

**The Real Estate Development Process:
Is This A Value Creation Chain?
The Potomac Yard Example**

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I. PERSONAL INTRODUCTION

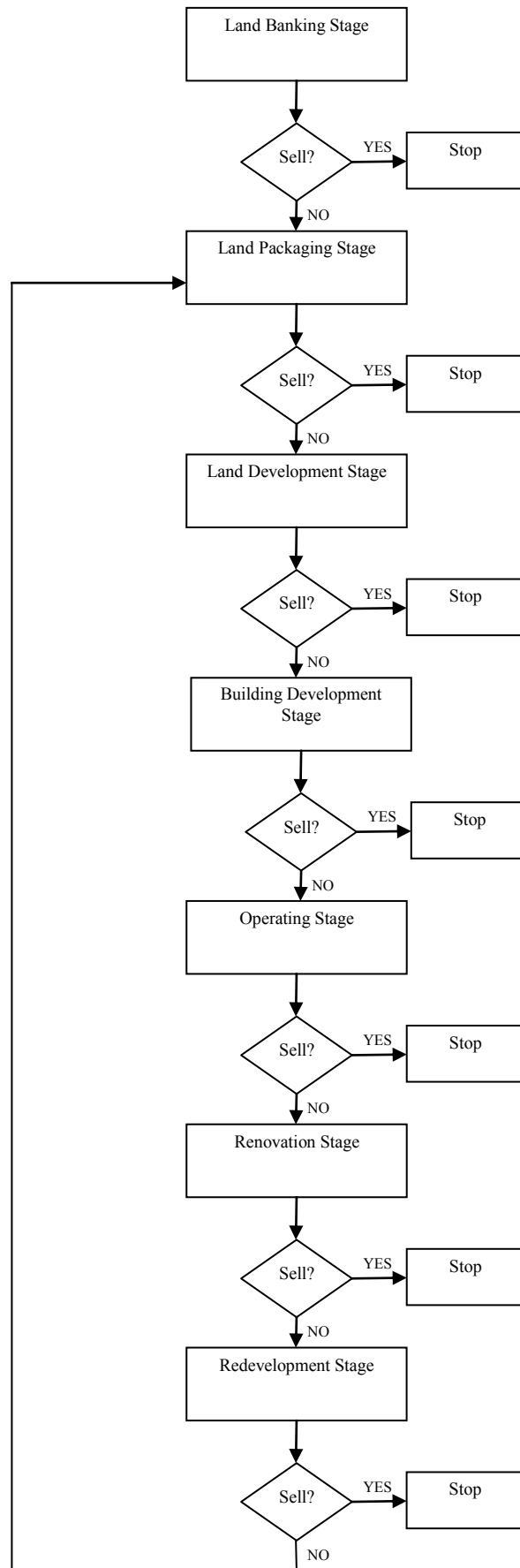
In 1973, Ohio State University Professor Ronald L. Racster invited University of Wisconsin Professor James A. Graaskamp to Columbus, Ohio to address a group of real estate practitioners about land development. Dr. Racster assigned me, his eager graduate student, to be Dr. Graaskamp's personal assistant for the day. I was unprepared for Dr. Graaskamp's physical condition and totally unprepared for his presentation on land development. His explanation of the land development process was a watershed day for me, and his critical thinking about the stages of the process, the tasks involved, and the skills required in each stage became an integral part of my real estate self-identity. Through several panel discussions like this one, I became friends with Jim, and, in the process, I became even more respectful of his critical thinking and its influence on my future career. I have lost my notes from his lecture, but I think of him every day as I thrash through the stages of land development and deal with the risks and returns on a real-time basis. The real estate development process described in this paper is based on Dr. Graaskamp's lecture 33 years ago, but I have never been able to find an adequate citation for his work in this area. Perhaps, my friends at ARES can help me with an appropriate citation and recognition.

This paper addresses the questions: 1. Is the real estate development process a value creation chain? And 2. If so, can the value creation be measured and observed in the marketplace? This paper will focus on the Land Packaging, Land Development, Building Development, and Building Operations stages of the development process. The Potomac Yard Development, a mixed-use, urban-infill development in Northern Virginia that Crescent Resources, LLC just completed, is used as an example to demonstrate the real estate development process and the value created by it.

II. THE REAL ESTATE DEVELOPMENT PROCESS (a la Grasskamp)

Real estate development is a seven-stage process. Each stage has specific tasks which require specific skills, and each stage has specific risks that must be accepted, conditioned, reduced, or eliminated. Finally, each stage has profit opportunities that can be captured. Participants and investors in the real estate development must be cognizant of the characteristics of the stage or stages of development in which they participate.¹ Failure to understand this process can lead to “getting in too early” or “getting out too late” which, of course, leads to financial frustration and sometimes ruin

The seven stages in the real estate development process are listed below and presented schematically in Figure 1.



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1. Land Banking Stage: The “Land Banker” waits for general market forces to increase the value of the land. This is a relatively passive investment position. The land banker then sells the land to a “land packager.”
2. Land Packaging Stage: 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. The packaged land is then sold to the “land developer.”
3. Land Development Stage: The “Land Developer” buys the land with the paper enhancements from the land packager and then improves the land so it can be sold as finished building pads to the building developer. This usually involves the construction of horizontal infrastructure such as roads and utilities as well as common improvements such as water detention and recreational facilities.
4. Building Development Stage: The “Building Developer” buys the finished pad from the land development and then does the vertical development by constructing the building improvement. During construction, the building developer may also attempt to lease the building so the finished building can be sold to the building operator.
5. Operating Stage: The “Building Operator” leases up the property, manages the property, and develops a building operating history so it can be sold to other building operators during its economic life or sold to a building renovator at the end of its economic life.
6. Renovation Stage: The “Building Renovator” buys the property with substantial economic and physical depreciation and creates value by curing these deficiencies and continues to operate the building until the property is ready for redevelopment.
7. Redevelopment Stage: The “Building Re-developer” buys the property with such serious physical or physical deficiencies that the building must be torn down or re-developed for another use. This essentially begins the real estate development process all over again.

The next sections of the paper will focus on the Land Packaging, Land Development, Building Development, and Building Operations stages and will address the questions:

- (1.) what is a value creation chain and
- (2.) when or how does the real estate development process become a value creation chain.

III. REAL ESTATE VALUE CHAIN (a la Roulac)

“The chain of property distribution traces those functions, tasks, and activities involved in the conversion of land through planning and design processes, the manufacture via building of physical forms and legal processes of property interests, through the marketing and merchandising of physical forms and property interests. The producers and providers of property goods and services elect business models which achieve varying levels of prices in the resource markets and investment returns in the capital markets.”²

“Value-added is the result of such unique contributions as:

1. perceiving an opportunity that others do not,
2. changing the use of a property, so that the new use has a value greater than costs incurred in making the change,
3. doing what others say cannot be done,
4. doing what others are unwilling to do, and
5. taking on financial risks to make or guarantee payments in case others do not perform and/or the project is unsuccessful.”³

“Real estate development services that can be put into five categories:

1. Creativity/ingenuity,
2. Reward for risk,
3. Provided service/resources,
4. Manage process, and
5. Advantageous purchase/negotiation.”⁴

IV. IS THE VALUE CREATION CHAIN OBSERVABLE AND MEASURABLE?

The value creation chain will focus on the Land Packaging, Land Development, Building Development, and Building Operations stages of development. In each stage, the developer buys the raw material and changes the input into a different product by adding capital improvements so that the developer is selling a new product at the end the stage to a participant in the next stage of development. In this process, I suggest the following measurable and observable propositions:

- Each successive stage of development has less risk and uncertainty than the earlier stage of development e.g.,
 - Land packaging has more risk than land development,
 - Land development has more risk than building development, and
 - Building development has more risk than building operations.
- Each successive stage has a lower cost of capital than the earlier stage e.g.
 - Land Packaging required rate of return – 25% and up,
 - Land development required rate of return – 20%,
 - Building development required rate of return – 15%, and
 - Building operations required rate of return – 10%
- Each successive stage requires more additional capital than the earlier stage e.g.
 - Land Packaging – mostly fees to professionals,
 - Land Development – fees, excavation costs and infrastructure materials,
 - Building Development – fees, construction costs, and building materials, and
 - Building Operations -- building management and systems, (oops this one doesn't work).
- The bad news is that more capital is required at each stage, and the good news is that the cost of capital is lower at each stage.
- Each successive stage creates value (or profit) by creating or manufacturing a new product.
 - Land Packaging produces “land with a plan”,
 - Land Development produces “building pads”,
 - Building Development produces “completed building”, and
 - Building Operations produces “leased building with an operating history and a cash flow” (an institutional investment).
- With each successive stage of development, the developer attempts to create additional value by incurring additional risks and increasing its capital exposure.

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- Most developers have neither the requisite skill set nor the appropriate capital structure to complete all stages in the development process.

How should value creation be measured?

- The quotient of Sales Price divided by the Total Development Costs) minus 1 equals the value added
- $[\text{Sales}/\text{Total Cost}] - 1$

How should the cost of capital be treated?

- The cost of capital should be treated as part of the costs of the venture so that the value created truly reflects the profit or “value added” in the development process, so that

- $\text{Total Development Costs} = \text{Sales Costs} + \text{Infrastructure Costs} + \text{Land Costs} + \text{Capital Costs}$

V. POTOMAC YARD: AN EXAMPLE OF THE REAL ESTATE PROCESS AND THE VALUE CREATION CHAIN

A. The Set up

- Who : Crescent Resources, LLC
- What : Acquired 300 Acres of RFP Former Rail Yard
- Where : Adjacent to Ronald Reagan National Airport
 - Adjacent to DOD's Pentagon
 - Adjacent to CSX Rail Corridor
 - Adjacent to NPS's George Washington Parkway
 - Adjacent to WMATA (METRO) line
 - Partially in Arlington, VA
 - Partially in Alexandria, VA
- Why: To capture profits in Land Packaging and Land Development stages, and to capture profits in the building development stage on an opportunistic basis
- Target Yield: IRR on Total capital = 15%

B. What Happened

- Land Banking Stage/Redevelopment Stage
 - RFP used site as a rail yard since 1848
 - US Army Corp of Engineers Flood Control Project late 1980's
 - Rail yard decommissioned in early 1990's
 - Interim Land Uses include parking lots, warehoused, auto service garage

- Land Packaging Stage (Paper Infrastructure)
 - Approved Conceptual Plans
 - Alexandria, CCD
 - Arlington, PDSP
 - Alta Survey
 - First Chicago Title Insurance
 - Environmental Studies and Tests
 - Environmental Remediation Plan
 - Environmental Liability Insurance (\$100,000,000)
 - NEPA law suit resolved
 - North Tract title issues resolved
 - North Tract transfer to Arlington which included environmental remediation plan and financial guarantees
 - Preliminary Phasing Plan in Alexandria – Infrastructure Plan
 - Preliminary Infrastructure Plan in Arlington
 - Approved Soil Management Plan
 - Community Outreach Program which resulted in
 - Neighborhood Approval of Off-site Infrastructure
 - Monroe Avenue Bridge design and approval
 - Development and approval of Arlington’s Public Art Policy
 - Arlington Park Approvals

- Land Development Stage
 - Off-Site Infrastructure
 - Alexandria --
 - Trunk Sewer construction
 - Outfall Construction and Enhancement on Potomac River
 - Two water lines under CSX and WAMTA rail lines
 - Sewer Lines under CSX and WMATA rail lines
 - Play fields
 - US Route 1 Improvements
 - Haul road construction

- Arlington
 - Pump Station
 - Outfall on Army Corps Flood Control project
 - Water line under CSX to Regan National Airport
 - Trunk Sewer line under US Route 1
 - US Route 1 Improvements
 - Crystal Drive Improvements
 - Glebe Road – US Route 1 Intersection
 - 33rd Street, Crystal Drive, and US Route 1 Intersection
- On-Site Infrastructure
 - Alexandria
 - Rough Grade Potomac Avenue
 - Potomac Avenue Water Line (partial)
 - Potomac Avenue Sanitary Sewer (partial)
 - Potomac Avenue Storm Sewer (partial)
 - School Park Play Field
 - Soil Management Plan Execution (480 cu yds of land import and lay-down)
 - Dog Park Resolution
 - Pedestrian Bridge Resolution
 - Future WAMTA Station design and reservation

- Arlington
 - Potomac Avenue Construction
 - Glebe Road Extension Construction
 - 33rd Street Construction
 - 35th Street Partial Construction
 - Ball Street Construction
 - Storm Sewer Construction
 - Sanitary Sewer Construction
 - Water Line Construction
 - Communication and Power Duct Banks Construction
 - Installed Traffic Signals with communications and interconnection at five intersections
 - Planted Potomac Avenue and Crystal Drive Landscaping
 - Rough graded and Engineered transit way
 - Managed excavation of soils in Land bays F, E-East, and Land Bay A
 - Removed 40 tons of contaminated soils and cinder ballast

- Building Development Stage
 - Municipal Site Plan Approvals
 - Arlington Land Bay F
 - Arlington land Bay E-East
 - Arlington Land Bay A
 - Alexandria Land Bay A
 - Alexandria Land Bay C
 - Building Permit
 - Arlington Land bay A
 - Arlington Land Bay E-East
 - Constructed land Bay A (1.1 million square feet)
 - 654,000 FAR SF in two, 12-story Towers
 - Six stories of parking (3 above,3 below grade)
 - Leased 420,000 SF to US Env. Protection Agency
 - IAQ Implementation and Testing
 - Commissioned All Building Systems
 - Achieved USGBC's Gold LEED Rating
 - Installed Public Art
 - Certificate of Occupancy permits
 - Federal protection Services level IV Security
 - Build out EPA Tenant Improvements
 - Moved EPA into Space
 - Building monitoring systems for DOE's Energy Star Rating

C. Total Development Costs in millions:

- Land: \$118.86
- Infrastructure: \$48.39
- Building Costs: \$123.89
- Selling Costs: \$2.43
- Capital Costs@ 15%: \$77.33
- Total Development Costs: \$370.90

D. Total Benefits (aka Sales) in millions:

- Alexandria Land Bays A & C: \$28.37
- Arlington Land Bay F: \$21.15
- Arlington Land Bay E-East: \$16.43
- Alexandria Land Bays G, H, I, J, L: \$105.00
- Arlington Land Bays B,C, D, E-West: \$80.00
- Arlington Land Bay A: \$213.50
- Total Sales: \$464.45

E. Total Value Created:

- Total Sales: \$464.45
- Divided by
- Total Costs: \$370.90
- Minus 1
- 25 %

F. Value Created by Sale (in chronological order):

Land Bay	Value Increase No Capital Costs	Value Increase with Capital Costs
Alexandria Land Bays A & C	30%	1%
Alexandria Existing Buildings	39%	3%
Arlington Land Bay F	39%	3%
Arlington Land Bay E-East	75%	24%
Alexandria Land Bays G, H, I, J, L	74%	23%
Arlington Land Bays B,C, D, E- West	47%	5%
Arlington Land Bay A	61%	25%

G. How Value was Created (in chronological order):

Alexandria Land Bays A & C

- Letter of Intent: October 31, 2001
- Contract Execution: April 1, 2002
- Sales Date: September 25, 2003
- Conditions of Sale:
 - Off-site Infrastructure (Trunk sewer)
 - On-site Infrastructure (Utilities to property line)
 - Site Plan Approval (Special Use Permit)
 - Executed Development Agreement
- Value Created
 - Sales Price: 28.37
 - Total Costs:
 - Land: 16.23⁵
 - Infrastructure: 5.44
 - Selling Expenses: .08
 - Capital Cost: 6.22
 - Value Created: 1%

Arlington Land Bay F

- Letter of Intent: April 2003
- Contract Execution: June 2003
- Sales Date: December 15, 2003
- Conditions of Sale:
 - Off-site Infrastructure (Pump station, Road Improvements)
 - On-site Infrastructure (Utilities to property line)
 - Soil Disposal
 - Site Plan Approval (Regulation 4.1 approval)
 - Executed Development Agreement
- Value Created
 - Sales Price: 21.15
 - Total Costs:
 - Land: 11.35⁶
 - Infrastructure: 3.8
 - Selling Expenses: .02
 - Capital Cost: 5.38
 - Value Created: 3%

Arlington Land Bay E-East

- Letter of Intent: May 2003
- Contract Execution: August 2003
- Sales Date: June 11, 2004
- Conditions of Sale:
 - Off-site Infrastructure (Pump station, Road Improvements)
 - On-site Infrastructure (Utilities to property line)
 - Soil Disposal
 - Site Plan Approval (Regulation 4.1 approval)
 - Building Permit.
 - Executed Development Agreement
- Value Created
 - Sales Price: 16.43
 - Total Costs:
 - Land: 6.89⁷
 - Infrastructure: 2.31
 - Selling Expenses: .17
 - Capital Cost: 3.88
 - Value Created: 24%

Alexandria Land Bays G, H, I, J, L

- Letter of Intent: December 2003
- Contract Execution: January 2004
- Sales Date: June 30, 2004
- Conditions of Sale:
 - Off-site Infrastructure (Trunk sewer)
 - On-site Infrastructure (Utilities to property line)
 - Executed Development Agreement
- Value Created
 - Sales Price: 105.
 - Total Costs:
 - Land: 44.68⁸
 - Infrastructure: 14.96
 - Selling Expenses: .66
 - Capital Cost: 25.15
 - Value Created: 23%

Arlington Land Bays B, C, D, E-West

- Letter of Intent: June 2004
- Contract Execution: September 2004
- Sales Date: October 28, 2004
- Conditions of Sale:
 - Off-site Infrastructure (Trunk sewer)
 - On-site Infrastructure (Utilities to property line)
 - Executed Development Agreement
- Value Created
 - Sales Price: 80.
 - Total Costs:
 - Land: 34.05⁹
 - Infrastructure: 19.99
 - Selling Expenses: .28
 - Capital Cost: 21.29
 - Value Created: 6%

Arlington Land Bay A

- Letter of Intent: June 2005
- Contract Execution: October 2005
- Sales Date: November 15, 2005
- Conditions of Sale:
 - Off-site Infrastructure (Pump station, Road Improvements)
 - On-site Infrastructure (Utilities to property line)
 - Soil Disposal
 - Site Plan Approval (Regulation 4.1 approval)
 - Building Permit.
 - Executed Development Agreement
 - Constructed Buildings
 - 66% Leased
 - Occupancy Permits
 - LEED Gold Rating
- Value Created
 - Sales Price: 213.5
 - Total Costs:
 - Land: 5.66¹⁰
 - Infrastructure: 1.89
 - Selling Expenses: 1.23
 - Building Improvements: 123.89
 - Capital Cost: 15.42
 - Value Created: 44%

H. Serendipity Value Creation

- Existing Building Re-Sale
- Purchase Option Sale
- Falling Capitalization Rates

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Land and Infrastructure Cost Allocations and Summary of Cash Flows

in millions

Date of Sale	Sept. 25, 2003	Dec. 15, 2003	June 11, 2004	June 30, 2004	Oct 28, 2004	Nov 15, 2005	
Municipality Land Bay	<u>Alexandria</u> A & C	<u>Arlington</u> F	<u>Arlington</u> E-East	<u>Alexandria</u> G, H, I, J, L	<u>Arlington</u> B, C, D, E-West	<u>Arlington</u> A	<u>Total</u>
Sales Price	28.37	21.15	16.43	105.00	80.00	213.50	464.45
Less: Selling Expenses	0.08	0.02	0.17	0.66	0.28	1.23	2.43
Less: Land Cost (Mar 22, 2001)	16.23	11.35	6.89	44.68	34.05	5.66	118.86
Less: Infrastructure Allocation	5.44	3.80	2.31	14.96	19.99	1.89	48.39
Less: Building Improvement Cost						123.89	123.89
Net Proceeds Before Capital Costs	6.63	5.98	7.07	44.70	25.68	80.83	170.88
less: Capital Costs @ 15%	6.22	5.38	3.88	25.15	21.29	15.42	77.33
Net Proceeds After Capital Costs	0.41	0.59	3.19	19.55	4.39	65.42	93.55
Value Increases [(sales/cost)-1]							
No capital costs	30%	39%	75%	74%	47%	61%	58%
high capital costs @15%	1%	3%	24%	23%	6%	44%	25%
Conditions to Purchase	Off Site infrastructure On Site Infrastructure Site Plan Approval	Off Site infrastructure On Site Infrastructure Site Plan Approval	Off Site infrastructure On Site Infrastructure Site Plan Approval Building Permit	Off Site infrastructure On Site Infrastructure No Site Plan Approval	Off Site infrastructure On Site Infrastructure No Site Plan Approval	Off Site infrastructure On Site Infrastructure Site Plan Approval Building Permit Bldg Construction 67% Lease-up Occupancy Permit	

END NOTES

¹ James A. Graaskamp, Lecture Notes, 1973

² Stephen Roulac, “Competitiveness of Business Models and the Chain of Property Distribution,” p 389.

³ Roulac, Adair, Allen, Berry, and McGreal, “Beyond Valuation Measurement to Value Creation,”

⁴ Ibid

⁵ FASB Statement 67 Real Estate: Accounting for Costs and Initial Rentals Operations of Real Estate Projects Paragraph 11a. “Land cost and all other common costs (prior to construction) shall be allocated to each land parcel benefited. Allocation shall be based on the fair value before construction.”

⁶ Ibid

⁷ Ibid

⁸ Ibid

⁹ Ibid

¹⁰ Ibid