes made to test sensitivity essentially exceed normal market variances and exceed the variances that different analysts might reasonably conclude relative to the same property at the same point in time. The more likely real-world scenario would involve a more moderate range of changes and adjustments that would result in even more moderate impacts to the results. This indicates that the value impacts resulting from variances of evaluation metrics in capital layer evaluations are essentially insignificant and well within normal price/value fluctuations that occur naturally within imperfect markets.

Adjustments to Component Values

The capital layer for land typically needs no adjustment, because there are typically no additional future investments necessary to preserve the land. One exception might occur in an evaluation of a proposed hotel if there is an assumption about a required capital expenditure related to the land that has yet to be made as of the valuation date. In such a

Exhibit 16 Sensitivity Analysis

	Net Income After Reserves, Before Property Taxes				**$1,904,781**	
Less Property Taxes	Test Value, Rate, Taxes	$9,355,394	2.705649%	$2,722	-$253,124	3.98%
	Result Taxable Value	$9,355,394				
Enterprise NOI	**Enterprise Net Operating Income**			$17,760	**$1,651,657**	25.95%
				Overall Cap Rate	**10.000%**	
	Indicated Enterprise Value As Renovated			$177,598	**$16,516,570**	
	Enterprise Component Cash Flow Analysis					
Less Land Cash Flow					**Cash Flow**	
	LAND	**Market Land Value**	**Land Rate**			
		$1,000,000	6.000%		**$60,000**	
Less Real Prop Imp Cash Flow	**REAL PROPERTY IMP**	**Cost New**	**Years**	**Yield Rate**		
	(quarterly compounding)	$7,281,250	45	7.000%	**$533,166**	
Less FF&E Cash Flow	**FF&E Per Room**	$25,000				
	Total FF&E	$2,325,000	10	8.500%	**$347,465**	
	(quarterly compounding)					
	TANGIBLE ASSET CASH FLOW				**$940,631**	
Equals **Intangible Cash Flow**	ENTERPRISE NET OPERATING INCOME			$1,651,657		
	LESS: TANGIBLE ASSET CASH FLOW			-$940,631		
	BUSINESS NET INCOME				**$711,026**	
	Weighted Avg Cash Flow Rate Analysis					
Enterprise Cash Flow Rate	Enterprise OAR			0.100000		
Less Land Contribution		% of Yr 1 Cash Flow	Rate	Contribution to R		
	Land	3.633%	6.000%	0.002180		
Less Real Prop Imp Contrib	Real Prop Improvements	32.281%	7.322%	0.023637		
Less FF&E Contrib	FF&E	21.037%	14.945%	0.031440		
= Intangible Contrib	Intangible Contribution	43.049%		0.042743		
÷ Bus Cash Flow %		100.00%		**Business Cap Rate**	**9.929%**	
= Business Cap Rate			Bus EBITDA Multiplier	10.0716		
Bus NOI ÷ Bus Cap Rate = **Business Value**			Business NOI	Bus OAR		
	BUSINESS (INTANGIBLE) VALUE		$711,026	9.929%	**$7,161,176**	

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Exhibit 16 (*continued*)

	Enterprise Component Value Analysis			
			Per Room	
Enterprise Value	**Indicated Enterprise Value As Renovated**		$177,598	**$16,516,570**
Less Intangible Value	**Less: Business (Intangible) Value**	43.358%	$77,002	**-$7,161,176**
= Tangible Asset Value	**Tangible Asset Value**		$100,596	**$9,355,394**
	Tangible Asset Value		**$9,355,394**	
	FF&E Cost New	$2,325,000		
	FF&E Depreciation	-$232,500		
Less FF&E Value	**FF&E Value**	$2,092,500	**-$2,092,500**	
= Real Property Value	**Total Real Property Value**		**$7,262,894**	
Less Land Value	**Land Value**	**$1,000,000**	**-$1,000,000**	
= Real Prop Imp Value	**Real Property Improvement Value**		**$6,262,894**	
	Taxable Value			
Total Tangible Value	**Total Tangible Value**	**$9,355,394**	Compare Test Value to Result Taxable Value. If equal, evaluation is complete.	
Less Non-Taxable	**Less: Non-Taxable (if any)**			
= Taxable Tangible	**Total Taxable Value**	**$9,355,394**		

situation, it would be logical to deduct the yet-to-be-completed investment in the land from the highest and best use land value in order to arrive at an as is land value.

Similarly, yet-to-be-completed business costs should be deducted from the estimate of stabilized business value to arrive at an as is business value. This may be a consideration when the evaluation involves a proposed hotel, one that has yet to achieve stabilized operations, or one that is in a renovation situation. Examples of such possible business cost deductions include a new franchise license, a new reservations system, initial staff training, and marketing.

The other two layers of capital (real property improvements and FF&E) inherently require periodic future capital replacements. It is prudent for the appraiser to consider unfunded reserve amounts as a deduction from the appropriate component value to arrive at an as is value. Similarly, any shortfall in the capital reserve for the real property improvements becomes a deduction from the value of that capital layer.

Recall that the component income allocations will amortize prior costs while capital reserves fund future replacements within each capital layer. For example, if the FF&E cost new is $1,000,000 as of the valuation date and its weighted average life is eight years, the annual reserve is $125,000. A motel that is three years into the eight-year replacement cycle should already be funded to $375,000 in the FF&E reserve. Any shortfall in the FF&E reserve then becomes a logical and necessary deduction from the depreciated value of the FF&E component. As before, this is not double depreciation because part of the net income is amortizing prior FF&E investment and part of the net income is providing for future replacements.

Equally important is the actual condition of the improvements. The amortization of replacement cost new for both FF&E and real property improvements was done for purposes of income allocation. Such an income allocation inherently assumes that the improvements are well maintained and in good condition. However, if the improvements have not been well maintained

Exhibit 17 Comparative Results from Sensitivity Analysis

Sensitivity Analysis	Original Assumptions*	Test Assumptions†	Percentage Change
Enterprise NOI Before Property Taxes	$1,904,781	$1,904,781	
Property Taxes	-$261,826	-$253,124	-3.32%
Enterprise NOI After Property Taxes	$1,642,955	$1,651,657	0.53%
Enterprise Cap Rate	10.00%	10.00%	
Enterprise Value	$16,429,550	$16,516,570	0.53%
Land Value	$1,000,000	$1,000,000	
Land Cash Flow	$60,000	$60,000	
FF&E Cost New	$2,325,000	$2,325,000	
FF&E Cash Flow	$347,465	$347,465	
Real Property Imp Cost New	$7,281,250	$7,281,250	
Real Property Imp Cash Flow	$642,151	$533,166	-16.97%
Business Cash Flow	$593,339	$711,026	19.83%
Business Cap Rate	8.787%	9.929%	13.00%
Business Value	$6,752,541	$7,166,176	6.13%
Total Tangible Value	$9,677,009	$9,355,394	-3.32%
FF&E Value	$2,092,500	$2,092,500	
Total Real Property Value	$7,584,509	$7,262,894	-4.24%
Land Value	$1,000,000	$1,000,000	
Real Property Imp Value	$6,584,509	$6,262,894	-4.88%
Total Tangible Value	$9,677,009	$9,355,394	-3.32%
Less Non-Taxable Tangible Value	$0	$0	
Taxable Tangible Value	$9,677,009	$9,355,394	-3.32%

* Real property improvements amortization period 30 years, floor yield rate 8.0%

† Real property improvements amortization period 45 years, floor yield rate 7.0%

and are not in good condition, the amortization of replacement cost new is probably an overstatement of income allocation without rehabilitation or possibly renovation of existing improvement, depending on the situation and condition. The need for such improvements would necessarily require an evaluation of the property as if the rehabilitation or renovation had been completed. The costs associated with the rehabilitation or renovation would be direct reductions of the value of the improvements as rehabilitated or renovated. These costs may include net income loss during the renovation and the period after renovation until stabilized occupancy is achieved, extraordinary remarketing and other extraordinary costs, and entrepreneurial incentive for the rehabilitation or renovation.

Exhibit 18 shows the summary of adjustments to arrive at an as is value. Note the exhibit shows the adjustments on an overall basis for the enterprise. Obviously, there are numerous steps, schedules, and documentation requirements for each of these. Also, the summary adjustments mentioned could be applied to the value estimates of

Exhibit 18 As Is Values

		Per Room	
Indicated Enterprise Value As Renovated		**$176,662**	**$16,429,550**
Business Intangible Value	$6,752,541	$72,608	**-$6,752,541**
Less: Business Obligations Outstanding	$0	$0	
Business Intangible Value As Is	-$6,752,541	$72,608	
Tangible Asset Value		$104,054	**$9,677,009**
Less: Rehabilitation / Renovation		$17,473	**-$1,625,000**
Less: Real Prop Improvement Reserve Deficiency		$0	$0
Less: FF&E Reserve Deficiency		$0	$0
Less: Land Obligations Outstanding		$0	$0
Total Tangible Value Deductions		$17,473	-$1,625,000
Indicated Total Tangible Asset Value As Is		**$86,581**	**$8,052,009**

each individual capital layer to extract as is values for each layer. Although outside the scope of this article, the processes and discussions would be essentially the same as in any evaluation involving an as renovated value and as is value.

Reasonableness Checks

Capitalization rates and yield rates for hotel enterprises can be discovered and evaluated using market data and published reports. The enterprise yield rate tends to set an upper limit for the amortization yield rates for real property improvements and the FF&E. The yield rates of other property types within the subject's class and tier (or something close thereto) tend to provide a floor. As shown in the sensitivity analysis, material changes in the amortization period and floor amortization yield rate of real property improvements result in significant changes in cash flow allocations to both real property improvements and to the business. However, these large changes in cash flow allocations have very moderate impacts on the values of those component layers of capital.

The moderate impacts to component values are due to the method of business capitalization rate extraction. The business capitalization rate (or its reciprocal) is simply the mathematically extracted result from the reverse weighted average cash flow analysis for the subject property (in contrast with efforts to identify and support a business capitalization rate for which market evidence is seldom available).

Lowering the real property improvement cash flow increases business net income, but it also lowers the contribution of real property improvements to the overall capitalization rate. The result is an increase in the business capitalization rate in the extraction process. A higher business net income capitalized at a higher business capitalization rate results in a more moderate change in business value than the percentage change in business income.

Essentially, then, capital layer evaluations provide a logical methodology for analyzing and allocating the component values within enterprises that are comprised of both tangible assets and significant levels of intangible income and value. (These properties have higher levels of intangible income and value than would be typical of predominately real property investments, such as office buildings, shopping centers, apartments, and warehouses.)

Any material departure from market evidence for enterprise capitalization rates or for development of income allocations for the tangible capital layers should be easily recognized as being out of sync with market parameters. Further, as shown by the sensitivity analysis, the values of real property improvements and the business are

not subject to wide value fluctuation despite material changes in the evaluation parameters for real property improvements (the component where the largest opportunity for reasonable variances occur). Therefore, checks and balances exist in the capital layer evaluations methodology, and manipulation of the process in order to maximize or minimize either tangible or intangible value is likely to be apparent and unsupportable. Capital layer evaluations are not oriented toward maximizing or minimizing either tangible or intangible values. Rather, the focus is on developing reasonable, supportable, and defensible values for all layers.

Case Study: Skilled Nursing Facility

Capital layer evaluations can be applied to a variety of property types, so long as a reasonably supported income capitalization approach can be developed for the enterprise **and** the enterprise involves substantial income and value from the business (intangible) layer of assets. To demonstrate the application of capital layer evaluations method in another enterprise, let us consider a skilled nursing facility with the specifications shown in Exhibit 19. The income and expense categories and operating statement for this type of property are different from those for hotels. However, the capital layer evaluations—from the estimate of enterprise net income before property taxes through the remainder of the evaluations—is the same as in the prior hotel example, as Exhibit 20 demonstrates.

Exhibit 19 Skilled Nursing Facility Specifications

Location:	Large Metro Area
Structure Age:	2 years
Imp SF:	36,476 sq. ft.
Land:	69,748 sq. ft.
Floors:	1
Beds:	120
Condition	Good
Parking:	Surface, Asphalt Paved
Construction:	Wood Frame; Brick Veneer; Ashpalt Shingle Roof

Special-Purpose and High-Intangible Properties

Traditionally, the valuation of special-purpose properties has often been limited to a cost approach because most of these properties are not developed for the generation of net rental income and do not sell with sufficient regularity to lend themselves to sales comparison. In situations where sales do occur, the transaction often involves substantial income and value attributable to the business related to the special-purpose improvements. Such transactions make it possible to discover enterprise capitalization rates or EBITDA multipliers, but the income and value components attributable to the business layer impact and cloud the typical appraisal yardsticks.

The key is being able to value the enterprise by capitalization. With market evidence of an enterprise overall capitalization rate, the rest of the evaluation and valuation of many, many types of properties can be achieved using capital layer evaluations. In addition to hotels and nursing homes, capital layer evaluations may be used in valuing other enterprises, such as bowling centers, bulk oil facilities, casinos, chemical plants, cinemas, computer centers, country clubs, food processing facilities, funeral homes, grain elevators, health care facilities, health clubs, parking structures, refineries, restaurants, bars, salt dome caverns, skating rinks, specialty manufacturing or heavy equipment centers, tennis clubs, and vehicle dealerships.

Conclusions

Historically, the competing theories of hotel and motel valuation have focused on linking specific operating expenses and intangible business value (e.g., management fees, franchise fees, initial staff training costs, and initial marketing). Unanswered questions remain as to whether the currently favored but competing methodologies capture the totality of intangibles that often include a national franchise, national reservations system, national management of and brand awareness for the franchise, local management, and a growing list of services and amenities included in the intangible bundle. The short answer is that the prevailing solutions do not fully address the issues or the scope of income or value for the business.

Capital layer evaluations rely on traditional valuation methods and processes that have been

Exhibit 20 Example Valuation of Skilled Nursing Facility

Income Analysis

Project:	**Convalescent Care Facility**	Total NRA:	**36,476**
Economic Unit:	**Withheld**	# of Units:	**120**
Type Property:	**Skilled Nursing & Specialty Services Facility**	Actual Occ %:	**88.0%**

Potential Gross Income

Rental Source/Type		Patient Days		Gross $	Per Room
Routine Svc - Medicaid		18,195		$2,833,445	$23,612
Routine Svc - Hospice		583		$79,016	$658
Routine Svc - Medicare		6,786		$3,440,635	$28,672
Routine Svc - Private Insurance		6,189		$2,447,766	$20,398
Routine Svc - Private		7,008		$1,151,820	$9,599
Stabilized Weighted Rent & Occ		38,761		$9,952,682	$82,939
Less: Stabilized Vacancy & Collections Allowance				$0	0.00%
Effective Gross - Primary Improvements				**$9,952,682**	**$82,939**
Effective Gross - Secondary	% EGI	$/SF	$/Unit		
Medicare B			$2,480	$297,581	$2,480
Private Insurance			$303	$36,361	$303
Effective Gross Income				**$10,299,028**	**$85,825**
Operating Expenses	% EGI	$/SF	$/Unit		
Management	5.00%			-$514,951	$4,291
Wages			$28,120.68	-$3,374,481	$28,121
Employee Benefits			$4,214.71	-$505,765	$4,215
Ancillary Expenses			$16,457.16	-$1,974,859	$16,457
Contract Services			$10,804.77	-$1,296,572	$10,805
Supplies			$3,202.43	-$384,292	$3,202
Seminars & Travel			$0.00	$0	$0
Licenses & Fees & Dues			$355.66	-$42,679	$356
Bad Debt			$1,884.97	-$226,196	$1,885
Insurance			$587.28	-$70,473	$587
Misc			$0.00	$0	$0
Reserves			$1,000.00	-$120,000	$1,000
Total Expenses Excluding Property Taxes				**-$8,050,920**	**$67,091**
Net Operating Income Before Property Taxes				**$2,248,108**	**$18,734**

CONTINUED >

Exhibit 20 (*continued*)

Net Operating Income Before Property Taxes					**$2,248,108**	**$18,734**
Test Taxble, Rate Taxes		$6,914,947	2.841581%		-$196,494	$1,637
Result Taxable		$6,914,947				
Enterprise Net Operating Income					**$2,051,614**	**$17,097**
		Enterprise Overall Cap Rate			**9.000%**	
Total Enterprise Value					**$22,795,713**	**$189,964**
Enterprise Cash Flow Allocations						
Enterprise Net Operating Income					**$2,051,614**	
				Cash Flow		
LAND	**Land Value**	**Cap Rate**				
	$1,200,000	**6.000%**		**$72,000**		
REAL PROPERTY IMP	**Cost**	**Yrs**	**Yield Rate**			
(quarterly compound)	**New**	**Amortized**	**Per Yr**			
	$5,495,000	**35**	**7.000%**	**$421,831**		
FF&E	**$778,000**	**10**	**8.000%**	**$113,761**		
Total Tangible Cash Flow				**$607,592**	**-$607,592**	
Business (Intangible) Net Income					**$1,444,022**	
Extraction of Business Cap Rate						
		Enterprise Overall Cap Rate		**9.0000%**		
	% of Yr 1 NOI	**Rate**	**Contribution to OAR**			
Land	3.509400%	6.0000%	0.002100			
RE Imp	20.560900%	7.6766%	0.015800			
FF&E	5.545000%	14.6223%	0.008100			
Business	70.384700%		0.064000			
	100.000000%					
		0.064000 divided by 70.384700% = Business Cap Rate			**9.0929%**	
Indicated Business (Intangible) Value					**$15,880,766**	**$132,340**
Total Tangible Value					**$6,914,947**	**$57,625**
Tangible Layer Values						
FF&E Cost New			$778,000			
Less: FF&E Depreciation			-$155,600			
FF&E Value			**$622,400**		**-$622,400**	**$5,187**
Total Real Property Value					**$6,292,547**	**$52,438**
Land Value					**-$1,200,000**	**$10,000**
Real Property Improvement Value					**$5,092,547**	**$42,438**
Total Tangible Value			$6,914,947			
Less: Tangible Not Taxable			$0			
Total Taxable Tangible Value			**$6,914,947**			

turned a couple of degrees in order to help the analyst simplify the complexities of enterprises that include significant income and value from both tangible and intangible components. Capital layer evaluations begin with an allocation of enterprise net operating income into four components. The first three (land, real property improvements, and FF&E) can be estimated using basic investment tenets relating to recapture of, and return on, capital. Deducting tangible component cash flows from enterprise net income leaves the net income attributable to the intangible (business) components.

Using a reverse weighted average cash flow analysis results in the extraction of the business capitalization rate (which can be elusive and subjective) from the enterprise capitalization rate (which is more readily available). Valuing the business (intangible) component then becomes a simple capitalization process. The business value is then deducted from the enterprise value, leaving total tangible asset value that has three components: land, real property improvements, and FF&E. Two of these components (land and FF&E) can be reasonably estimated and deducted from total tangible value to extract real property improvements value.

Property taxes pose a challenge because of multiple, interdependent unknowns. This challenge is addressed using an iterative process (either manual or automated). The process stops when the indicated taxable value equals the test taxable value used to estimate property taxes in the analysis.

Capital layer evaluations offers a logical set of steps to divide the complex enterprise into component parts that can be analyzed and reasonably quantified. Undoubtedly, there will be calls to modify this or that as people consider capital layer evaluations. Therefore, let the tinkering begin!

About the Author

Tom Troll has been involved in multiple facets of commercial and industrial real estate since 1970, including appraisal, investment analysis, leasing, financing, asset management, and property tax consulting. Troll wrote and taught courses for Texas real estate licensure for many years. Additionally, he headed the capital markets efforts for a boutique mergers and acquisitions firm and spent several years in the technology sector. He is currently with National Realty Consultants in Houston, where he is an appraiser and heads the real estate property tax consulting practice.
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Additional Resources

Suggested by the Y. T. and Louise Lee Lum Library

Appraisal Institute

- **Education**
  http://www.myappraisalinstitute.org/education/default.aspx
  - *Advanced Income Capitalization*
  - *A Debate on the Allocation of Hotel Total Assets*
  - *Fundamentals of Separating Real, Personal Property, and Intangible Business Assets*
  - *General Appraiser Income Approach*
  - *International Financial Reporting Standards for the Real Property Appraiser*
  - *International Valuation Standards Overview*
  - *Purchase Price Allocations for Financial Reporting and Tax*
- ***Guide Note 5 Appraisals of Real Estate with Related Personal Property, Business Property or Intangible Assets***
  http://www.appraisalinstitute.org/assets/1/7/guide-note-5.pdf

Financial Accounting Standards Board

- **Statement of Financial Accounting Standards No. 141, "Business Combinations"**
  http://www.fasb.org/pdf/fas141r.pdf

International Accounting Standards Board

http://www.ifrs.org/About-us/IASB/Pages/Home.aspx