



IN PARTNERSHIP WITH CCIM

Financial Modeling for Real Estate Development

SPEAKER

Jeff Engelstad, Ph.D., CCIM, FRICS, Professor of the Practice,
Daniels College of Business, University of Denver

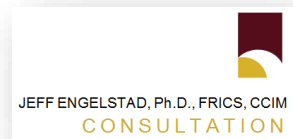
THE CCIM INSTITUTE
Advancing the Commercial Real Estate Profession



Professional Activities



THE CCIM INSTITUTE



- Professor at the University of Denver
- Senior Instructor for CCIM
- Industry Consulting
- Expert Witness
- ARES
- ULI
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Objectives

1. Examine how a financial analysis for real estate development differs from a financial analysis for real estate investment
2. Apply a Direct Cap and Spread analysis model using Excel



What is a Real Estate Developer?

Are you a real estate developer?

What does the 99% think of RE Developers?

What is the goal of the RE Developer?

Do you have to build buildings to be a RE developer?

Responsibility of a Developer

ULI mission: to shape the future of the built environment for transformative impact in communities worldwide.

Locally, a Real Estate Development will forever change the existing landscape and therefore, Real Estate Developers bear a great responsibility to make changes that improve the built environment for decades to come.



Stages of Development



Tasks



- 1. Acquisition
- 2. Financing
- 3. Market Studies & Strategies
- 4. Environmental
- 5. Public Approvals
- 6. Improvements
- 7. Transportation & Accessibility
- 8. Disposition

	Land Banking	Land Packaging	Land Development	Building Development	Building Operations	Building Renovation	Property Redevelopment
1. Acquisition							
2. Financing							
3. Market Studies & Strategies							
4. Environmental							
5. Public Approvals							
6. Improvements							
7. Transportation & Accessibility							
8. Disposition							

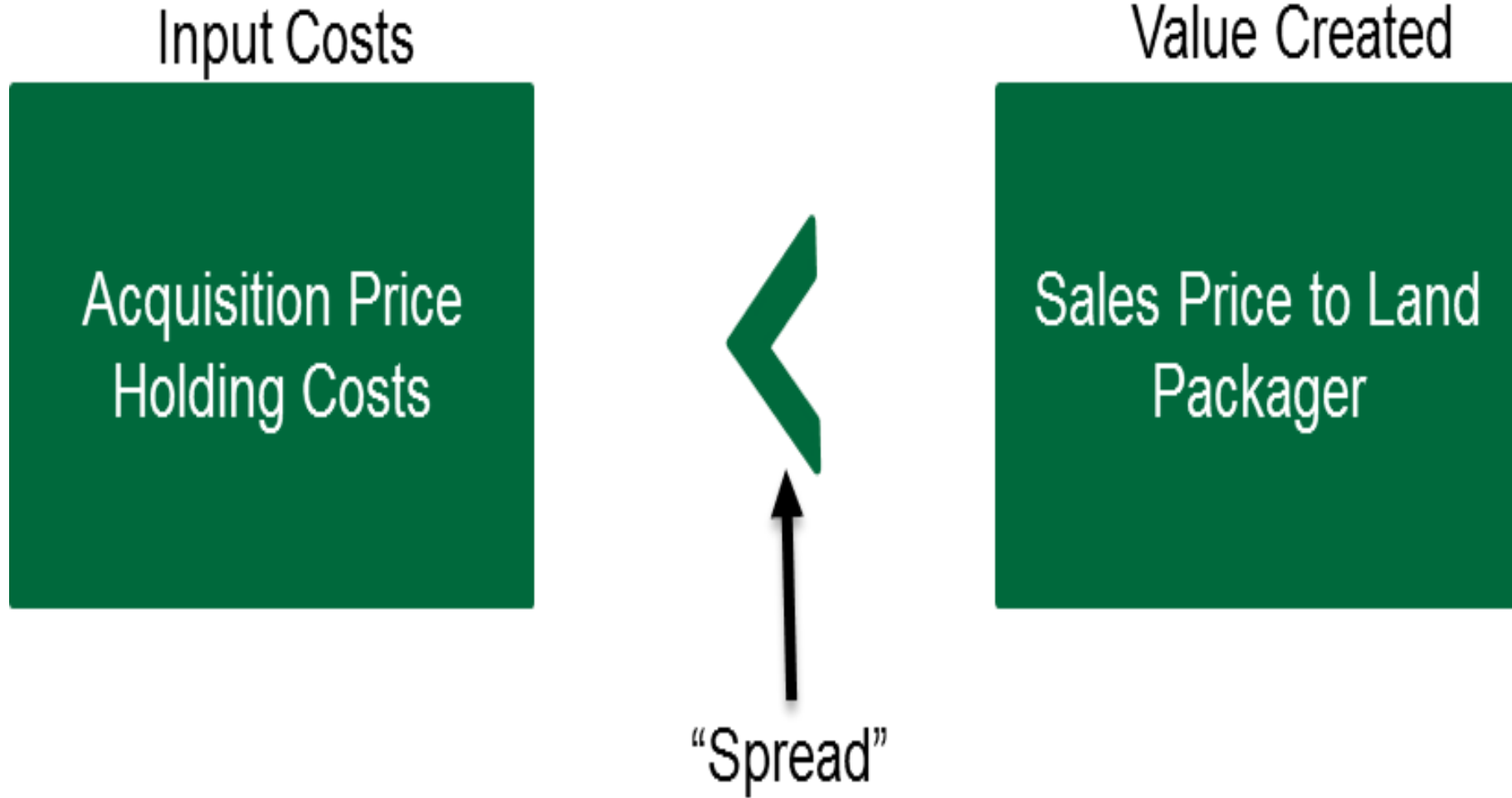
Real Estate Development Matrix

Stage 1: Land Banking

The Land Banker acquires or holds undeveloped or “raw” land that believed to become attractive for future development because of general and broad market trends.



Land Banking – What Happens



Stage 2: Land Packaging

The Land Packager buys the raw land from the passive Land Banker and then improves the value of the land through conceptual land planning, zoning changes, financing schemes, or other “paper enhancements” like title insurance, accurate surveys, or environmental studies.



Land Packaging – What Happens

Input Costs

- Purchase Price
- Cost of Public Approvals
- Design Costs
- Consulting Report Costs

Value Created

Sales Price to Land Developer



“Spread”

Building Developer

Acquires site from Land Packager or Land Developer and builds improvements on-time and on-budget.

Accomplishes lease-up and stabilization of NOI, and sells to a Building Operator



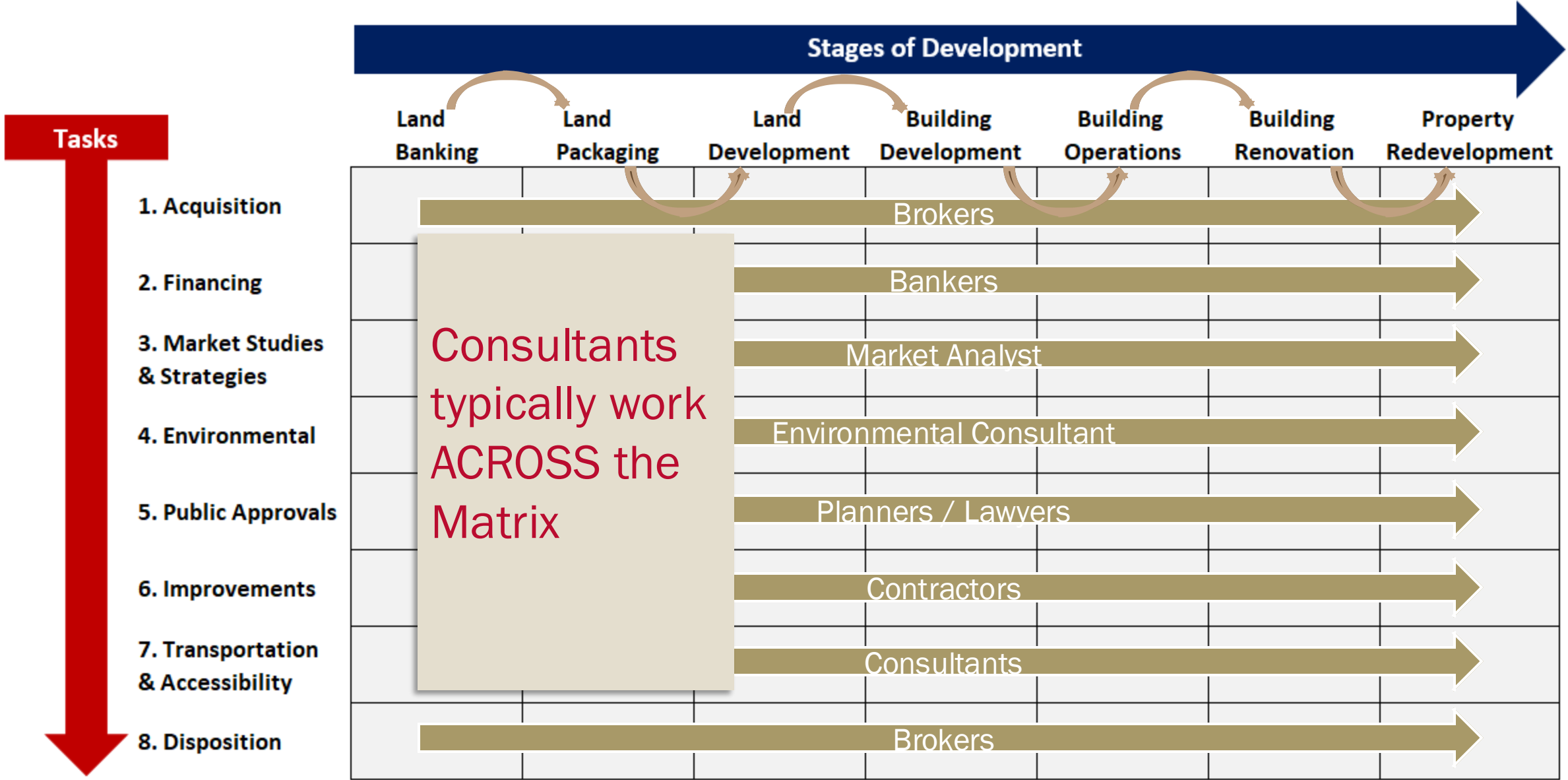
Tasks



Stages of Development

	Land Banking	Land Packaging	Land Development	Building Development	Building Operations	Building Renovation	Property Redevelopment
1. Acquisition							
2. Financing							
3. Market Studies & Strategies							
4. Environmental							
5. Public Approvals							
6. Improvements							
7. Transportation & Accessibility							
8. Disposition							

Developers typically work DOWN the Matrix



Stages and Tasks

Tasks of Development	
1	Acquisition
2	Financing
3	Market Studies and Strategies
4	Environmental
5	Public Approvals
6	Improvements
7	Transportation and Accessibility
8	Disposition

Stages of Development	
1	Land Banking
2	Land Packaging
3	Land Development
4	Building Development
5	Building Operations
6	Building Renovation
7	Property Redevelopment

Direct Cap & Spread Analysis

- Stabilized NOI
- Total Project Cost
- Project Value
- Equity Multiple
- Developer Equity
- Land Residual

Direct Capitalization/Spread Analysis

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Development Costs			Potential Construction Financing		
Cost	\$ per Ft ²	\$ 9.00	Annual Interest Rate	%	
Infrastructure	\$ Amount	\$ 150,000	Loan Term	Months	
Construction Hard Costs	\$ per Ft ²	\$ 100.00	Loan to Total Project Cost Ratio	%	
Cost Contingency	%	10.00%			
Soft Costs	\$ per Ft ²	\$ 30.00			
Cost Contingency	%	10.00%			
Reserves	\$ Amount	\$ 150,000			
Working Reserves	\$ Amount	\$ 75,000			

Calculation of Total Project Cost	
Cost	\$ 1,080,000
Infrastructure Costs	\$ 150,000
Construction Hard Costs	\$ 4,500,000
Costs Contingency	\$ 450,000
Soft Costs	\$ 1,350,000
Cost Contingency	\$ 135,000
Reserves	\$ 150,000
Working Reserves	\$ 75,000
Project Cost	\$ 7,890,000
Project Cost per GBA	\$ 175.33
Project Cost per RSF	\$ 175.33

Net Cap Rate Calculations	
Net Operating Income	\$ 615,200
÷ Total Project Costs	\$ 7,890,000
= Return On Total Costs	
- Required Spread	
= Required Disposition Cap Rate	
- Market Cap Rate	
= Net Cap Rate	
<i>Indicated Decision</i>	
	Yes

Calculation of Property Value	
Operating Income	\$ 615,200

Calculation of Potential Development Profit	
Market Value of Property	\$ 10,200,000
- Total Project Cost	\$ 7,890,000
= Potential Development Profit	\$ 2,310,000

Direct Capitalization/Spread Analysis

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Property Data			Development Costs			Potential Construction Financing			Market Metrics		
Land Area	Ft2	120,000	Land Cost	\$ per Ft2	\$ 9.00	Annual Interest Rate	%	5.00%	Market Cap Rate	%	6.00%
Gross Building Area	Ft2	45,000	Site Infrastructure	\$ Amount	\$ 150,000	Loan Term	Months	24	Required Development Spread	%	1.50%
Rentable Area Ratio	%	100%	Construction Hard Costs	\$ per Ft2	\$ 100.00	Loan to Total Project Cost Ratio	%	70%			
Rental Income	\$ per Ft2/Yr	\$ 18.00	Hard Cost Contingency	%	10.00%						
Parking Income	\$/Yr	\$ 2,000	Project Soft Costs	\$ per Ft2	\$ 30.00						
Other Income	\$/Yr	\$ 3,000	Soft Cost Contingency	%	10.00%						
VACL (stabilized)	%	8.00%	Interest Reserves	\$ Amount	\$ 150,000						
Operating Expenses	\$ per Ft2/Yr	\$ 3.00	Operating Reserves	\$ Amount	\$ 75,000						

Calculation of Floor Area Ratio	
Gross Building Area	45,000
+ Land Area	120,000
= Floor Area Ratio (FAR)	37.50%

Calculation of Stabilized NOI	
Rentable Square Feet (RSF)	45,000
Potential Rental Income	\$810,000
-VACL	\$ 64,800
=Effective Rental Income	\$745,200
+Other income	\$ 3,000
+Parking Income	\$ 2,000
=Gross Operating Income	\$750,200
-Operating Expenses	\$135,000
=Net Operating Income (NOI)	\$615,200

Calculation of Total Project Cost	
Land Cost	\$ 1,080,000
+Site Infrastructure Costs	\$ 150,000
+Construction Hard Costs	\$ 4,500,000
+Hard Costs Contingency	\$ 450,000
+Project Soft Costs	\$ 1,350,000
+Soft Cost Contingency	\$ 135,000
+Interest Reserves	\$ 150,000
+Operating Reserves	\$ 75,000
=Total Project Cost	\$ 7,890,000
<i>Total Project Cost per GBA</i>	\$ 175.33
<i>Total Project Cost per RSF</i>	\$ 175.33

Calculation of Property Value	
Net Operating Income	\$ 615,200
+Market Cap Rate	6.00%
=Market Value of Property	\$10,253,333
<i>Property Value psf</i>	\$ 227.85

Net Cap Rate Calculations	
Net Operating Income	\$ 615,200
+Total Project Costs	\$ 7,890,000
=Return On Total Costs	7.80%
-Required Spread	1.50%
=Required Disposition Cap Rate	6.30%
-Market Cap Rate	6.00%
=Net Cap Rate	0.30%
<i>Indicated Decision</i>	Yes

Calculation of Potential Development Profit	
Market Value of Property	\$10,253,333
-Total Project Cost	\$ 7,890,000
=Potential Development Profit	\$ 2,363,333

Calculation of Developer Equity	
Total Project Cost	\$ 7,890,000
-Total Construction Funding	\$ 5,523,000
=Developer Equity	\$ 2,367,000

Calculation of Maximum Land Price	
Market Cap Rate	6.00%
+Required Spread	1.50%
=Required Return on Costs	7.50%
xTotal Hard and Soft Costs	\$ 6,810,000
=Required Building Income	\$ 510,750
Net Operating Income	\$ 615,200
-Required Building Income	\$ 510,750
=Residual Land Income	\$ 104,450
+Required Return on Costs	7.50%
=Developer's Maximum Land Price	\$ 1,392,667

Calculation of Equity Multiple	
Potential Development Profit + CF0	\$ 4,730,333
+Cash Required from Developer	\$ 2,367,000
=Equity Multiple	2.00

Initial Data

Direct Capitalization/Spread Analysis

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Property Data			Development Costs			Potential Construction Financing		
Land Area	<i>Ft2</i>	120,000	Land Cost	<i>\$ per Ft2</i>	\$ 9.00	Annual Interest Rate	%	5.00%
Gross Building Area	<i>Ft2</i>	45,000	Site Infrastructure	<i>\$ Amount</i>	\$ 150,000	Loan Term	<i>Months</i>	24
Rentable Area Ratio	%	100%	Construction Hard Costs	<i>\$ per Ft2</i>	\$ 100.00	Loan to Total Project Cost Ratio	%	70%
Rental Income	<i>\$ per Ft2/Yr</i>	\$ 18.00	Hard Cost Contingency	%	10.00%	Market Metrics		
Parking Income	<i>\$/Yr</i>	\$ 2,000	Project Soft Costs	<i>\$ per Ft2</i>	\$ 30.00	Market Cap Rate	%	6.00%
Other Income	<i>\$/Yr</i>	\$ 3,000	Soft Cost Contingency	%	10.00%	Required Development Spread	%	1.50%
VACL (stabilized)	%	8.00%	Interest Reserves	<i>\$ Amount</i>	\$ 150,000			
Operating Expenses	<i>\$ per Ft2/Yr</i>	\$ 3.00	Operating Reserves	<i>\$ Amount</i>	\$ 75,000			

Property Data		
Land Area	<i>Ft2</i>	120,000
Gross Building Area	<i>Ft2</i>	45,000
Rentable Area Ratio	%	100%
Rental Income	<i>\$ per Ft2/Yr</i>	\$ 18.00
Parking Income	<i>\$/Yr</i>	\$ 2,000
Other Income	<i>\$/Yr</i>	\$ 3,000
VACL (stabilized)	%	8.00%
Operating Expenses	<i>\$ per Ft2/Yr</i>	\$ 3.00



Calculation of Floor Area Ratio	
Gross Building Area	45,000
÷ Land Area	120,000
= Floor Area Ratio (FAR)	37.50%

From the Property Data
we can calculate the FAR
and the Stabilized NOI

Calculation of Stabilized NOI	
<i>Rentable Square Feet (RSF)</i>	45,000
Potential Rental Income	\$ 810,000
-VACL	\$ 64,800
=Effective Rental Income	\$ 745,200
+Other income	\$ 3,000
+Parking Income	\$ 2,000
=Gross Operating Income	\$ 750,200
-Operating Expenses	\$ 135,000
=Net Operating Income (NOI)	\$ 615,200

Utilizing the Cap Rate and the Stabilized NOI we can calculate the potential market value of the property to be developed

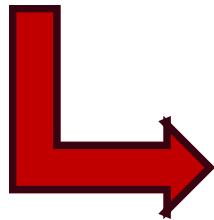
Market Metrics		
Market Cap Rate	%	6.00%
Required Development Spread	%	1.50%



Calculation of Property Value		
Net Operating Income	\$	615,200
÷Market Cap Rate		6.00%
=Market Value of Property	\$	10,253,333
<i>Property Value psf</i>	\$	227.85

Development Costs		
Land Cost	\$ per Ft2	\$ 9.00
Site Infrastructure	\$ Amount	\$ 150,000
Construction Hard Costs	\$ per Ft2	\$ 100.00
Hard Cost Contingency	%	10.00%
Project Soft Costs	\$ per Ft2	\$ 30.00
Soft Cost Contingency	%	10.00%
Interest Reserves	\$ Amount	\$ 150,000
Operating Reserves	\$ Amount	\$ 75,000

From the Development Cost Data, we can calculate the Total Project Costs



Calculation of Total Project Cost	
Land Cost	\$ 1,080,000
+Site Infrastructure Costs	\$ 150,000
+Construction Hard Costs	\$ 4,500,000
+Hard Costs Contingency	\$ 450,000
+Project Soft Costs	\$ 1,350,000
+Soft Cost Contingency	\$ 135,000
+Interest Reserves	\$ 150,000
+Operating Reserves	\$ 75,000
=Total Project Cost	\$ 7,890,000
<i>Total Project Cost per GBA</i>	<i>\$ 175.33</i>
<i>Total Project Cost per RSF</i>	<i>\$ 175.33</i>

From the Project Costs, and the Project Value, we can calculate the Development Profit and Equity required

Calculation of Total Project Cost

Land Cost	\$ 1,080,000
+Site Infrastructure Costs	\$ 150,000
+Construction Hard Costs	\$ 4,500,000
+Hard Costs Contingency	\$ 450,000
+Project Soft Costs	\$ 1,350,000
+Soft Cost Contingency	\$ 135,000
+Interest Reserves	\$ 150,000
+Operating Reserves	\$ 75,000
=Total Project Cost	\$ 7,890,000
<i>Total Project Cost per GBA</i>	<i>\$ 175.33</i>
<i>Total Project Cost per RSF</i>	<i>\$ 175.33</i>

Calculation of Potential Development Profit

Market Value of Property	\$ 10,253,333
-Total Project Cost	\$ 7,890,000
=Potential Development Profit	\$ 2,363,333

Calculation of Property Value

Net Operating Income	\$ 615,200
÷Market Cap Rate	6.00%
=Market Value of Property	\$ 10,253,333
<i>Property Value psf</i>	<i>\$ 227.85</i>

Calculation of Developer Equity

Total Project Cost	\$ 7,890,000
-Total Construction Funding	\$ 5,523,000
=Developer Equity	\$ 2,367,000

Utilizing the required spread, we can calculate the Return on Total Cost and compare that with the Market Cap rate

Market Metrics		
Market Cap Rate	%	6.00%
Required Development Spread	%	1.50%

Net Cap Rate Calculations		
Net Operating Income	\$	615,200
÷ Total Project Costs	\$	7,890,000
= Return On Total Costs		7.80%
- Required Spread		1.50%
= Required Disposition Cap Rate		6.30%
- Market Cap Rate		6.00%
= Net Cap Rate		0.30%
<i>Indicated Decision</i>		Yes

Calculation of Potential Development Profit

Market Value of Property	\$ 10,253,333
-Total Project Cost	\$ 7,890,000
=Potential Development Profit	\$ 2,363,333

Calculation of Developer Equity

Total Project Cost	\$ 7,890,000
-Total Construction Funding	\$ 5,523,000
=Developer Equity	\$ 2,367,000

Using the Potential Development Profit and the required Developer Equity, we can calculate the Equity Multiple for the Developer

Calculation of Equity Multiple

Potential Development Profit + CF0	\$ 4,730,333
÷Cash Required from Developer	\$ 2,367,000
=Equity Multiple	2.00

Finally, we can separate the required building income to determine the income residual to the Land.

This can be useful in establishing a “But For” argument for municipal assistance.

Market Metrics		
Market Cap Rate	%	6.00%
Required Development Spread	%	1.50%

Calculation of Maximum Land Price	
Market Cap Rate	6.00%
+Required Spread	1.50%
=Required Return on Costs	7.50%
xTotal Hard and Soft Costs	\$ 6,810,000
=Required Building Income	\$ 510,750
Net Operating Income	\$ 615,200
-Required Building Income	\$ 510,750
=Residual Land Income	\$ 104,450
÷Required Return on Costs	7.50%
=Developer's Maximum Land Price	\$ 1,392,667

I'm hoping
there's a
spreadsheet
for this....





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