An Environmental Trade Case Study: Agricultural Conservation Easement Pays Off Environmental Penalty

By Donald A. Fisher, ARA, MAI

Abstract

Agricultural conservation easements have been traditionally used to transfer or extinguish development rights on farm and ranch land in order to preserve open space and conservation and natural resources. These transfers are typically made with governmental agencies or Internal Revenue Service qualified land trusts. Usually this process is initiated because the property owner wants to ensure future agricultural use as well as conserve natural resources in exchange for financial benefits in either payments and/or tax credits.

However, the owners of the property that is the subject of this case study agreed to transfer its development rights in exchange for 60 percent of an environmental fine for a manure lagoon breach that spilled into a nearby river and killed approximately a quarter million fish. The appraisal assignment involved estimating the "before" value of the farmland with full development rights, the value of the farmland without development rights, the value of the development rights, and finally, the value amount of the development rights needed to equal a targeted dollar amount for the agreed upon environmental fine.

The Problem

The Marks dairy farm, located in three contiguous townships near Lowville, New York, is one of the largest dairy farms in upstate New York with 4,500 animals (see Maps 1 and 2). It is a modern and well-managed facility located on approximately 3,370 acres of land with several miles of frontage road. In early August 2005 part of one of the walls of the farm's manure storage lagoon breached (allegedly due to a structural design flaw), allowing about three million gallons of liquid manure to run through a series of drainage ditches to the nearby Black River (see Map 3 for location of lagoon). The resulting slug of manure-polluted water flowed northwesterly through several villages and the city of Watertown, eventually emptying into Lake Ontario. The massive quantity of manure depleted the river water of oxygen and poisoned at least 250,000 fish, including walleye, trout, pike, pickerel, and bass. Following the overflow, bloated fish carcasses were found floating on the surface and along the shoreline.

In addition to the fish kill, the polluted water forced Watertown, some villages and several residential owners to temporarily stop drawing water from the Black River for water supplies, fishing along the river was suspended, and the widely popular white water rafting operations downriver were halted. Manure runoff that reached the river caused eutrophication – which is a sharp increase in mineral and organic nutrients that depletes oxygen in the water – with rapid growth of algae and other water plants competing with fish for oxygen, creating an environment where the plant life thrives but the animal life suffers. Numerous complaints were issued about the strongly scented "tide" that moved through the center of Watertown, a smell that was very objectionable to the urban population.

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The New York State Department of Environmental Conservation (NYSDEC) issued a fine on the Marks farm totaling $2.2 million, based on a rate of ten dollars per animal killed (conservatively estimated at 220,000 fish although some reports came in much higher). Negotiations between the owners and NYSDEC resulted in a cash payment of $700,000 (40% of the total fine) and $1.5 million in "environmental" values. Part of the environmental contributions consisted of fishing rights along the Black River and two small parking lots and access trails from public roads to the river for the public to reach the fishing rights corridor along the river – which had a value agreed to by both parties of $180,000. The remaining $1,320,000 of the environmental part of the settlement was to be in the form of development rights.

The Appraisal Assignment

The appraisal assignment was to determine how much of the subject property's land would be required to have its development rights reach the target value of $1,320,000 – if in fact it could be attained. The location of the subject property, south of the village of Lowville, was not in an area that was being strongly pressured by residential development. Fort Drum, approximately twenty miles to the north and just north of the city of Watertown, was undergoing expansion and the demand for new housing was reaching the Lowville area, but only to a limited degree. The cities of Rome and Utica, located about twenty and twenty-five miles to the south, were sources of employment for Lowville-area residents, but also to only a relatively small amount. There were no pending growth projections in the Lowville area that would signal sufficient growth to absorb the potential lots that could be created on a hypothetical subdivision of the Marks farm. Even though there were over 3,000 acres that could potentially be available for the contribution of development rights, there was serious concern that there might not be enough value in the development rights to reach the targeted amount.

Consultations between the appraiser, the owners, and NYSDEC were held to develop the scope of work for this appraisal assignment. The two criteria that were established to begin the assignment included:

- Initially, the entire 3,279-acre property was to be considered for the appraisal, with the understanding that the total land area may or may not be sufficient to reach the targeted value.
- New York State Department of Agriculture and Markets' (NYSDAM) Farmland Protection Program (FPP) appraisal standards and agricultural conservation easement terms would be utilized.
    - The FPP required only that the land value be considered in a "before and after" appraisal analysis
    - New York State revised its appraisal requirements in 2009 to include the valuation of all building improvements as well as consideration of any enhancement to family-owned parcels (similar to Internal Revenue Service [IRS] requirements for donated conservation easements)
    - The donation of the subject property's development rights would be exclusive to satisfying the NYSDEC fine and would not be available for the owners to claim as a charitable donation with the IRS

The appraisal to be developed for this assignment would be based on two hypothetical conditions; the first was in the valuation of the property with development potential as if the building improvements did not exist. The second condition is applied to the "after" appraisal and is based on the assumption that the proposed conservation easement was already in place encumbering the subject property.

The initial inspection of the property resulted in a re-defining of the "subject property." The Black River formed most of the eastern boundary of the Marks farm, including the inside of a large meander that encompassed over 600 acres of floodplain. Flood and wetland maps confirmed that this area was susceptible to frequent flooding and as a result would have little if any *development* potential. After discussing this issue with the owner and the State, all parties agreed that the floodplain would not have any development potential and its valuation would not be necessary for the assignment because it represented a different use compared to the rest of the property (i.e., agricultural with drainage restrictions compared to a combination of agricultural, recreational, and potential rural residential development). This change left the area of the property to be appraised at 2,667 acres (floodplain land included in the appraised acreage was associated with upland that had development potential).

Before Appraisal

As previously indicated, the potential for rural residential development in the subject area was relatively low to modest – a distinct concern when the goal was to measure the development value on more than 2,600 acres. To determine the property's highest and best use, including the probability and reasonableness of development, a market study was conducted to evaluate the level and type of rural residential activity in subject's marketing area. The market study was designed to address five topics:

- Frequency of rural residential land sales
- Size ranges of rural residential land sales
- Price ranges for each size range
- Patterns of land purchases
- Potential for interior residential subdivisions

The results of the market study led to the following conclusions:

- No sales of land purchased for residential usage were found in the one hundred-plus acre range. This observation indicated that the subject property, if sold for rural residential usage, should be considered as several smaller lots or economic units – in essence, a hypothetical subdivision.
- Interior subdivisions requiring new road and utility line construction by the development were not economically feasible. The prices being paid for residential lots were not high enough to cover the cost of building new roads and the number of sales of one- to two-acre lots that could potentially be created on the subject property would require decades to be absorbed, reducing the financially feasible to uneconomic levels. This point concluded that only lots fronting on existing public roads would be feasible for consideration in the valuation analysis, eliminating the need for interior road and utility line construction.
- The patterns of land purchases in the marketing area spanned across all parcel sizes ranging from minimum one-acre lots required by zoning to lots exceeding fifty acres that were either further subdivided or used as a single building site. The number of sales was calculated for several size ranges to determine the level of activity in each size range. The subject property was subdivided into a combination of lot sizes that matched the frequency of lot sizes found in the market study. Included in this hypothetical subdivision was recognition of the various amenities that enhanced different parts of the subject, including river frontage, ponds, streams, woods, and scenic views. The result was that several lots or economic units that mimicked the actual activity of the marketplace in which the subject property is located would be the best way to market the property. Figure 1 demonstrates the summary of the market study that was developed for this assignment.
- Related to the conclusion above is the frequency of lot sales in each size range that would be incorporated into the sell-out period of the hypothetical subdivision.
- The last conclusion reached in the market study was in the ranges of prices for each size group that was reported by the active market. These price ranges showed that rural residential land was reflecting a significantly higher value level than agricultural/recreational land was showing in the subject's neighborhood. This data provided support for the highest and best use conclusion and would also be used in the "before" appraisal's valuation.

The highest and best use of the subject's land (improvements do not have to be considered for the State's FPP), after considering the zoning and land use regulations in each town, the physical limitations (primarily road frontage, topography, shape, and amenities such as stream and river frontage), and spread of land values for various types of uses, was determined to be for rural residential development as several lots or economic units. After considering the results of the market study and comparing the characteristics of the sales studied to the subject property's features, the conclusion was to theoretically split the property into 81 separate lots or economic units. This combination maximized the existing public frontage roads as well as provided a mix of different-sized lots with a variety of amenities – intended to make the best use of the subdivision's appeal to the potential market.

Appraisals prepared for conservation easements must invoke at least one hypothetical condition – either the "before" and/or "after" appraisal is based on a physical or legal condition that does not exist. For this assignment three hypothetical conditions were invoked. The first was the assumption that the property was available for residential development in the "before" appraisal. Second, as required for the State's FPP, the presence of the existing buildings was ignored for valuation purposes (this condition has since been changed as indicated previously). The third condition assumed that the conservation easement was already in existence and encumbering the subject's land in the "after" appraisal.

The next step involved researching sales to use in the valuation grids for each group of sales, separated by size and major amenities. Using the market study as a guide, the lots were allocated into six size groups: under five acres; five to ten acres; ten to twenty-five acres; twenty-five to fifty acres; fifty to one hundred acres;and over one hundred acres. Four of the larger categories were further subdivided into lots with and without river and/or stream frontage, resulting in a total of ten size and type categories. Sales from the subject's marketing area, which had already been identified in the market study, were investigated and inserted into valuation grids to estimate the current market value for the typical lot in each group. Some of the lots

required further adjustment because of topography, shape, wetlands, and/or other minor differences. See Valuation Grid Sample #1 for an example of one of the grids development in the "before" appraisal. After all of the major and minor adjustments were applied, the *gross* value of all 81 economic units was calculated via simple addition.

The gross value of the 81 lots requires adjustment for subdivision costs and marketing time. Subdivision costs, including surveys, legal fees, municipal approvals, etc. were estimated based on actual expenses observed in subject's marketing area. However, the major development costs (road construction and utility lines) were not required for this analysis because each of the proposed lots were already located on existing public roads.

Discounts were also calculated for marketing time or absorption – the period of time required to obtain the necessary approvals, develop the proposed subdivision, and to sell off all of the lots. The market study already conducted was also used for this part of the analysis by reviewing the number of lot sales that occur annually for each size group, allocating a portion of that total to the subject's lots, and calculating the number of years that would be required to sell all of the lots in each category. Given the large number of lots subdivided out of the subject property, the absorption period was initially projected to be over fifteen years if the lots were all in the same size range. However, the variety of lot sizes with different amenities spanning a typical cross-section of the local market helped to reduce the overall absorption to less than ten years, including the preparation and planning stages. Included in this marketing discount were the holding costs for unsold lots (e.g. taxes and management). Developer's profit was held at a minimum amount because the subdivision was evaluated as if the land was already owned by the developer (also mimicking the actual case).

The net result of the various adjustments, which ranged from 30 to 50 percent for the individual economic units, was an overall average of about 40 percent. This level of discount was within the range of other subdivisions in Central New York, further supporting the value conclusion of the "before appraisal."

After Appraisal

The "after" appraisal considers the value of the property as encumbered with the agricultural conservation easement that extinguished the development rights on the subject property. The primary purpose of the easement was to enable the subject property to remain in agricultural or forestry use for current and future production of food and fiber products and to protect in perpetuity its agricultural and forestry values, use, and utility.

Retained rights granted by the conservation easement contained all of the agricultural rights including the right to construct additional farm-related housing if needed. Since the subject was already being operated as a dairy farm, it met the legal and physical criteria of the "after" highest and best use. Recreational (private) and timber rights had some value in the subject area, but at a much lower value level than what could be realized by agricultural usage. Therefore, after also meeting the financial and maximally productive criteria, the highest and best use of the subject property in the "after" appraisal was for agricultural purposes.

Consideration was also given to dividing the property into two or more economic units (subdivision of the encumbered property was permitted but only with approval of the grantee [State]). A market study of sales activity of farm land sales in the subject's marketing area revealed that there was little change in the level of unit prices as the size of sale parcels exceeded the 100 to 200 acre range. In fact, the few sales of farm land found that were larger than 500 acres actually showed a slight increase in unit prices, suggesting that a greater economy of scale might be recognized for larger parcels. As a result, the subject's "after" highest and best use was for agricultural usage as a single economic unit.

Sales of large tracts of farm land in areas with minimum development pressure and agricultural land already encumbered with conservation easements were used to calculate the value of the subject land in the "after" appraisal. Since the quantity of this type of data was limited, additional valuation processes were also considered. An abbreviated version of the Income Capitalization Approach analyzing the agricultural value of the soils was used to provide a second estimate of the "after" value. Finally, two separate surveys of sales of land with and without development rights were used as a check to determine if the conclusions from the Sales Comparison and Income Capitalization Approaches were within a reasonable range (Fisher, 2004).

After weighing the value indications from the four sources of data evaluated, the "after" value for the subject's land was concluded. The difference between the "before" and "after" land values was presented as representing the contributory value of the development rights on the entire 2,667 acres of land appraised.

Supplemental Analysis

The traditional part of this "before and after" appraisal produced a value for the development rights that exceeded the target $1,320,000 value of the environmental fine by about 20 percent. Therefore, the next step in the assignment was to identify subject acreage that would not have to be encumbered with the conservation easement, allowing that excluded land to retain its development rights. After consulting with both the owners and the NYSDEC, portions of the subject property were prioritized to be *removed* from the land to be encumbered.

A spreadsheet was created that showed the "before" discounted value, the "after" value, and the value of the development rights for each economic unit (see Figure 2). The values of the economic units were deducted from the total property "before" and "after" values until the targeted difference of $1,320,000 was reached. The result of this supplemental analysis was to remove seven economic units and part of an eighth lot (comprising a total of 405 acres) from the land that was needed to compile development rights equal to the target value, indicating that a total area of 2,262 acres were required to match the target value.

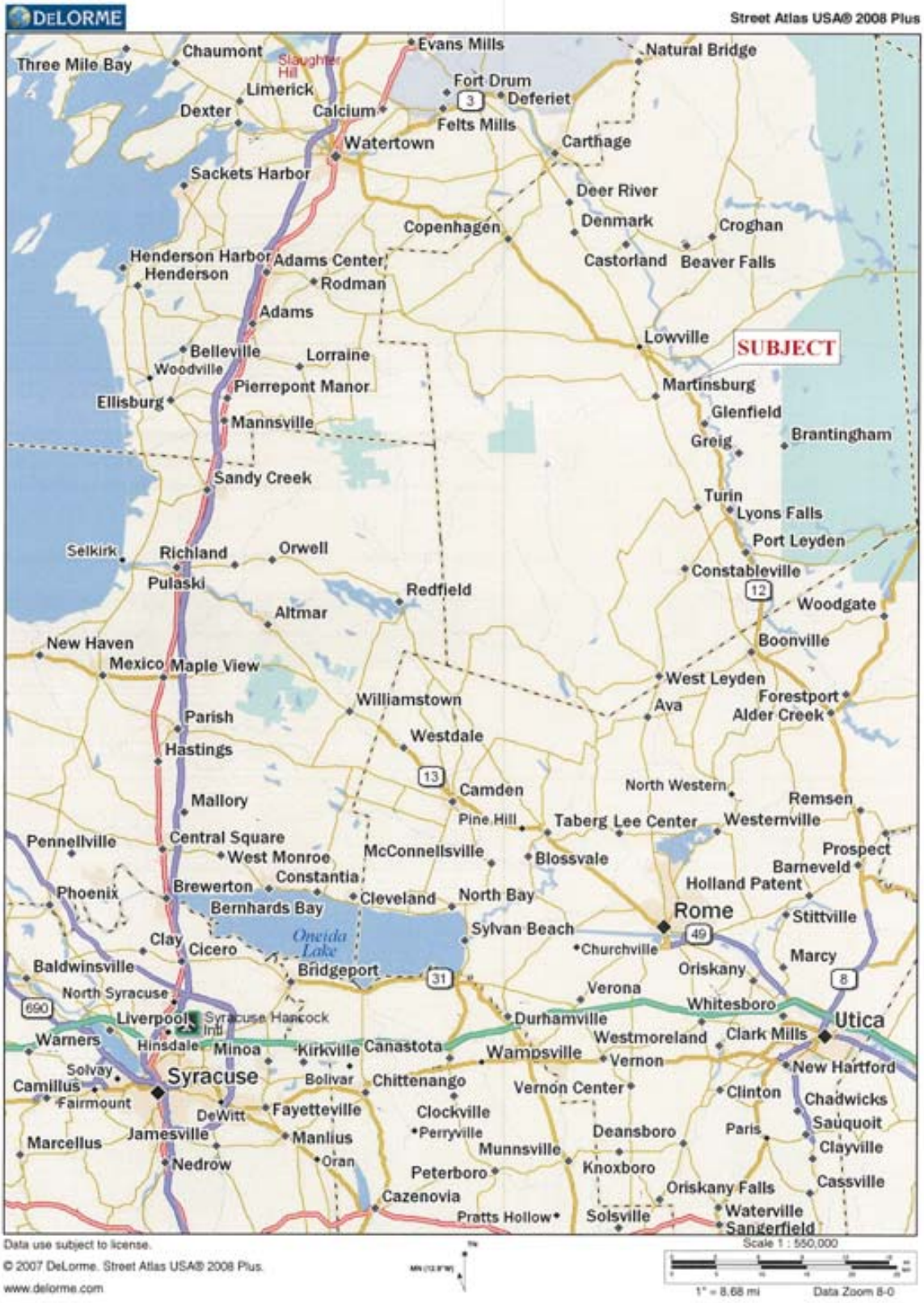
Conclusion

What could have potentially been the end of the existence of a well-managed dairy operation that was fined for an environmental catastrophe was turned around into a reasonable payment plan and the sacrifice of a component of the property's value - its development rights - that were not being used by the property's owners. While the huge fish loss was a travesty, the conclusion to this problem was the creation of public fishing rights to an attractive section of the Black River, the protection of a large tract of productive farm land from future development, and a reasonable cash payment to the State's environmental agency. The conclusion of this disaster was to transfer ownership rights that weren't being used by the owners to the public, and allow a productive dairy farm to remain viable and a labor force of about 40 workers to stay employed. This solution may not have been a win-win-win for all parties involved, but it did prevent what surely would have been a tremendous loss to the local economy if a full cash payment had been demanded.

References

Fisher, Donald A. *Journal of Property Economics*, Volume 1 (Chicago: ASA/ASFMRA/IAAO/NAIFA, 2004) 71-81.

Map 1.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Scale 1 : 550,000
1" = 8.68 mi
Data Zoom 8-0

Map 2.

Map 3.

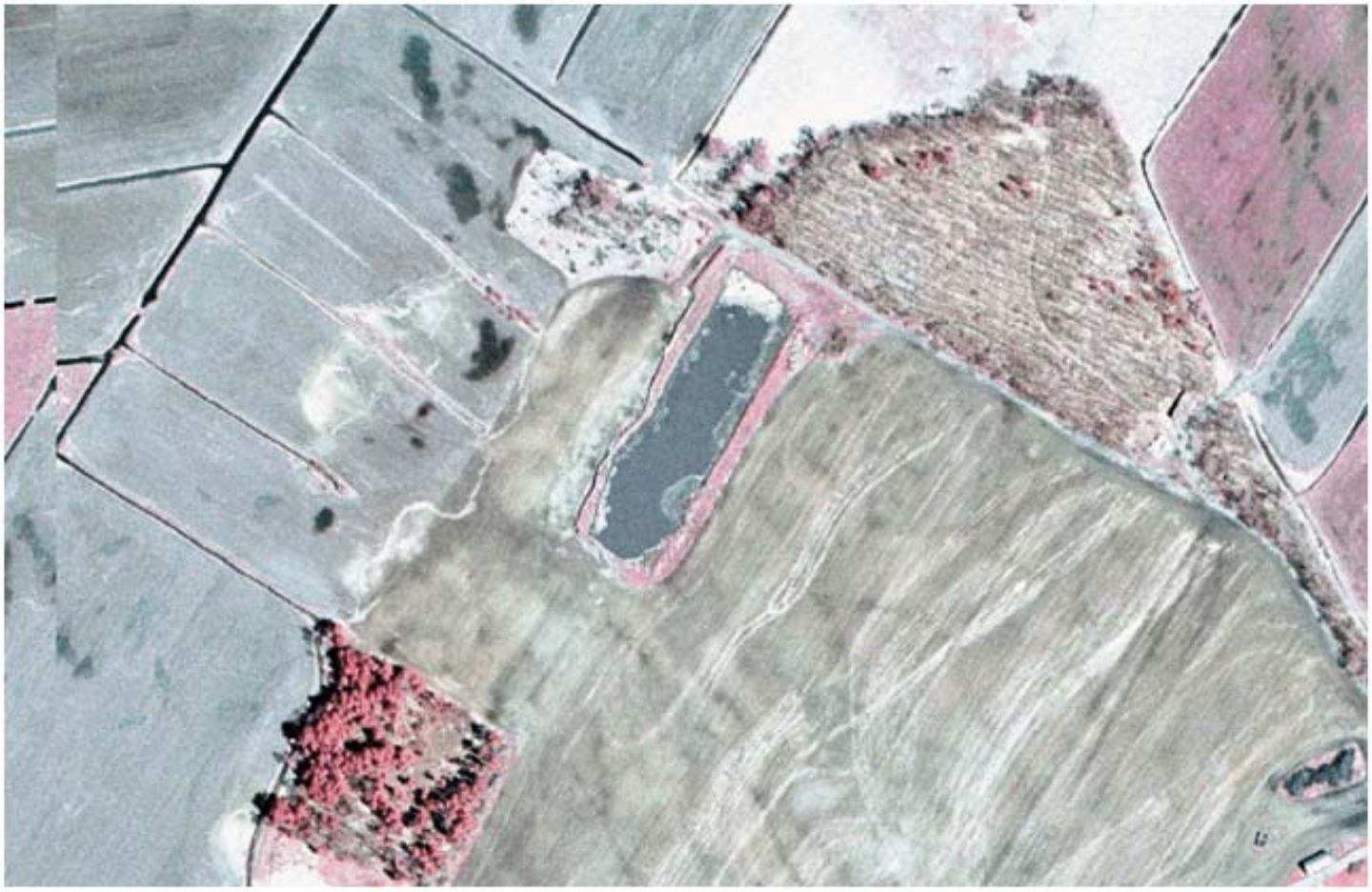

Figure 1.

Summary of Lot Sales by Acre Range 2002 - mid-2006						
Town	Acre Ranges					
	0 - 5	5.01-10	10.01 - 25	25.01 - 50	50.10 - 100	100+
Martinsbug	11	4	1	9	2	0
Watson	35	13	5	4	2	0
Lowville	19	0	0	2	0	0
Turin	5	7	8	3	0	5
Greig	44	25	6	10	4	3
Leyden	10	10	7	4	1	1
Lyonsdale	22	14	7	4	0	0
Denmark	15	14	8	5	3	4
West Turin	20	10	11	13	9	7
Croghan	20	14	6	6	2	2
New Bremen	21	10	10	11	1	1
Harrisburg	8	7	4	5	3	0
Diana	24	16	8	10	2	11
Totals	**254**	**144**	**81**	**86**	**29**	**34**
Sales/Year	**56.4**	**32.0**	**18.0**	**19.1**	**6.4**	**7.6**
Subject Lots	**6**	**7**	**21**	**11**	**6**	**1**
Years for Absorption	**1**	**3**	**6**	**4**	**4**	**1**

Figure 2.

Economic Units To Be Withdrawn From Proposed Ag CE						
Econ. Unit	Acres	Before Value ($/Ac.)	Total Before Value	After Value ($/Ac.)	Total After Value	Ag CE Value
54	47.00	$1,200	$56,400	$550	$25,850	$30,550
53	47.00	$1,200	$56,400	$550	$25,850	$30,550
52	150.20	$1,080	$162,216	$550	$82,610	$79,606
51	65.30	$1,140	$74,442	$550	$35,915	$38,527
p/o 50	27.51	$1,140	$31,361	$550	$15,131	$16,231
77	24.00	$1,093	$26,220	$550	$13,200	$13,020
76	20.00	$2,925	$58,500	$550	$11,000	$47,500
75	24.00	$1,093	$26,220	$550	$13,200	$13,020
	405.01		$491,759		$222,756	$269,004

Valuation Grid Sample #1

ELEMENTS OF COMPARISON	SUBJECT	SALE L-25	SALE L-26
Total Purchase Price		**$25,000**	**$50,000**
Sale Price per Acre		$1,256	$2,427
Rights Conveyed	**Fee Simple**	**Fee Simple**	**Fee Simple**
		0%	0%
Adjusted Sale Price per Acre		$1,256	$2,427
Financing Terms	**Market**	**Similar**	**Similar**
		0%	0%
Conditions of Sale	**Arm's Length**	**Similar**	**Adjoining Owner**
		0%	10%
Adjusted Sale Price per Acre		$1,256	$2,670
Market Conditions	**11/14/06**	**09/11/06**	**06/22/06**
		1%	1%
Adjusted Sale Price per Acre		$1,263	$2,702
Location	**Various roads T/o Martinsburg**	**S/W/C Rt. 12 & Rt. 53 T/o West Turin**	**Off E/S Rt. 12 T/o Leyden**
		0%	0%
Access	**2-Lane Paved**	**2 2-Lane Paved**	**1 Lane Dirt**
		0%	20%
Size (Acres)	**26 to 50**	**19.90**	**20.60**
		-10%	-10%
Topography	**Level - Gently Sloping**	**Level to mod. sloping**	**Level to gently sloping**
		10%	0%
Shape	**Slightly irregular**	**Slightly Irregular**	**Slightly Irregular**
		0%	0%
Utilities	**E. T.**	**E. T.**	**E. T.**
		0%	0%
Zoning	**Agricultural**	**Hamlet**	**None**
		0%	0%
Development Potential	**Average-Good**	**Good**	**Fair**
		0%	10%
Net Adjustment - %		0%	20%
Net Adjustment - $		$0	$540
Indicated Value For Subject per Acre		**$1,263**	**$3,242**