

**REAL ESTATE ECONOMIC ANALYSIS OF
RESIDENTIAL DEVELOPMENT ALTERNATIVES**

A Report to

CITY AND COUNTY OF SHERIDAN

from

GRUEN GRUEN + ASSOCIATES

Urban Economists, Market Strategists, and Land Use/Policy Analysts

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CHAPTER I

EXECUTIVE SUMMARY

INTRODUCTION

The forces of housing market demand and supply, land use policy/zoning regulations, and development costs interact to form the real estate economics that affect property development, redevelopment, and remodeling and maintenance decisions of owners and would-be developers. The most significant determinants of land use value are the potential income (rents or sales prices) that can be earned by alternative land uses, the costs associated with the construction and maintenance of alternative land uses, and **the regulations that govern the right to develop land uses and the physical characteristics of how they can be developed.**

We focus in this report on identifying the real estate economics of representative or prototypical residential development alternatives given current zoning designations and alternatives to current zoning designations. Implications are drawn from a synthesis of the real estate economic analysis about the effect of regulations on the type and price of housing developed and actions that can be considered to improve the feasibility of the development of housing at prices more affordable to households at or below the area median household income level.

ANALYTICAL APPROACH

GG+A simulated the real estate investment results of a prototypical apartment rental development as well as the development of two for-sale residential uses. We estimated the land values the postulated prototypical development alternatives could support based on the estimated cash flows produced from these cost and revenue estimates and stipulated financial terms and investment parameters from the viewpoint of prospective developers. We then compared the estimated supportable land values of the postulated scale and type of residential developments to the estimated minimum values of land on which the hypothetical developments could be constructed. If the supportable land values of the developments are lower than the minimum land value owners would consider accepting, the inference can be drawn that the developments will not occur through private actions.

The residual land value methodology used to evaluate the prototypical residential development alternatives is similar to what is often referred to as an income approach, and provides an estimate of the amount of money a developer could afford to pay for land, given an estimate of the net cash flow that results from the development and operation of the development.¹ We used this methodology of estimating the land value that would be supported by the investment returns of the forecast revenues and costs associated with apartment rental and for sale residential development alternatives in order

¹ A residual land value refers to the amount a would-be developer could afford to pay for the land, given the cash flow that results from a specified set of cost and revenue forecasts and stipulated financial terms. An internal rate of return (“IRR”) means the rate of return at which the discounted future cash flows from an investment equal the rate of the initial cash outlay. In the jargon of finance theory, the IRR is the discount rate at which the net present value is zero. If the IRR exceeds the desired rate of return, the investment is financially feasible; if the IRR is lower than the desired rate of return, the investment is not financially feasible.



to identify whether such uses will be feasible to develop. A hurdle rate or return requirement of 16 percent Internal Rate of Return (“IRR”) was assumed for the apartment rental development alternative. A project is feasible if a developer can achieve a return on the developer/investor equity that meets a hurdle rate commensurate with the associated risk. If the residual land value from the investment is zero or less, the likely cost of the land makes the investment infeasible without municipal assistance. In essence, we asked the following question:

How much could a prospective developer pay for the land needed to site the postulated development alternatives and earn the specified IRR, or alternatively, how many dollars of subsidy incentive would be required to provide the developer with the specified rate of return?

GG+A also analyzed the real estate economics of two for-sale single-family product options (a smaller lot/smaller home development and larger lot/larger home development) based on the residual land value approach, assuming a required rate of return or profit margin. We input estimates of obtainable prices and of costs, including a necessary profit margin of 15 percent (of the sales value of the home) and 12 percent annual return on land development costs to calculate the land costs that small lot and large lot single-family developments could support. In this calculation, we assume that the developer would be a residential builder seeking to earn a fair return on a for-sale product, rather than an investor who would calculate feasibility by considering the return earned from rents over time.

In cases where our findings suggest that the real estate economics would not support the private, unassisted development of a given type of real estate, our analysis provides a measure of the public investment that would be required to encourage such development. For example, if we find that the residual land value of a use is negative \$2 per square foot, then some form of a subsidy in excess of that amount would be required for the development of such a use to be feasible.

Note that the residual land value estimate is best used for comparing alternatives and obtaining insight on a developer’s “ability to pay”. Actual market value is also affected by the price of competing entitled land supply. For example, even if a developer could afford to pay \$50 per square foot for the land and still obtain a minimum threshold return, the developer will not do so if other equally or more desirable development locations are available for less. Actual market prices are influenced by the buyer’s perception of use value, expectations about the timing and risk of development, and the price of the other available locations.



HOUSING PROTOTYPES

Table I-1 describes the characteristics of the prototypical residential development alternatives.

TABLE I-1: Summary of Housing Development Prototypes			
	<u>Walk-Up Apartments</u>	<u>Small Lot Single-Family</u>	<u>Large Lot Single-Family</u>
Number of Dwelling Units	60	100	100
Gross Site Area	3.0 acres	12.5 acres	28.6 acres
Average Lot Size in Square Feet	NA	± 3,500	± 9,000
Density (Units / Acre)	20.0	8.0	3.5
Average Unit Size in Square Feet	900	1,400	2,000

Source: Gruen Gruen + Associates

The “Walk-up” multifamily housing draws its name from the lack of an elevator. Usually two or three stories high, individual units are typically accessed from shared stairwells or individual entries on the ground floor. Walk-up buildings typically have lower “loss factors” – that is, less unrentable building space associated with elevator cores, hallways, common lobbies, and so forth. A loss factor for this prototype is estimated at 10 percent. The prototypical walk-up apartment development alternative reflects the assumption of a three-acre land parcel and 60 units for a density of 20 units per acre. The unit mix is assumed to include a variety of one-, two-, and three-bedroom units oriented to workforce households with an average unit size of about 900 square feet for a total of 54,000 square feet of net building space and 60,000 gross square feet. Surface parking of 1.5 spaces per unit is assumed.

The assumption of 100 units for the for-sale development alternatives was used to estimate difference in the amount of land needed at differing densities and the effect of the residual land value on a per square foot and per acre basis.

The small lot single-family prototypical development alternative assumes a higher density per acre than is typical under the current zoning regulations. This prototype reflects a density of eight units per acre for an average lot size of approximately 3,500 square feet. The average sizes of the housing units are estimated at 1,400 square feet of space for a floor-area ratio of 0.26. The housing mix could include a combination of detached and attached single-family units. Two parking spaces in an attached garage are included with every unit. We assume no open space requirements.

The large lot single-family prototypical development alternative assumes a low density per acre consistent with current zoning regulations of 3.5 units per acre for an average lot size of approximately 9,000 square feet. The average sizes of the housing units are estimated at 2,000 square feet of space for a floor area ratio of 0.16. Two or three parking spaces in an attached garage are included with every unit. We assume eight percent of the site is dedicated to open space.



Figure 1 illustrates the three residential development product options.

Figure 1: Example Housing Prototypes

Walk-Up Apartments



Small Lot Single-Family



Large Lot Single-Family



KEY FINDINGS AND CONCLUSIONS

Housing Development Feasibility

Under the assumptions and estimates more fully described in Chapter II and summarized in Table I-2, the results of the real estate economic analysis indicate that the postulated prototypical walk-up apartment rental development would be marginally financially infeasible.

TABLE I-2: Summary of Multi-Family Development Feasibility Results		
	Walk-Up Apartments	
	\$ Per Unit	\$ Total
Annual Income at Full Occupancy: ¹		
Gross Rents	19,033	1,142,000
Operating Expense	(5,768)	(346,100)
Net Operating Income (NOI)	13,265	795,900
Value of Occupied Development @ 6.6% Yield ²	201,889	12,113,340
Less: Estimated Development Cost ³	(216,880)	(13,012,790)
Residual Land Value	(14,991)	(899,450)
¹ Estimate of rents and expenses in Year 4 of the prototypical development (second operating year).		
² Net operating income divided by the required annual yield (±6.6%). This provides for a 16% annual return on equity investment.		
³ Includes financing costs.		
Source: Gruen Gruen + Associates		

The walk-up rental apartment development prototype would produce a negative land residual of approximately \$899,000 or nearly \$15,000 per apartment unit. The costs of development, excluding land, of approximately \$13,013,000 would exceed the estimated value of the built and leased apartment units (estimated at \$12,113,000) by about seven percent or \$899,000. The estimated monthly rent of approximately \$1.75 per square foot (\$1,575 per unit) represents an affordable rent to households earning 93 percent of area median income or higher. The rents and expenses shown in Table I-2 are those estimated when the project is “stabilized” in year four.

To generate a supportable residential land value of \$5 per square foot, market rents would need to increase to about \$2.00 per square foot (\$1,800 per unit).² This level of rent would be affordable to households at or above 104 percent of area median income. While some smaller infill parcels are likely to have minimum prices above \$5.00 per square foot of land, larger properties, in the path of growth, but without urban infrastructure can be acquired for much less than \$5.00 per square foot.

² One developer of a small apartment development was able to obtain rents of over \$2,000 per month.



Table I-3 summarizes the results of the real estate economic analysis of the small lot and large lot single family residential prototypical development alternatives.

TABLE I-3: Summary of Single-Family Development Feasibility Results				
	Small Lot Single-Family		Large Lot Single-Family	
	\$ Per Unit	\$ Total	\$ Per Unit	\$ Total
Sale Revenues	350,000	35,000,000	500,000	50,000,000
Horizontal Costs	(30,100)	(3,010,000)	(50,600)	(5,060,000)
Vertical Costs	(224,700)	(22,470,000)	(300,900)	(30,090,000)
Development Profit ¹	(66,600)	(6,660,000)	(99,000)	(9,900,000)
Total Cost	(321,400)	(32,140,000)	(450,500)	(45,050,000)
Residual Land Value	28,600	2,860,000	49,500	4,950,000
Value Per Acre		228,800		173,100
¹ Includes a home builder margin (15% of sales price) and 12% annual return on horizontal land development cost.				
Source: Gruen Gruen + Associates				

Both product options would support positive residual land values. The small lot 100-unit development on 12.5 acres is estimated to generate revenues of \$35,000,000 or \$350,000 per housing unit. The estimated land development (horizontal) costs, costs of constructing the homes (vertical costs) plus required profit total an estimated \$32,140,000 or \$321,400 per unit. This leaves \$2,860,000 or \$28,600 per unit to pay for the 12.5 acres. This residual land value of \$5.25 per square foot of land (or nearly \$229,000 per acre) is likely to be sufficient to meet the typical minimum price of landowners considering selling raw, unimproved land.

The large lot 100-unit development on 28.6 acres is estimated to generate revenues of \$50,000,000 or \$500,000 per housing unit. The estimated land development (horizontal) costs, costs of constructing the homes (vertical costs) plus required profit total an estimated \$45,050,000 or \$450,500 per unit. This leaves \$4,950,000 or \$49,500 per unit to pay for the 28.6 acres. This residual land value of nearly \$4.00 per square foot of land (or \$173,100 per acre) is likely to be sufficient to meet the typical minimum price of landowners considering selling large raw, unimproved land parcels.

Notably, the smaller lot prototypical residential development alternative would require buyer households to have only 85 percent of area median income to afford monthly housing payments (assuming a 15 percent down payment), while the large lot residential development alternative would require buyer households to have 110 percent of area median income to afford monthly housing payments.

From the point of view of the investor-developer and landowner, it is also notable that the smaller lot alternative generates a higher residual value per acre at \$228,800 than the larger lot alternative (with a residual land value of \$173,100 per acre).



CONCLUSIONS

The analysis explains why higher-density, higher cost contemporary elevator apartment projects have not been developed. Market rents are not high enough to amortize and provide a return on construction costs.

Because the walk-up rental apartment development prototype is only marginally infeasible, the analysis suggests that relatively small changes in costs, such as a reduction or waiver of municipal fees, may be sufficient for feasibility thresholds to be met.

The analysis also suggests that permitting more housing lots or units per acre and smaller units would increase housing affordability while being more profitable for builders and landowners. Allowing greater density would potentially motivate the increased production of housing attainable by workforce households earning less than the area median income.

The results also indicate that the private market will not feasibly address Low Income housing needs (via new construction) in sufficient quantities. That is, new construction housing of all types will not be affordable to households below 80 percent of area median income without subsidies. This finding is the basis for the recommendations made in the companion report “An Assessment of Sheridan County Housing Needs and Strategic Policy Action Recommendations”, including those related to:

- Encouraging the production of market-rate housing to facilitate filtration or move chains, freeing up existing housing units at lower price tiers;
- Providing for a sliding scale of municipal fees to reflect the size or value of units;
- Assisting with the provision of public infrastructure to serve housing developments;
- Identifying locations at which to increase allowable densities per acre for housing uses; and
- Providing incentives to motivate developers to build affordable housing.



CHAPTER II

REAL ESTATE ECONOMICS OF APARTMENT RENTAL DEVELOPMENT

APARTMENT RENTAL HOUSING PROTOTYPE

Table II-1 summarizes the key physical assumptions of the multi-family housing prototype.

TABLE II-1: Apartment Rental Development Prototype	
	<u>Walk-Up Apartments</u>
Number of Dwelling Units	60
Gross Site Area	3.0 acres
Density (Units / Acre)	20.0
Average Unit Size	900 sq. ft. (rentable area)
Building Loss Factor ¹	10%
Gross Building Area	60,000 sq. ft.
Floor-Area-Ratio	0.46
Parking	1.5 stalls/unit; On-site surface lot
¹ Loss factor refers to proportion of building area that is “lost” to unrentable space (e.g., circulation corridors, stairwells, mechanical rooms, common area amenities).	
Source: Gruen Gruen + Associates	

The “Walk-up” multifamily housing draws its name from the lack of an elevator. Usually two or three stories high, individual units are typically accessed from shared stairwells or individual entries on the ground floor. Walk-up buildings typically have lower “loss factors” – that is, less unrentable building space associated with elevator cores, hallways, common lobbies, and so forth. A loss factor for this prototype is estimated at 10 percent. The prototypical walk-up apartment development alternative reflects the assumption of a three-acre land parcel and 60 units for a density of 20 units per acre. The unit mix is assumed to include a variety of one-, two-, and three-bedroom units oriented to workforce households with an average unit size of about 900 square feet for a total of 54,000 square feet of net and 60,000 gross square feet of building space. Surface parking of 1.5 spaces per unit is assumed.



DEVELOPMENT COST ESTIMATE

Table II-2 summarizes estimated development costs, excluding land and financing, for the walk-up apartment prototype. The estimated hard and soft construction costs are based on interviews with local housing builders and review of cost estimates for planned multi-family developments in Sheridan (e.g., Bighorn Flats project).

TABLE II-2: Estimated Development Cost for Walk-Up Apartment Units			
	Per Unit	Total (60 Units)	% of Total
	\$	\$	
Hard Cost (Sitework & Vertical Construction)	175,000	10,500,000	84.0
Permits & Water/Sewer Tap Fees	7,100	426,000	3.4
Additional Soft Costs ¹	26,250	1,575,000	12.6
Total Development Cost²	208,350	12,501,000	100.0
¹ Architectural, engineering, professional and legal fees, pre-development expenses, Developer Fee, and so forth.			
² Before land acquisition and financing costs.			
Source: Gruen Gruen + Associates			

Hard construction costs are estimated at \$175 per square foot or \$175,000 per unit. This represents about 84 percent of total costs of \$10.5 million for a 60-unit development. Permitting fees and water and sewer tap fees are estimated at about \$7,100 per unit or \$426,000 in total. Additional soft costs are included at 15 percent of hard construction cost. This accounts for expenses related to a development fee, architecture and engineering, legal, and other pre-development costs.

The total development cost before land acquisition or financing is estimated at \$12.5 million for a 60-unit development. This represents a cost of \$208,350 per unit or \$232 per rentable square foot before land acquisition and financing costs.

MARKET AND OPERATING PARAMETERS

Table II-3 summarizes estimates of average market rents for the walk-up apartment prototype:

- One-bedroom units at \$1,300 monthly (\$1.86 per square foot);
- Two-bedroom units at \$1,600 monthly (\$1.78 per square foot); and
- Three-bedroom units at \$1,800 monthly (\$1.64 per square foot).

The overall average monthly rent is estimated at \$1,575 per unit or \$1.75 per square foot. For simplicity and given the extremely low vacancy rate in the rental market, no vacancy or credit loss is assumed which slightly overstates operating income.



TABLE II-3: Estimated Market Rents for Walk-Up Apartment Units				
	1 BR	2 BR	3 BR	Total
Unit Mix	15	30	15	60
Average Unit Size in Square Feet	700	900	1,100	900
Average Monthly Rent Per Unit	\$1,300	\$1,600	\$1,800	\$1,575
Average Monthly Rent Per Square Foot	\$1.86	\$1.78	\$1.64	\$1.75
Percent of Area Median Income (AMI) Needed to Afford Market Rent ¹	91%	94%	92%	93%
¹ Adjusted for unit mix and based on 2021 rent and income limits for Sheridan County.				
Source: Gruen Gruen + Associates				

Expressed as a percent of Area Median Income (AMI), the estimated monthly market-rate rents for new construction apartment units equate to approximately 91 percent to 94 percent of AMI.

Operating Expenses

The real estate economic analysis is based on the following annual operating expense estimates for the multi-family rental housing prototype:

- Annual property tax and insurance expense of \$1.50 per square foot;
- Management fee equal to three percent (3%) of gross revenue; and
- Annual variable expenses (personnel, utilities, maintenance and repair, etc.) equal to 20 percent of annual gross revenues.

These expense assumptions represent approximately 30 percent of gross revenues or \$5,600 per unit upon stabilized occupancy.



INVESTMENT AND FINANCING PARAMETERS

The multi-family prototype is assumed to have a two-year planning and construction period. Equity investment is assumed to be held for a period of 10 years from date of construction.

Financial parameters include equity and debt terms, construction and permanent loan arrangements, Internal Rate of Return (IRR) requirements, and capitalization rates. The assumptions include:

- A capital stack or “sources” of funding with 25 percent equity investment and 75 percent debt. This provides for a reasonable debt service coverage ratio that exceeds 1.35x upon stabilized occupancy;
- A “hurdle rate” or return on equity investment equal to a 16 percent annual Internal Rate of Return (IRR);
- Construction loan interest rate of 5.0 percent and loan fees/ points of 1.5 percent;
- Permanent mortgage loan with an annual interest rate of 4.0 percent and an amortization schedule of 25 years. The mortgage loan would be obtained in the third year to retire the construction loan; and
- A capitalization rate or required yield on the purchase of an income-producing property of 6.0 percent. Expenses associated with the sale of the property (in Year 10) are estimated at two percent of the transaction value.

RESIDUAL LAND VALUE ESTIMATE

Table II-4 summarizes the estimated residual land value of the walk-up apartment rental prototypical development alternative.

TABLE II-4: Residual Land Value Estimate for Walk-Up Apartment Prototype		
	Total (60 Units)	Per Unit
Residual Land Value	(\$899,500)	(\$14,992)
Hard & Soft Construction Cost	\$12,501,000	\$208,350
Financing Cost	\$511,800	\$8,530
<i>Total Project Value¹</i>	<i>\$12,113,300</i>	<i>\$201,888</i>
Equity Investment	\$3,028,300	\$50,472
Internal Rate of Return (IRR) in Year 10	16.0%	16.0%
Annual Cash-on-Cash Return ²	6.5%	6.5%

¹ Represents development and financing costs plus the estimated Residual Land Value.
² Average over the first five operating years.

Source: Gruen Gruen + Associates



As indicated above, we calculated a residual land value that would permit an investor in the project which contributed 25 percent equity to earn a 16 percent IRR if the investor held the development for 10 years. The investment simulation we conducted projects the financial results, including the residual land value of the postulated apartment development alternative. The estimated hard and soft costs of \$12,501,000 (\$208,350 per unit) plus financing costs of \$511,800 (\$8,530 per unit) total \$13,012,800 or almost \$217,000 per unit. The residual land value is estimated at nearly negative (\$900,000) or nearly (\$15,000) per unit. In other words, the investor-developer would need to obtain the land at no cost plus an upfront subsidy of approximately \$900,000 or \$15,000 per unit in order to achieve a 16 percent IRR (or 6.6 percent annual cash-on-cash return) on the equity investment of \$3,028,300 or nearly \$50,500 per unit.

These figures present a perspective for evaluation rather than a cardinal array of hard forecasts. The results are limited by the development potential, market, financial, and other underlying assumptions outlined above and do not reflect the benefit of a cost estimator or the use of property specific sitework costs and exclude any potential extraordinary existing conditions such as the need for environmental remediation.

The reader is cautioned to note that the estimated residual land values presented exclude the effect of state and federal income taxes that would have to be paid. In effect, this simplifying assumption increases the residual value over what it might be under the more realistic assumption that taxes on income would be paid. We used the before-tax case, however, so as to avoid the distortions created by taxes and the need to consider whether owners would have off-setting gains and losses from other sources, which is frequently the case.

The range of residual land value estimates this report presents are best used for comparing alternatives and obtaining insight on a prospective buyer's "ability to pay". Actual market value is also affected by the price of competing entitled land supply. For example, even if an apartment developer could afford to pay \$50 per square foot for the land and still obtain a minimum threshold return, the developer will not do so if other equally or more desirable entitled residential development locations are available for less. Actual market prices are influenced by the buyer's perception of use value, expectations about the timing and risks of development and lease up, and the price of the other available locations.

An apartment investor will probably discount the indicated range of use or residual land value to reflect perceived risk, uncertainty, and potential variances in costs or rents and availability of alternative entitled sites in the market area.



CHAPTER III

REAL ESTATE ECONOMICS OF SINGLE-FAMILY DEVELOPMENT

SINGLE-FAMILY PROTOTYPES

Table III-1 summarizes the key physical assumptions underlying each single-family housing prototype.

TABLE III-1: Single-Family Housing Development Prototype		
	Large Lot Single-Family	Small Lot Single-Family
Number of Dwelling Units	100	100
Gross Land Area	28.6 acres	12.5 acres
Open Space Requirement	8.0%	0.0%
Density (Units/Acre)	3.5	8.0
Typical Lot Size	± 9,000 sq. ft.	± 3,500 sq. ft.
Average Unit Size ¹	2,000 sq. ft.	1,400 sq. ft.

¹ Above grade living area.

Source: Gruen Gruen + Associates

The two single-family development prototypes are each assumed to represent 100 housing units and differing amounts of land under the two density assumptions. Key characteristics are as follows:

- Large Lot Single-Family – a detached subdivision development featuring average lot sizes of about 9,000 square feet with an average home size of 2,000 square feet. An open space requirement equal to eight percent (8%) of gross land area is also included. Accounting for typical right-of-way and street requirements, the overall housing density is assumed to be 3.5 units per acre. This prototype is generally consistent with R-1 zone district standards in the City of Sheridan.
- Small Lot Single-Family – a single-family subdivision development with smaller lot sizes averaging 3,500 square feet. The housing mix could include a combination of detached and attached single-family units, with a smaller average unit size of 1,400 square feet. No open space requirement is presumed (i.e., it would need to be waived) and the overall housing density is estimated at approximately eight units per acre.



SALES PRICE ESTIMATES

Table III-2 summarizes the average market-rate sales price estimates for each single-family housing prototype. The estimates reflect our interviews with multiple local homebuilders and brokers and review of new construction home listings in Sheridan.

TABLE III-2: Average Sales Price Assumptions for Single-Family Units		
	Large Lot Single-Family	Small Lot Single-Family
Average Lot Size	± 9,000 sq. ft.	± 3,500 sq. ft.
Average Unit Size ¹	2,000 sq. ft.	1,400 sq. ft.
Average Sales Price Per Square Foot	\$250	\$250
Average Sales Price Per Unit	\$500,000	\$350,000
<i>Percent of Area Median Income (AMI) Needed to Afford Sales Price</i> ²	110%	85%
¹ Above grade living area. ² Based on 2021 income limits for Sheridan County, adjusted by household size and number of bedrooms in each prototypical development. Conversion from average sales price to monthly housing cost assumes 15 percent down payment, 3.5 percent annual interest rate, and additional expenses equal to approximately 1.5 percent of sales price.		
Source: Gruen Gruen + Associates		

The estimates reflect a base average sales price of \$250 per square foot for each typical unit.

The average price for the large lot home prototype is estimated at \$500,000 per unit. The average unit with 2,000 square feet of above-grade living area would require approximately 110 percent of AMI to afford monthly housing payments.

The average price for the smaller lot home prototype is estimated at \$350,000 per unit. The average unit with 1,400 square feet of living area would require approximately 85 percent of AMI to afford monthly housing payments.



DEVELOPMENT COST ESTIMATES

Table III-3 presents estimates of land development (horizontal) costs for single-family lots.

TABLE III-3: Land Development (Horizontal) Costs for Single-Family Units				
	Large Lot		Small Lot	
	Per Lot	Total	Per Lot	Total
	\$	\$	\$	\$
Site Preparation/Grading	13,800	1,380,000	6,100	610,000
Street Improvements	15,900	1,590,000	10,600	1,060,000
Wet/Dry Utilities	14,300	1,430,000	9,500	950,000
Additional Soft Costs @ 15% of Hard	6,600	660,000	3,900	390,000
Land Development Cost¹	50,600	5,060,000	30,100	3,010,000
¹ Before land acquisition and profit.				
Sources: GG+A Interviews & Review of Prior Projects				

Land development (horizontal) costs for the prototypical large lot residential development alternative are estimated at \$5,060,000 or \$50,600 per unit. The cost estimate includes site preparation and grading costs of \$1,380,000 or \$13,800 per unit, street improvements of \$1,590,000 or \$15,900 per unit, \$1,430,000 or \$14,300 per unit for installation of utilities, and an additional 15 percent for engineering and other soft costs. This equates to a total of \$660,000 or \$6,600 per unit in soft costs.

Land development (horizontal) costs for the prototypical small lot residential development alternative are estimated at \$3,010,000 or \$30,100 per unit. The cost estimate includes site preparation and grading costs of \$610,000 or \$6,100 per unit, street improvements of \$1,060,000 or \$10,600 per unit, \$950,000 or \$9,500 per unit for installation of utilities, and an additional 15 percent for engineering and other soft costs. This equates to a total of \$390,000 or \$3,900 per unit in soft costs.



Table III-4 summarizes the cost estimates of designing and constructing the homes (the vertical structure costs).

TABLE III-4: Vertical Development Costs for Single-Family Units				
	Large Lot		Small Lot	
	Per Unit	Total	Per Unit	Total
	\$	\$	\$	\$
Hard Construction Cost	240,000	24,000,000	180,000	18,000,000
Permit & Water/Sewer Tap Fees	10,900	1,090,000	9,700	970,000
Selling, Closing & Marketing Costs	15,000	1,500,000	10,500	1,050,000
Additional Soft Costs ¹	35,000	3,500,000	24,500	2,450,000
Builder Profit Margin ²	75,000	7,500,000	52,500	5,250,000
Vertical Development Cost	375,900	37,590,000	277,200	27,720,000
¹ Architectural/design fees, insurance and warranty reserves, costs of funds (financing), and builder overhead/G&A equal to 7% of sales revenue.				
² Builder profit margin included at 15% of sales revenues.				
Sources: NAHB Cost Survey; GG+A Interviews & Review of Prior Projects.				

For the large lot alternative, total development costs are estimated at \$375,900 per unit or a total of \$37,590,000. This estimate includes a hard construction cost per unit of \$240,000 or \$24,000,000. Permit and water/sewer tap fees are estimated at \$10,900 per unit or \$1,090,000. Marketing and sales expense are estimated at \$15,000 per unit or \$1,500,000. Additional soft costs including architectural and design fees, insurance and warranty reserves, financing costs and builder overhead and general and administration costs equivalent to seven percent of sales revenue are estimated. This equates to \$35,000 per unit for a total of \$3,500,000. Finally, a builder’s margin or profit is assumed at 15 percent of the sales prices. This equates to \$75,000 per unit or \$7,500,000.

For the small lot alternative, total development costs are estimated at \$277,200 per unit or a total of \$27,720,000. This estimate includes a hard construction cost per unit of \$180,000 or \$18,000,000. Permit and water/sewer tap fees are estimated at \$9,700 per unit or \$970,000. Marketing and sales expense are estimated at \$10,500 per unit or \$1,050,000. Additional soft costs including architectural and design fees, insurance and warranty reserves, financing costs and builder overhead and general and administration costs equivalent to seven percent of sales revenue are estimated. This equates to \$24,500 per unit for a total of \$2,450,000. Finally, a builder’s margin or profit is assumed at 15 percent of the sales prices. This equates to \$52,500 per unit or \$5,250,000.



RESIDUAL LAND VALUE ESTIMATES

Table III-5 presents estimates of the finished lot values for the prototypical small lot and large lot single-family residential development alternatives. Finished lot value are the difference between the sales prices or sales revenues for the single-family housing units and the costs of designing and constructing the housing units.

TABLE III-5: Finished Lot Values for Single-Family Prototypes				
	Large Lot		Small Lot	
	Per Unit \$	Total \$	Per Unit \$	Total \$
Gross Sale Revenues	500,000	50,000,000	350,000	35,000,000
Less: Vertical Development Costs	(375,900)	(37,590,000)	(277,200)	(27,720,000)
Finished Lot Values	124,100	12,410,000	72,800	7,280,000

Source: Gruen Gruen + Associates

The large lot 100-unit development on 28.6 acres is estimated to generate revenues of \$50,000,000 or \$500,000 per housing unit. The finished lot values for the large lot alternative are estimated at \$12,410,000 or \$124,100 per unit.

The small lot 100-unit development on 12.5 acres is estimated to generate revenues of \$35,000,000 or \$350,000 per housing unit. The finished lot values for the small lot alternative are estimated at \$7,280,000 or \$72,800 per unit.

To estimate the residual land value or amount of money an investor-developer could afford to pay for the land needed for the large lot or small lot development alternatives, the land development (horizontal) costs plus required profit on investment are subtracted from the finished lot values. Table III-6 summarizes this calculation.

TABLE III-6: Residual Land Values for Single-Family Prototypes				
	Large Lot		Small Lot	
	Per Unit \$	Total \$	Per Unit \$	Total \$
Finished Lot Sales	124,100	12,410,000	72,800	7,280,000
Less: Land Development Cost	(50,600)	(5,060,000)	(30,100)	(3,010,000)
Less: Land Development Return (Profit) ¹	(24,000)	(2,400,000)	(14,100)	(1,410,000)
Residual Land Value	49,500	4,950,000	28,600	2,860,000
<i>Residual Land Value Per Square Foot of Land</i>	<i>\$3.98</i>		<i>\$5.25</i>	

¹ Estimate reflects 12% annual return on capital and absorption velocity of four lots per month.

Source: Gruen Gruen + Associates



For the large lot alternative, the estimated land development (horizontal) costs of \$5,060,000 or \$50,600 per unit plus the required return or profit on land development costs of \$2,400,000 or \$24,000 per unit is subtracted from the estimated finished lot sale values of \$12,410,000 or \$124,100 per unit to derive the residential land values. This subtraction leaves \$4,950,000 or \$49,500 per unit to pay for the 28.6 acres. This residual land value of nearly \$4.00 per square foot is likely to be sufficient to meet the typical minimum price of landowners considering selling large raw, unimproved land parcels.

For the small lot alternative, the estimated land development (horizontal) costs of \$3,010,000 or \$30,100 per unit plus the required return or profit on land development costs of \$1,410,000 or \$14,100 per unit is subtracted from the estimated finished lot sale values of \$7,280,000 or \$72,800 per unit to derive the residential land values. This subtraction leaves \$2,860,000 or \$28,600 per unit to pay for the 12.5 acres. This residual land value of \$5.25 per square foot is likely to be sufficient to meet the typical minimum price of landowners considering selling raw, unimproved land parcels.



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