A review of the subdivision development method (Part I)

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Introduction
One of the most controversial areas of appraisal theory relates to the use and application of the subdivision development method (SDM) as a means of estimating market value of undeveloped land. Failure to appreciate under what circumstances to apply the SDM, how to properly assess the types and levels of risk associated with the subdivision process in the context of highest and best use, and the provision for developer’s profit are the most problematic aspects of the method.

Often, the SDM has been viewed with skepticism. Lack of consistency in the application of the SDM and the many names assigned to the method have failed to produce a unified body of valuation theory. The many names given to the method has caused a great deal of confusion and misunderstanding. A review of Canadian and American case law uncovered the following list of names used to characterize the SDM:

- subdivision approach
- subdivision method
- subdivision residual approach
- anticipated use method
- cost development method
- developer's residual approach
- development approach
- development cost or contractor's approach
- development method
- development value approach
- land development method
- lot method
- residual approach

Often, land value estimates emanating from the SDM are significantly higher than those correspondingly derived from the sales comparison approach (SCA) (direct comparison approach). Not surprisingly, the courts have shown a preference for the SCA. In theory, if both the SDM and the SCA are applied correctly, the value estimates should be similar. It is the divergence in value that has challenged the reliability and relevance of the SDM, especially in the area of expropriation and condemnation.

Overview of the SDM
The steps involved in the execution of the SDM are listed as follows:

1. accurately determine the highest and best use of the land,
2. create or affirm a supportable subdivision development plan,
3. determine the timing and cost for approval and development (including mitigation needs and costs of obtaining development entitlements),
4. forecast a realistic pricing schedule over time,
5. forecast accurately the lot absorption rate and price mix (including properly supported projections of community or market growth over the absorption period),
6. estimate accurately the staging or phasing of land development and related expenses,
7. forecast marketing and related holding expenses over the absorption period,
8. estimate the annual real estate taxes,
9. include overhead and an entrepreneurial [developer's] profit allowance in the discount rate and/or line item allocation for entrepreneurial [developer's] profit, and
10. estimate the appropriate discount rate consistent with the selection of the line item allocation for entrepreneurial [developer's] profit.

The SDM, in addition to being very complex, time-consuming and costly to prepare, when used on its own without an abundance of reliable market data, can be the least accurate raw land valuation technique.

Many reasons have been advanced as to why the SDM fails to qualify as an acceptable valuation model in estimating the market value of raw land:

1. There is no consensus within the appraisal or development community as to how the valuation model should be executed, or whether the model has any application in the valuation of raw land,
2. There is no consensus between...
the appraisal and development communities as to how developer’s (entrepreneurial) profit should be computed.4

- The numerous steps, including absorption estimates, in the valuation model are susceptible to an unacceptable margin of error that can lead to an unreliable indication of value.
- The appraisal of raw land as if subdivided into finished lots is a hypothetical exercise that considers the contributory value of non-existent improvements and the disposition of non-existent lots at retail prices.
- The estimate of value generated by the SDM, when applied as the only approach to value, is not susceptible to verification, as it cannot be measured for its reasonableness by way of comparison to transactional data.
- The valuation model assumes a developer (subdivider) as the prospective-purchaser of the raw tract and construction of a subdivision though a bona fide developer would have no interest in raw land not zoned to permit subdivision. Even if the raw tract were acquired pursuant to rezoning, construction of infrastructure improvements would not likely be commenced until a sufficient number of conditional builder presales of finished lots had been achieved to warrant subdivision construction of the tract in whole or in part.5

Perspective on market value
Market value is not founded on an ‘as if’ or ‘assumptive’ premise. An ‘as if’ or ‘assumptive’ premise implies a contingent and prospective value, which is inconsistent with an ‘as is’ market value at the effective date of appraisal. A dispute arose as to the meaning of ‘market value’ in Jabbour v. Bas-satne, 673 A.2d 201 (D.C. App. 1996) over the valuation of raw land. The appeals court ruled that, [a] reasonable person would assume land to be equivalent to specified cash only in its current ‘[as is]’ condition on the competitive market, not after costly alterations as yet unmade had turned it from raw land into a ‘developable’ condition...[and made reference to the trial court’s observation that] “the prudent, well informed buyer would know the current condition of the land and pay a reasonable price for the land, not a price that assumed the land to be in a ‘different’ or ‘more developed’ condition.”

Applicability of the SDM
Application of the SDM is most appropriate and useful under the following circumstances:
- It is most relevant when land is not in raw acreage and an actual subdivision of legally marketable individual finished lots exists on the ground pursuant to an executed subdivision or development agreement, and subdivision is the highest and best use.7
- It is useful as a means of testing the financial feasibility of acquiring a raw tract at a specified price under conditions of assumed certainty where all of the outcomes of the subdivision process are predicated on the stated cost and revenue inputs and financial goals of the developer.8
- It is important for use in loan underwriting of development financing, where it is critical to schedule mortgage advances to correspond to the development phasing of a subdivision and link loan repayment, with partial discharges, to lot sales (absorption), thus ensuring that the lender has adequate security at all times.9

In many condemnation and expropriation cases, the SDM has been indiscriminately applied under the wrong circumstances or in the wrong way:

If all of the land that has been appraised by the development approach were actually subdivided, there would be enough subdivision lots on the market to last hundreds of years and little, if any, farm-
land left in the United States [and Canada].10

As a tract of land progresses legally and physically from a state of raw acreage to a completed subdivision, with all infrastructure improvements in place and a proven market for new housing (finished lots), the SDM also progresses from non-acceptance to acceptance by the courts. These two extremes of the subdivision process were discussed in United States v. 147.47 Acres of Land, 352 F. Supp. 1055, 1060 (M.D. Pa. 1972):11

It may well be that even though the highest and best use of a property is for a residential subdivision, if no meaningful steps have been taken in that direction, viz., construction expenses and actual lot sales, then a ‘lot method’ appraisal or a ‘developer’s residual’ approach [Subdivision Development Method], as it is also known, would be inappropriate. But that is not the situation here. The status of the subdivision and its availability for sale within the reasonably foreseeable future was an actual and real one, certainly not hypothetical, remote or speculative. Someone about to purchase the property on...the date of condemnation, would have to regard it as having a highest and best use as a subdivision and, in determining what purchase price he would be willing to pay, would have to consider all factors, including sales price for individual lots and additional expense of development, in arriving at his decision...This is not a case where a landowner [or appraiser] dreamily contemplates the use to which his property may be put at some undefined future time but rather one where the property is geographically suited for development; is located in a booming developmental area; has been subdivided into lots according to a duly certified map; has been cleared and graded and improved with the creation of a spring-fed lake, the construction of access roads, and the digging of a deep well sufficient to supply water to...
150 homes; and where actual sales of lots as identified on the map have taken place, the deeds of which contain building restrictions compatible only with a residential estate development.

And, viewing subdivision as a dynamic process in the context of the weight that the ‘lot method’ should be given, the Supreme Court of Connecticut in *Leona Robinson, Executrix (Estate of Walter Langer), et al v. Town of Westport*, 14272-222 Conn. 402, 610 A2d 611 [1992], stated:

As the proponent of a hypothetical highest and best use is able to progress along the spectrum from raw land with few or no improvements to, ultimately, a completed subdivision, the weight to be assigned such evidence will be enhanced.

And, as a phased subdivision development, a somewhat similar view was expressed by the Supreme Court of New York in *Investors Collateral Corp. v. State of New York*, [1985] 494 NYS.2d 352, 114 A.D.2d 437:

Claimant was a real estate developer and subdivider and subject tract had been the subject of ongoing and sequential subdivisions in a high growth area. At least one year before the de facto taking...[C]laimant had prepared and obtained from the Town of East Fishkill Planning Board preliminary approval of the subject subdivision. The subdivision was virtually at the end of and a climax to a long ongoing sequence of subdivisions of the property acquired by claimant in 1969. Thus, the subdivision was not merely a plan prepared but never filed...or a subdivision plan filed but not acted upon, and in the context of this case was not conjectural or speculative.

**Admissibility of SDM**

An appraiser choosing to rely on the SDM in valuing raw land in an expropriation or condemnation proceeding may encounter significant admissibility challenges. There are a number of different procedures in executing the SDM, and the court could construe this lack of uniformity in methodology as a bar to general acceptance within the appraisal community. Additionally, the appraisal methodology as currently presented by the Appraisal Institute involves 10 steps, if the tract being appraised is raw land without any supporting infrastructure improvements. Of course, where no actual subdivision exists on the ground, use of the SDM impresses upon the land a hypothetical subdivision of the land into serviced lots. For that reason alone, the court may conclude that the premise of subdivided lots underlying the method of valuation is erroneous and of no relevance in determining the value of the land in the condition that it actually exists at the time of expropriation or condemnation. Further, the SDM creates an illusion of precision, yet makes no provision for the unexpected in a process that is inherently fraught with risk.

Projecting finished lots on an undeveloped tract involves a great deal of uncertainty and speculation as to when (or if) subdivision might occur; the number and type of lots (i.e., townhouse, semi-detached, single family, etc.) likely to be produced; the estimated cost (direct and indirect) and availability of funds to produce those lots; and timing of development expenditures and receipt of revenue from lot sales. Also, the developer’s profit expectation (as a separate line item or as part of the discount rate) and selection of an appropriate discount rate reflecting the time-value of money and lot absorption risk (not achieving lot sales as scheduled) are difficult to quantify with any degree of certainty. At each step in the valuation process, an assumption or estimate is made for which there is a corresponding margin of error. The margin of error for a particular input in the SDM may be acceptable, but, if the margin of error for all of the inputs is viewed collectively, the court may conclude that the overall potential for error renders the valuation model unreliable.

On the admissibility of evidence of proposed or possible subdivision of condemned land, in *State v. Inhabitants of Town of Phillipsburg* the New Jersey appeals court stated:

...[W]here the landowner has tendered evidence of a proposed or possible subdivision, attempting to establish the number or value of individual lots and where the evidence indicates that the developer had not made affirmative efforts before the condemnation to effectuate the development of the subdivision, the evidence has been held to be inadmissible in most of the cases...The courts frequently reason that, since so many factors impinge upon the future value of prospective lots, not the least being the future condition of the market, such evidence is too speculative to be considered, and would tend to permit the trier of fact to surmise the value of the land at an indefinite future date...This violates the general principle that value is to be determined as of the date of the taking...Thus, it can readily be seen that the subdivision of a parcel of land is not merely a matter of drawing lots on a plan with paper streets.

In *City of Harlingen v. Estate of Sharboneau,* Harboneau’s appraiser established that a condemned 9.852-acre tract had the potential to support 44 single-family lots averaging 7,700 square feet each, based on an analysis of three existing subdivisions in the area, summarized below:

Having established the potential lot yield and assuming an absorption period of three years, the appraiser described the valuation process in the following manner:

An adequately sized tract or subdivision is valued by estimating the total gross sales of all the lots. From the amount deductions are made for all absorption period holding costs such as taxes, insurance, management/security/maintenance, entrepreneurial remuneration [developer’s profit at 25% of gross lot sales receipts] and financial holding costs. If the property is undeveloped open land, the cost of construction is also deducted in order to derive the estimated value of the property as raw land.

Note: The estimated net income in

<table>
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<th>Subdivision</th>
<th>Area (ac.)</th>
<th>Total Lots</th>
<th>Avg. Area (sf)</th>
<th>Yield Per Acre</th>
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<tr>
<td>Knightwood Estates I</td>
<td>11.408</td>
<td>61</td>
<td>6,793</td>
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<tr>
<td>Knightwood Estates II</td>
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<td>79</td>
<td>7,700</td>
<td>4.43</td>
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<tr>
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<td>9.852</td>
<td>44</td>
<td>7,700</td>
<td>4.47</td>
</tr>
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</table>
each year of the three-year sell-out period was discounted at 10.5% to a present value of $413,770, from which was deducted the upfront development cost of $123,150 necessary to complete the subdivision and generate the projected net income from finished lot sales, and to reflect the residual value of $290,620 attributable to the raw land in its "as is" condition.

Ultimately, the Texas Supreme Court rejected Sharboneau’s appraisal evidence of the SDM as not relevant in estimating the market value of a 9.85-acre taking, as it bypassed all of the problems that could occur during an actual development, substituting instead the best possible outcome. In reversing the trial court’s judgement, the Texas Supreme Court observed that the SDM included more than a dozen analytical steps, most involving assumptions and estimates, any one of which could seriously affect the appraisal’s accuracy. This wide margin for error counsels against using the SDM in ordinary circumstances. In addition, the appraiser’s subdivision development analysis made little or no adjustment for the buyer’s risk that the subdivision might fail. The appraiser merely assumed that it would take three years to sell all the lots in the hypothetical subdivision. This prediction is insufficient to account for unexpected competition, political opposition to the development, economic stagnation, or other risks that the subdivision could turn out to be a bad investment. The appraiser’s subdivision analysis determined only what a developer could hypothetically afford to pay to profitably subdivide the property, not what a developer would pay in the competitive, risk-filled marketplace of the real world.

References

Endnotes
1 Appraisal Institute, The Appraisal of Real Estate. 12th ed. (Chicago: Appraisal Institute, 2001), 343.
2 Ibid., 342.
3 Appraisers usually apply a discounted cash flow (DCF) multi-period spreadsheet valuation analysis, whereas developers often simply rely on a static model in pricing undeveloped land.
4 Appraisers and developers either expense developer’s profit as a separate line item or treat developer’s profit as a residual in their proformas.
5 Because of the significant risks and upfront development costs of subdivision, actual subdivision construction is not likely to commence until the developer has negotiated an adequate number of conditional lot presales.
6 Defined as "The most reasonable price which a property should bring in a competitive and open market under all conditions requisite to a fair sale with the buyer and seller each acting prudently, knowledgeably, and assuming the price is not affected by undue stimuli."
7 William Ted Anglyn, Robert Moreyra, and John C. Putman, ‘Subdivision Analysis – A Profit-Residual Model,’ The Appraisal Journal, (January 1988): 45-59. The authors illustrate a procedure for valuing a fully developed and ready to market subdivision, which they refer to as a “sellout property.” The authors concede that their premise of a completed subdivision is “often theoretical (especially when the units are not totally completed until sold),” but is pertinent to loan underwriting and investment analysis. In response to a rebuttal letter at page 411 of the July 1988 issue of The Appraisal Journal, the authors at pages 412-420 discuss entrepreneurial profit and equity yield requirements, and provide additional printout material in support of their original article. Also see Douglas D. Lovell, ‘Condominium and Subdivision Discounting,’ The Appraisal Journal, (October 1983): 524-539. The article focuses on the valuation of “for sale” properties – that is, “as if completed” condominium and subdivision projects.
8 J. R. Kimball, Barbara S. Bloomberg, and Steven A. Jones, ‘Subdivision Analysis and Valuation,’ The Appraisal Journal, (October 1986): 493-503. Where the value of the land is readily discernable by sales comparison (direct comparison approach), the authors illustrate a procedure of financial feasibility that allows the appraiser and the client to study the performance of a proposed subdivision enterprise.
10 J. D. Eaton, Real Estate Valuation In Litigation, 2nd ed. (Chicago: Appraisal Institute, 1995), 246.
11 Ibid., 254-255.
13 City of Harlingen v. Estate of Sharboneau, No. 99-1118 (Tex. 05/17/2001), TX-QL 2866. In an unprecedented move, on August 29, 2000, legal counsel on behalf of the Appraisal Institute filed an Amicus Curiae or “friend of the court” brief stating that, “[t]he Subdivision Development Analysis Method or Method is a generally recognized and accepted technique in the appraisal profession used to reliably estimate the fair market value of undeveloped land when subdivision development represents the highest and best use of that land.”
14 The court, in discussing the discount rate of 10.5% used by the appraiser, made reference to the Appraisal Institute’s publication on the SDM noting that “[t]he discount rate applied, which is derived from and supported by the market, should reflect the risk involved.” The Appraisal of Real Estate 329 (11th ed. 1996). It also made reference to the “many marketplace uncertainties for which the appraisal must account.” Douglas D. Lovell & Robert S. Martin, Subdivision Analysis 33-40 (1993). The appraiser’s “discount rate represented only ‘financial carrying cost for the debt service and return on equity,’ with no adjustment for risk. Nowhere else in his analysis did...[the appraiser] account for marketplace uncertainties.”

NOTE: In part II of this article, appearing in the next issue of Canadian Appraiser, the author reviews the subdivision development method from the perspective of highest and best use.

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