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WILLOW-HEALY
APPRAISAL REVIEW

Landmark
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WILLOW-HEALY

APPRAISAL REVIEW

WILLOW-HEALY APPRAISAL REVIEW

by

Michael L. Robbins, Ph.D.
Asst. Professor of Appraisal

and

James A. Graaskamp, Ph.D.
Professor of Land Economics

October 5, 1983

Landmark
Research
Inc.

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James A. Graaskamp, Ph.D., S.R.E.A., C.R.E.

Jean B. Davis, M.S.

Mr. Robert M. Goldberg, Esq.
Counsel for Ahtna, Inc.
1107 West Seventh Avenue
Anchorage, Alaska 99501

Re: Review of Willow-Healy Electrical Transmission Line
Appraisal provided by the Alaska Power Authority

Dear Mr. Goldberg

In response to your request, we have reviewed the appraisal of the lands owned by Ahtna, Inc. and have found several significant errors and omissions in the appraisal. Our review is presented in essentially two separate sections. The first section is our review of the Ahtna appraisal done by the appraiser under the traditional appraisal format. This section will identify errors in the original appraisal and suggest alternative actions. The second section is a presentation of contemporary appraisal concepts and how these concepts could be applied to the Ahtna land to correct for omissions found in the original appraisal, resulting in what we believe is a much more sensitive value estimate.

Our review of the appraisal has uncovered five (5) significant errors:

1. The value conclusion is unsupported on its face due to what we believe is an error in correctly adjusting for TIME differences between comparable sale dates.

Our review clearly shows that, if the appraiser had followed the information presented in the appraisal, the correct adjustment for time would have had a significant impact on the final value conclusion, causing the value to be much higher.

2. The appraisal is invalid. Having identified the Highest and Best Use of the Backlands as being SUBSISTENCE and then applying a discount factor, as if the land is developable, invalidates the final value conclusion.

It has been shown that the appraiser was not consistent in defining and in turn supporting the definition of best use in the valuation models. The Highest and Best Use definition is central to the determination of a value estimate, consequently, by not retaining consistent best use definitions, the value estimates are invalid.

3. The values determined under the Market Comparison Method, the valuation method used by the appraiser, are invalid because of the appraiser's failure to adequately identify and adjust for differences between:
 - A. Physical Characteristics
 - B. Motivation of Buyers and Sellers
 - C. Time Differences between sale dates

Our review indicates that the appraiser failed to adequately identify significant differences, between and within the comparables and the subject parcels, for important elements that would substantially alter the marketability, and thus the value, of individual parcels.

4. The adjustment Process, utilized as part of the Market Comparison Valuation Method, is invalid because of the appraiser's error in combining valuation methods.

Our review indicates that the appraiser's process of first indicating a "Fee Value" and then discounting (incorrectly) the fee value for development costs, under the assumption that the land was going to be used for development purposes, is unsupported in any accepted appraisal methodology. It has been shown that this mixing of methods invalidates the resulting value estimates.

5. The indication of a 25% residual value, remaining after the taking for the power line, is unsupported.

Our review indicates that the appraiser expects 25% of the value to remain after the power line is constructed. In light of the fact that the Highest and Best Use of the land, by the appraiser's estimate, is commercial/residential development and subsistence, this amount seems high. Given that no information is provided suggesting a market for either development land or subsistence under power corridors a 25% residual is unlikely. We believe that a more realistic estimate would be a 95% taking, consistent with utility takings in California and elsewhere.

Our analysis indicates that by utilizing the comparables provided by the appraiser, adjusting them for time and then estimating the mean price per acre, an expected value for the taking would be \$950,000.

Our analysis also indicates that if the appraiser had employed a more contemporary appraisal format (beginning with the attributes of the site and working toward highest and best use) two significant omissions in the appraisal may have been avoided. The first omission was the failure of the appraiser to recognize the unique physical, legal/political, and locational attributes of the Ahtna lands. This failure prevented the appraiser from recognizing the Ahtna land as a corridor, and thus benefiting from the economics of a corridor. The second omission was the failure to recognize possible severance

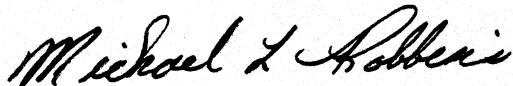
damage to adjoining property caused by the construction on the lands being taken. Our review does not attempt to indicate the magnitude of the economic benefit if these two omissions were corrected, but we do suggest analysis methods that could be employed to estimate the possible economic benefit.

In order to further evaluate the expected price of the subject property, we would like to receive all the pertinent information on the comparables reviewed by the appraiser. In this way, it would be possible to demonstrate how we can make relevant use of the limited amount of information available for this type of appraisal problem. Along this line, we are currently investigating corridor transactions which have occurred between railroad companies or utility companies. It is hoped that this review will provide information on how these types of land users select and price corridors and in turn provide pricing techniques that could be applied to the Ahtna lands.

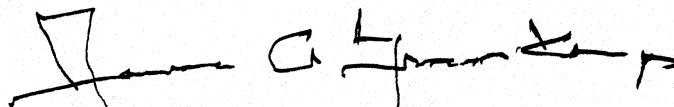
In summary, we believe there are severe weaknesses in the appraisal, both in function and form, that warrant further evaluation of the subject properties. In light of the unique character and special conditions surrounding the subject properties, we believe that a rejection of the initial value estimates would be in order.

We hope that the attached review will be useful and informative. Given the limited amount of data provided within the appraisal, we are unable to provide you with a realistic estimate of the subject properties' market value. If you feel that this is something that you would like to discuss further, feel free to contact us at any time via Landmark Research, Inc.

Sincerely yours,



Michael L. Robbins, Ph.D.
Asst. Professor of Appraisal



James A. Graaskamp, Ph.D.
Professor of Land Economics

Willow-Healy Appraisal Review

Error Identification/Correction

This section of our review will concentrate on the errors made by the appraiser in determining the amount of compensation due for the Ahtna lands being taken. When possible we will attempt to indicate how the errors could be corrected and suggest what the expected results might be.

Table 1 is a summary of the important facts concerning value, as presented in the appraisal of the Ahtna lands, commissioned by the Alaska Power Authority. The first column identifies the six land area units appraised by the appraiser and referred to by number in the appraisal. Column 2 identifies the land area within each land parcel which is to be impacted by the power line. This is the actual land area upon which the power line is to be built. These area estimates were developed by the power authority and provided to their appraiser for use in the appraisal. The total land area covered by the taking is indicated to be 714.55 acres.

The third column identifies the Raw Land Market Values as determined by the appraiser, using the Market Comparison valuation method. The appraiser estimated the total market value of the raw land being taken as \$474,034. The fourth column identifies a valuation discount to be applied to

those properties, which in the appraiser's opinion, are subject to a land development use option. It needs to be pointed out that the appraiser did not apply the land development discount to subject parcels 2 and 5, due to there small size.

Column 5 identifies the percent of the estimated market value to be taken by the power line. In the appraisal, the appraiser has indicated that the market value of the land upon which the power line is to be built will diminish 75%. This suggests that after the power line is constructed, 25% of the land's indicated highest and best use will remain. The highest and best use for all parcels is estimated by the appraiser to be a combination of commercial and/or residential development along the highway and railroad and subsistence use of the backlands. It needs to be pointed out that nowhere in the appraisal does the appraiser indicate that there exists a market for commercial / residential development under power lines or whether someone would be willing to purchase access to the corridor for subsistence use.

Column 6 identifies the level of compensation to be paid for each parcel, following adjustment for development cost, and before adjustment for setting the property whole. Column 7 identifies the total compensation by subject parcel to be paid to the owner. The difference between Columns 6

and 7 is an upward adjustment for Properties 2 and 5 resulting in an increase in compensation of \$3,119. The sum of Column 7, \$180,330 or rounded to \$180,400, is the total compensation due the owner, as estimated by the appraiser.

Table 1
Summary Of Appraisal Results

1	2	3	4	5	6	7
1.	136.95	92,170	51,374	.75	38,530	38,530
2.	3.86	3,281		.75	2,461	4,100
3.	136.03	74,817	37,165	.75	27,900	27,900
4.	415.22	289,420	133,304	.75	100,000	100,000
5.	4.94	4,693		.75	3,520	5,000
6.	<u>17.55</u>	<u>9,653</u>	6,382	.75	4,800	<u>4,800</u>
	714.55	474,034				180,330

Table Key

- 1 = Subject Property Number
- 2 = Area in acres
- 3 = Estimated Value - Direct Market Comparison
(These values were shown in the appraisal)
- 4 = Discounted value for development cost
- 5 = % of value taking by power company
- 6 = Amount of power company taking
- 7 = Indicated compensation amount

In reviewing the methodology employed by the appraiser in developing the value estimates, we agree that the market comparison valuation method is the method best suited for the type of property and market conditions in which the value needs to be developed. However, we do NOT agree with the methods employed by the appraiser in developing the

value estimates using the market comparison method of valuation.

We have chosen to begin our review of the indicated compensation level by evaluating the comparables selected by the appraiser as being similar to the subject. Table 2 identifies the characteristics of each of the six comparables used by the appraiser in the appraisal. Columns 2 and 4 indicate the size and per acre selling price of each of the comparables. Note that the sum of Column 2 is 757 acres. This sum represents the total number of acres in the comparable data pool established by the appraiser. Column 3 indicates the percent contribution, in acres, that each comparable contributes to the total acreage pool. By multiplying the percent contribution by the average price per acre, a size weighted estimate is determined for each comparable. Column 5 identifies the weighted contribution made by each comparable to the total data pool. The sum of Column 5, known as the Weighted Average, is the average per acre price paid for land within the comparable data pool. This amount, \$946.63, is the expected per acre price that could be applied to the subject property.

If the subject parcels are equally similar to the comparables and equally identical in all economic attributes, the indicated value for the subject parcels would then be the parcels area multiplied by the indicated weighted average price of \$946.63 per acre.

Table 2
Comparable Summary - Equal Selection

1	2		3		4		5
1.	160	=	.211	*	325	=	68.575
2.	78	=	.103	*	724	=	74.572
3.	94	=	.124	*	750	=	93.000
4.	135	=	.178	*	1,030	=	183.340
5.	140	=	.185	*	1,244	=	230.140
6.	<u>150</u>	=	<u>.198</u>	*	<u>1,500</u>	=	<u>297.000</u>
	757		1.000				946.627

Table Key

- 1 = Comparable Number
- 2 = Comparable area in acres
- 3 = % of total acres in comparable pool
- 4 = Price paid per acre
- 5 = Weighted contribution to price paid

If, as is usually the case, the subject parcels are not identical to the comparables, it is reasonable to expect that some comparables will be selected more frequently than others, resulting in some comparables contributing more to the value estimates than others. Table 3 identifies the frequency of selection, by the appraiser, in pricing the subject parcels. Column 3 of this table indicates the percentage that each comparable was selected in pricing all of the subject parcels. From this table it can be seen that Comparable 2 (located approximately 22 miles southwest of Cantwell) was selected 13 times, representing slightly more than 37% of all the selections. Thus, Comparable 2 will

have a large impact in the final value estimate. Comparables 1 and 4 were each selected 7 times, each representing 20% of the total selections. Comparables 5 and 6 were only selected 1 time each, thus having minimal contribution to the value estimate.

Table 3
Comparables - Frequency Of Selection

	1	2	3
1.	7		.200
2.	13		.371
3.	6		.171
4.	7		.200
5.	1		.029
6.	<u>1</u>		.029
	35		

Table Key

- 1 = Comparable Number
- 2 = Frequency of selection in appraisal
- 3 = % comparable is used in appraisal

By using the frequency of selection as a weighting function, as was done with the average acre price, it is possible to determine the weighted average per acre price that could be applied to the subject, if the subject was very similar to the comparables used. Table 4 indicates that the weighted average per acre price used by the appraiser was \$747.43. It needs to be pointed out that for Tables 3 and 4 a seventh comparable was used by the

appraiser, but could not be included in the analysis. The comparable titled "State lottery sales of "40" acre tracts across the Nenana River from Anderson" was used on four of the subject parcels. These tracts sold at prices ranging between \$482 and \$654 per acre. The appraiser used these individual sales as a single transaction ranging in price from X to Y, where the value estimate of X and Y were estimated by the appraiser by adjusting the subdivision tract for differences between the tract and the subject parcel. For example, in pricing Subject Parcel 6, the appraiser indicated the following:

Compared to AHTNA 6, the Anderson "Subdivision" tracts are inferior for location, access and potential for development, adjusted for size and indicated adjusted values ranging between \$500 and \$700 per acre.

As the appraiser was adjusting the prices of the tract within alternate ranges, it was not realistic to include this as a reasonable comparable. Also, by using this transaction(s) as a comparable, the appraiser is suggesting that if the subject parcel is to be sold, it will be sold in a lottery. If this was not the case, the lottery prices would need to be adjusted for any pricing differential between lottery sales and nonlottery sales. No information is provided to indicate that the appraiser considered this as an adjustment.

Table 4
Frequency Weighted - Average Price

1	2	3	4
1.	.200	325	65.000
2.	.371	724	268.604
3.	.171	750	128.250
4.	.200	1,030	206.000
5.	.029	1,244	36.076
6.	.029	1,500	<u>43.500</u>
			747.430

Table Key

- 1 = Comparable Number
- 2 = % Used in appraisal
- 3 = Selling Price per acre
- 4 = Weighted Average price per acre

This short review of the chosen comparables has indicated that, if the subject parcels were very similar to the comparable pool in distribution of physical and economic attributes, the expected per acre value would be close to the weighted average per acre price of \$946.63. To the extent that the subject parcels are more similar to some comparables, resulting in those comparables being selected more frequently, the expected per acre price would be shifted toward the average of the selected comparables. In the appraisal, the comparables selected by the appraiser resulted in the average expected price to shift from \$946.63 to \$747.43. To the extent that the final value of the subject parcels are different from the \$747.43 expected

subject parcels are different from the \$747.43 expected average, it is inferred that the subject is different from the comparables, resulting in the appraiser needing to adjust the comparables for differences between the subject and the comparables.

Table 5 is a summary table of the final value estimates of the subject parcels. This table represents the derived land value estimates prior to adjusting for the reduction in value due to the placement of the power line. Column 3 represents the appraiser's determination of value, unadjusted for the impact of the power line. These values (Column 3) divided by the area of each parcel (Column 2), yields the average value per acre per parcel (Column 4). By multiplying the average per acre price per parcel (Column 4) by the percent of the total acreage (Column 5) the weighted contribution to the mean is determined (Column 6). The sum of the individual contributions represents the weighted average value per acre of the subject parcels. To the extent that the sum of Column 6 is different from the \$946.63 or \$747.43 estimates, it can be stated that this amount is the difference, as viewed by the appraiser, in marketability of the subject and the comparables.

The appraised value of the subject property is estimated by the appraiser to be \$330.45 per acre. This amount is almost 56% less than the average of the used

comparables (\$330.45 / \$747.43) and slightly more than 65% less than the comparable pool (\$330.45 / \$946.63). This indicates that, in the appraiser's opinion, the value of the subject parcels is considerably less than that of the comparable properties.

Table 5
Subject Property Valuation Summary

1	2	3	4	5	6
1.	136.95	= 51,374	= 375.13	* .192	= 72.025
2.	3.89	= 3,281	= 850.00	* .005	= 4.250
3.	136.03	= 37,165	= 273.21	* .190	= 51.910
4	415.22	= 133,304	= 321.04	* .581	= 186.524
5	4.94	= 4,693	= 950.00	* .007	= 6.650
6	<u>17.55</u>	= 6,382	= 363.65	* .025	= <u>9.091</u>
	714.55				330.450

Table Key

- 1 = Subject property number
- 2 = Area in acres
- 3 = Indicated Compensation
- 4 = Compensation per acre
- 5 = % of total subject area
- 6 = Weighted compensation per acre

This review of the expected value estimates, as compared to the estimated values, has raised several significant questions concerning the reliability of the appraised values. The great difference between the estimated and expected values suggests that possibly the comparables are not very comparable, in which case, other

comparables should be sought, or maybe an error in the application of the market comparison method. In reviewing the market comparison method, as applied by the appraiser, several inconsistencies have been identified, beyond those already stated.

TIME ADJUSTMENT

It is a well established rule in appraisal that prior to making any kind of adjustment for differences between subject and comparable, the first step is to adjust the comparable's selling price for time. Our review of the appraisal indicates that the appraiser did not correctly apply the time adjustments to the comparables. For example note the following for the appraisal of AHTNA 1:

Comparable No. 2, located at the north end of Colorado Lake approximately 6 miles southwest of AHTNA 1, contains 78 acres and sold in October 1978 for a price of \$724 per acre. Compared to the highway oriented portion of AHTNA 1, Comparable No. 2 is superior for potential for development (lake frontage), inferior for access, adjusted for size and time, and indicates an adjusted value of approximately \$850 per acre.

This sequence is of special importance since the adjustment rates for differences between the subject and the comparables are percentage amounts, thus, if the base number

is under stated, i.e. the indicated selling price, all the adjustment amounts will likewise be understated. If the adjustments were applied in the same sequence that they are indicated, Comparable 2 would be adjusted in the following order.

First, the original purchase price of \$724 would be adjusted downward a maximum of 35%. "Compared to the highway oriented portion of AHTNA 1, Comparable No. 2 is superior for potential for development". The adjustment rate is documented on Page 14 of the appraisal report.

Next the comparable would be adjusted upward a maximum amount of 20% for access, "inferior for access,". The adjustment rate is documented on Page 14 of the appraisal report.

The next statement "adjusted for size and time", suggests a positive adjustment for size. The size adjustment documented on Page 13 of the appraisal report indicates a maximum of 10% for a "standard" 160 acre parcel.

Finally, the time adjustment, which is indicated to be 10% per year, Page 13 of the appraisal report, is applied resulting in an indicated value of \$850 per acre.

By applying the time adjustment first, which is the prescribed method by the appraisal organizations, and then applying the other adjustment to "the adjusted selling price" a substantially different value would result and the

value would be higher. The reason for the increase in value is that the net adjustments are positive and then this positive adjustment is applied to a base of \$1,138.85 instead of \$724.

To evaluate the impact of making the time adjustment, each of the comparables were adjusted at 10% per year and 5% per year. The appraisal indicates that an annual appreciation of 10% is reasonable, but considering the slowdown of the economy the 5% is provided as a sensitivity measure. Table 6 identifies each comparable, the area of the comparable, the sales date (rounded to the first whole month) and the annual difference between the sales date of the comparable and July 1, 1983.

Table 6
Comparable Annual Differences

	1	2	3	4
1.	160	07/1/78	5.000	
2.	78	10/1/78	4.751	
3.	94	12/1/80	2.585	
4.	135	04/1/79	4.249	
5.	140	08/1/79	3.917	
6.	150	06/1/76	7.083	

Table Key

- 1 = Comparable Number
- 2 = Comparable Area
- 3 = Sales Date - To nearest month
- 4 = Difference between sales date and 07/1/83
each month is equal to .083

Table 7 identifies the "time adjusted sales prices per acre" (Column 4) and the area weighted contribution to the weighted average (Column 5). This is the same factor as was developed for Table 2, except in this instance the selling prices are adjusted for time. The formula for the adjustment factor (Column 3) was 1.10 raised to the XX power, where XX is equal to the annual difference between the sales date and July 1, 1983. For example, Comparable 1 sold July 1, 1978. The difference between July 1, 1978 and July 1, 1983 is 5 years. Thus, the formula 1.10 raised to the power of 5 is equal to 1.611. When the original selling price of \$325 is multiplied by 1.611 the resulting figure of \$523.58 represents what the property would sell for today, assuming an annual appreciation rate of 10%. Notice that the weighted average price per acre has shifted from \$946.63 (Table 2) to \$1,539.85 (Table 7). This increase in the indicated value of the average acre is the result of adjusting all the sale dates to a common starting point.

Table 7
Comparable Time Adjustments @ 10%

1	2	3	4	5
1.	325	1.611	523.58	110.475
2.	724	1.573	1,138.85	117.302
3.	750	1.279	959.25	118.827
4.	1,030	1.499	1,543.97	274.827
5.	1,244	1.453	1,807.53	334.393
6.	1,500	1.964	2,946.00	<u>583.308</u>
				1,539.850

Table Key

- 1 = Comparable Number
- 2 = Comparable Selling Price per acre
- 3 = Time adjustment @ 10% per year
- 4 = Time adjusted price per acre
- 5 = Weighted adjusted price per acre

Table 8 is the same data as that in Table 4, i.e. the weighted average selling price per acre adjusted for frequency of selection, except in this table the selling prices have been adjusted for time. By adjusting for time at the 10% rate and weighting by the frequency of selection, the expected value per acre is shifted from the unadjusted value of \$747.43 to \$1,137.91. This suggests that, if the comparables selected were very similar to the subject parcel being valued, the expected average value per acre should be \$1,137.91. To the extent that the estimated value per acre is not equal to \$1,137.91, it can be stated that the appraiser has indicated that the subject and comparables are different.

Table 8

Comparables - Time Adjusted and Selected Weighted

1	2	3	4
1.	523.58	.200	104.72
2.	1,138.85	.371	422.52
3.	959.25	.171	164.03
4.	1,543.97	.200	308.79
5.	1,807.53	.029	52.42
6.	2,946.00	.029	<u>85.43</u>
			1,137.91

Table Key

- 1 = Comparable Number
- 2 = Time Adjusted Selling Price per acre
adjusted @ 10% per year
- 3 = % used in appraisal
- 4 = Weighted price per acre

Tables 9 and 10 portray the comparable data in the same context as in Tables 7 and 8, except in these tables the annual appreciation has been reduced from 10% to 5%. This information is presented as a sensitivity check on the growth rate.

Table 9

Comparable Time Adjusted @ 5% Per Year

1	2	3	4	5
1.	325	1.276	414.70	91.649
2.	724	1.261	912.96	94.035
3.	750	1.134	850.50	105.462
4.	1,030	1.230	1,266.90	225.508
5.	1,244	1.211	1,506.48	278.700
6.	1,500	1.413	2,119.50	<u>419.660</u>
				1,215.024

Table Key

- 1 = Comparable Number
- 2 = Comparable Selling price per acre
- 3 = Time Adjustment @ 5% per year
- 4 = Time adjusted price per acre
- 5 = Weighted average price

Table 10

Comparable - Time Adjusted and Frequency Weighted

1	2	3	4
1.	414.70	.200	82.94
2.	912.96	.371	338.71
3.	850.50	.171	145.44
4.	1,266.90	.200	253.38
5.	1,506.48	.029	43.69
6.	2,119.50	.029	<u>61.47</u>
			925.63

Table Key

- 1 = Comparable Number
- 2 = Time Adjusted Selling Price per acre
adjusted @ 5% per year
- 3 = % used in appraisal
- 4 = Weighted Average Selling Price per acre

SUMMARY - Time Adjustments

Table 11 summarizes the values established thus far. These values are not intended to suggest any sort of valuation reference, they are provided only for reference and to ascertain if any sort of pattern is beginning to emerge. Column 3 indicates the seven per acre value estimates identified thus far. The first valuation model is the value estimate determined by the appraiser for the subject parcels. By comparing the entries in Column 3 with the first entry, it can be readily seen that the estimated value determined by the appraiser is considerably less than any of the other value estimates. By multiplying the value estimates (Column 3) by the subject parcel area (Column 2) the indicated price estimate is determined (Column 4). By dividing the value estimates in Column 4 by the first entry in the column (the appraiser's value estimate) a measure of the difference between the estimates is indicated (Column 5), measured as a function of the appraisers value estimate.

From the value estimates derived thus far, it can be clearly seen that the value estimate indicated by the appraiser is considerably below any of the other values. This indicates that, in the opinion of the appraiser, the suitability and thus the value of the subject property is considerably less than the estimates of central tendency (either area weighted or frequency weighted).

Table 11
Time Adjusted Value Summary

1	2	3	4	5	6
1.	714.55	330.45	236,123	1.000	T5
2.	714.55	747.43	534,076	.442	T4
3.	714.55	925.63	661,406	.393	T10
4.	714.55	946.63	676,414	.349	T2
5.	714.55	1,137.91	813,091	.290	T8
6.	714.55	1,215.02	868,189	.272	T9
7.	714.55	1,593.85	1,138,886	.207	T7

Table Key

- 1 = Valuation Model number
- 2 = Subject property area in acres
- 3 = Weighted Average Price Estimate
derived through analysis of the comparables
- 4 = Value estimate for subject property
- 5 = Appraised to Value Estimate Ratio
- 6 = Source Table for value estimate

MIXING VALUATION METHODS

The Seventh Edition of THE APPRAISAL OF REAL ESTATE (Page 140) identifies 4 procedures for the valuation of land:

1. The market data (comparative) approach. Sales of similar vacant parcels are analyzed, compared, and adjusted to derive an indication of value for the land being appraised.
2. The allocation (abstraction) procedure. Sales of improved properties are analyzed, and the prices are allocated between land and improvements. This allocation is used either:
 - a. To establish a typical ratio of land value to total value (allocation), which may be applicable to a property being appraised, or
 - b. To derive from the portion of the sale price allocated to land, a land value estimate for use as a comparable land sale (abstraction).

3. The anticipated use (development) procedure.

Undeveloped land is assumed to be subdivided, developed, and sold. Development costs, incentive costs, and carrying charges are subtracted from the estimated proceeds of sale, and the net income projection is discounted over the estimated period required for market absorption of the developed sites to derive an indication of value for the land being appraised.

4. The land residual procedure. The land is assumed to be improved to its highest and best use, and the net income imputable to the land after all expenses of operation and return attributable to the other agents in production is capitalized to derive an estimate of land value.

In the appraisal of the AHTNA lands, the appraiser valued the raw land first, using the market data (comparison) approach, AND THEN applied part of the anticipated use (development) procedure to discount the market value estimate. For example, for AHTNA 1, the raw land value of the highway oriented land and the backlands is estimated by the appraiser to be \$92,170. He defines this value as the "fee value".

The discounting of the fee value is as follows:

With respect to analysis of the Subject property by the Developmental Method, development costs (survey and platting) and entrepreneurship of 20% are estimated to be reasonable; present value is calculated on the basis of a 5 year period to market the "subdivision" discounted at 10% (highway oriented tracts selling during the first two years and backlands selling over the full 5 year period). Support of these estimates is the State's "subdivision" of 40 acre tracts west of Anderson which involves initial direct costs of minimum survey and platting, administration of a sales program, a right for a private entrepreneur to receive a profit and the period of time for selling lots beginning in June 1979 with 60% of the tracts sold in the first 3 years.

With this as a basis, the appraiser then applied what he defined as a developmental method to discount the total raw land value from \$92,170 to \$51,374. It needs to be pointed out that in setting up the procedure for the developmental method, the appraiser did not do it correctly. For example, the raw land value for the highway lands are estimated by the appraiser to be worth \$34,000. From that amount he deducted \$6,800 as development costs, profit, and overhead (20%) leaving \$27,200. He then multiplied the \$27,200 by .826434 (discount factor @ 10% for 2 years) resulting in a present value of \$22,479. Because of the discount factor used (Future Worth of 1, 2 years in the future), the appraiser is stating that the highway lands

sale will occur at the end of two years, during which the property will not appreciate (which is contrary to the 10% annual appreciation indicated previously). Notice also that this is contrary to the previous statement "selling lots beginning in June 1979 with 60% of the tracts sold in the first 3 years". If some of the highway lands were to be sold in the first part of the first year, the present value of these sales would be greater than those sold at the end of the second year.

Relative to the backlands, the appraiser applied the same method, except in this instance the sales occur at the end of Year 5. But, the appraiser's own analysis indicates that the developmental method should never have been applied to the backlands. In the statement of highest and best use for the parcel, the appraiser identifies traditional subsistence use as the most likely use for the backlands, NOT AS DEVELOPMENT LAND. Therefore, the application of the developmental method is inconsistent with the use definition.

Rather than continue to belabor the many errors in the application of the developmental method by the appraiser, we will identify the preferred procedure, as defined in revision seven of THE APPRAISAL OF REAL ESTATE (Page 148):

1. Identify the economic bracket of the residents and check the range of sale prices of typical new homes in the area.
2. By distribution, or comparison with lot sales in similar subdivisions, decide what figure represents a typical lot value in this category of development.
3. Study and lay out a subdivision plan to develop typical lots.
4. Project the total probable gross sale price for these lots.
5. Estimate development costs to include:
 - a. Engineering or other fees
 - b. Cost of streets and utilities
 - c. Advertising and cost of sales
6. Estimate overhead and administrative costs to include:
 - a. Taxes and inspection
 - b. Financing fees and carrying costs
7. Deduct these direct expenses for development from the figure derived in Step 4
8. Deduct an adequate profit allowance to provide incentive for the developer so that the calculated value of the raw land is exclusive of development profit. (Alternatively, profit may be provided for in the rate used for capitalization in the discounting process.)
9. Deduct for time lag by discounting, at an appropriate risk rate, the annual net income flow over the time needed for completion and market absorption of the project.

Due to the vast differences between an acceptable developmental valuation method and the method applied by the appraiser and because of the mixing of highest and best use concepts (the discounting of the lands best used for subsistence as though they were development lands), we feel that the entire discounted value method should be ignored.

Finally, if the developmental method was to be used, then ALL THE COMPARABLES should be from similar uses. By using raw land sales to initially determine the raw land value without any adjustment, the appraiser began the valuation method by mixing inconsistent AND INCOMPATIBLE uses in the same comparable pool. It is as if the appraiser used land sales zoned exclusively for commercial use as comparables for land zoned exclusively for residential use.

SUMMARY - Mixing Valuation Methods

In summary, we believe that, due to the gross inconsistencies, both in the form of the application of the developmental method and the inappropriateness of the method for the type of land being valued, any discount, either positive or negative, should be ignored as being inappropriate for the property type being appraised. Consequently, at a minimum, we believe the acceptable value estimate should be \$474,034 rather than the discounted value of \$236,123 represented by the appraiser.

MARKET COMPARISON APPROACH - APPLICATION

We have already indicated that it appears that the appraiser failed to correctly apply the time adjustment to

the comparable sales, so we will not discuss it further until the summary section.

The market comparison approach is generally the preferred approach since it is the only approach to value that reflects the balance of supply and demand in actual trading in the market place. It requires the gathering, recording, and comparing of sales data for comparable parcels. Greatest weight should be placed on actual sales of similar land made at times relatively concurrent with the date of the appraisal and subject to comparable conditions. The difficulty and importance of determining the extent of similarity between the subject and comparable parcels was described by Paul F. Wendt in REAL ESTATE APPRAISAL Review and Outlook (Page 97):

Determining Comparability The determination of the comparability of individual sales gives rise to the most general and difficult problems in the application of the market-comparison method. Each parcel of real estate is not only distinctive as to the land on which it is situated but also varies in features, topography, or soil conditions, while structures differ in age, condition, or type. Consequently, the appraiser employing the market-comparison method must take all of these factors into consideration in using market sales of differing parcels to measure the value of a subject property.

The seventh revision of THE APPRAISAL OF REAL ESTATE (Page 143) indicates that following the determination of a bona fide sale, relative to terms, the sales data may then be considered in respect to:

1. Date of sale
2. Locational features of property
3. Physical characteristics

The UNIFORM APPRAISAL STANDARDS FOR FEDERAL LAND ACQUISITIONS (Page 9) indicates that comparability should be determined by rating the elements of:

1. Time interval between sale date and appraisal date.
2. Motivation of sale transactions.
3. Location, including proximity to roads, schools, etc.
4. Similarity of highest and best use positions, including intensity of utilization of that use.
5. Physical similarities and dissimilarities.
6. Economic similarities and dissimilarities.

The purpose for this discussion of similarity or comparability is to document that both professional and governmental organizations include an evaluation of the physical characteristics of both the subject and comparable properties as essential in determining comparability. On Page 14 of the appraisal, the appraiser states "Physical Characteristics - Adjustments for such items as soil types, availability of gravel and amount of high ground or low-lying wetlands are variable depending on the degree of

difference between the comparables and the subject properties, thus maximum or minimum adjustments can not be predetermined." This statement suggests that the appraiser will evaluate soil conditions, availability of gravel, and the amount of high ground and low-lying wetlands as important physical conditions.

Without questioning whether the physical characteristics identified are appropriate, it is our contention that the appraiser did not utilize the physical characteristics as attributes for comparison in any meaningful fashion. For example, the physical characteristics description for AHTNA 1 (the entire 11,321 acres of which only 136.95 acres is to be priced), is as follows:

Generally level, plateau land at elevations ranging between 2,100 & 2,600 feet above MSL, sloping gradually down in a westerly direction. Geology and vegetation characteristics are typical of the "high country" as described under Regional & Area Data. Small lakes & drainage streams are scattered throughout. The predominant feature is the Middle Fork of the Chulitna River which traverses through the parcel in a northeast to southwest direction.

It is important to note that nowhere in the description is any information provided about soil conditions, availability of gravel, high ground or low-lying wetlands.

Also, in reviewing the comparables selected to price the subject parcel, it was indicated that Comparables 2, 3, and 4 were most similar to the subject property and that Comparable 2 should be given the most weight. The physical descriptions of these three comparables are as follows:

2. Generally level, partially cleared for homestead requirements, traversed by Alaska Railroad, approx. 1,100' frontage along Colorado Lake and corners (NW corner) along Middle Fork Chulitna River, "bush" airstrip on adjoining property to south.
3. Generally level, mostly wooded with birch & spruce, traversed by Fish Creek with some areas of low-lying wetlands, dual highway frontage at grade, no known mineral value.
4. Rolling hillside tract, partially tree covered, includes old Lignite Station site on the Alaska Railroad, good view of surrounding area, good water reportedly at 60'-90' depth.

During the determination of comparability between AHTNA 1 and the three selected comparable properties, there is no mention of physical characteristics for Comparable Properties 2 and 3. Comparable 4 is Documented: "Comparable No. 4 is superior for physical characteristics" but THERE IS NO MENTION OF SOIL, GRAVEL, HIGH GROUND, OR LOW-LYING WETLANDS IN THE PROPERTY DESCRIPTION. The question that needs to be asked is how is physical similarity being measured and then how are differences being accounted for.

SUMMARY - Market Comparison Application

It appears that, of the six rating elements identified by the Federal government as significant for identifying comparability between the subject and comparables, the appraiser may have misapplied two (Time and Physical Characteristics). The failure to correctly apply these two factors is magnified because in all instances the highest and best use is defined as being some form of development and development is very sensitive to physical suitability of the resource base upon which it is built. The failure of the appraiser to indicate the extent of the comparable properties that exhibit the positive and negative physical combination for development prevents any attempt to prorate the purchase price between developable and nondevelopable lands on any individual comparable. Therefore, it can only be concluded that the buyer was willing to pay the average per acre price for the good and the bad lands making up the parcel.

SUMMARY - Error Identification/Correction

It seems reasonable to state that since the appraisal contains so many varied problems relative to mixing of uses,

incomplete inventory of physical characteristics, improper methodology for time adjustment and the general superficiality of the analysis of relevant market and economic conditions, that no reliability can be given to the raw land value derived. With this in mind and reviewing the slides of our site visit, we can see no reason that the expected per acre price for the subject property should not fall close to the time adjusted weighted average prices of the comparables. Thus, we feel it is not unreasonable to expect the market value of the subject to be between \$1,600.00 and 1,200.00 per acre resulting in a market estimate of the taking between \$1,100,000 and \$800,000

We caution you that these value estimates are just statistical estimates with no attempt to match the attributes of the subject parcels to those of the comparables. The \$1,100,000 to \$800,000 would only be realized if the highest and best use of the subject and the comparables were the same and the attributes, in aggregate distribution, were similar between both the subject and the comparable pools. With the limited amount of information presented in the appraisal it is not possible to indicate if this is true.

Failure to Include Significant Appraisal Concepts

It is our belief that the appraiser failed to adequately evaluate two important appraisal concepts, that could have a significant impact upon the final value estimate, for the subject property. We believe that the appraiser failed to adequately evaluate important alternative land use options available to the property owner, as well as effectively evaluate the impact of severance damage upon adjoining properties.

The failure of the appraiser to effectively evaluate alternative land use options precluded the appraiser from recognizing the economic importance of the subject parcel as a corridor. If the appraiser had followed a more contemporary appraisal format and began the analysis with a rigorous evaluation of the attributes of the subject property, it is most likely that more land use options would have been identified. An increase in land use options in turn would increase the available highest and best use options, possibly resulting in the identification of alternative economic uses that would result in more intensive and efficient use of the subject property.

To illustrate how alternative highest and best land use options could be evaluated, and how the concept of severance would be included in the analysis, we have outlined the structure of a contemporary appraisal.

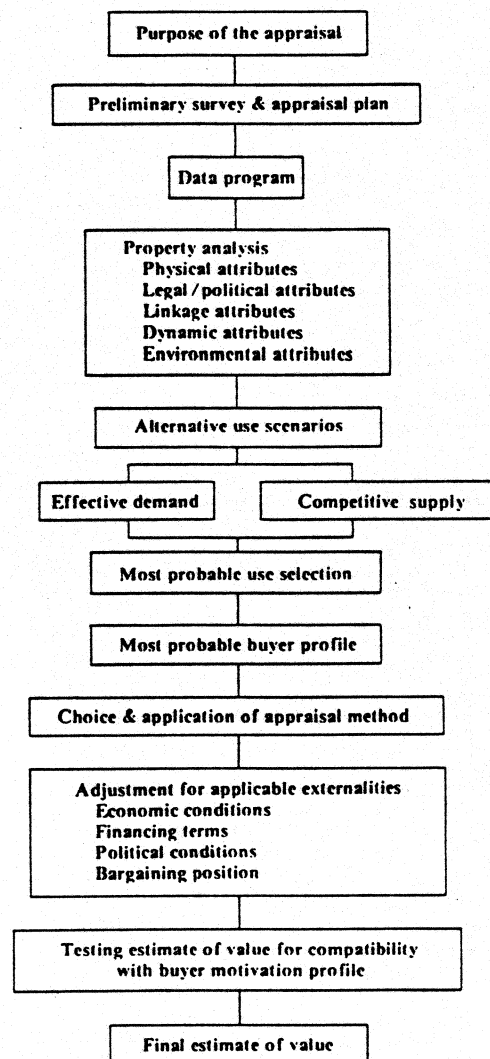
CONTEMPORARY APPRAISAL FORMAT

The format followed for a contemporary real estate appraisal has been influenced strongly by the work of Professor Richard U. Ratcliff, who made his most comprehensive statement in his book, Valuation for Real Estate Decisions. Following the lead of Ratcliff, Professor James A. Graaskamp has shown the way to operationalize the format proposed by Ratcliff in his book, The Appraisal Of 25 N. Pinckney: A Demonstration Case For Contemporary Appraisal Methods.

The structure of a contemporary appraisal is displayed in Figure 1.1. From this figure it can be seen that the general organizational form of the contemporary appraisal is a continual sifting of information and facts until a final estimate of value emerges. (The contemporary format begins with the attributes of the subject property and works outward toward the regional economic forces acting directly upon the subject property.

Figure 1

Contemporary Appraisal Process as
Organized by Ratcliff



Data from The Appraisal of 25 N. Pinckney: A Demonstration Case for Contemporary Appraisal Methods, James A. Graaskamp, 1977.

The traditional appraisal format begins with the regional economic setting of the subject property and works toward the specific site attributes, developing "average" indicators of economic forces which might interact with the specific attributes of the subject property.) Graaskamp has organized the priorities of appraisal information proposed by Ratcliff into the following three general classes:

1. The fundamental concepts of value and price which are central to appraisal are at the heart of the social science of economics. Economic goods are valuable because of their utility (productivity) and scarcity. Thus in analyzing the value of a parcel of real estate, the starting point is with its inherent utility - the characteristics and qualities which can make it productive and desirable, and for which people are willing to pay. (Thus, an appraisal starts with analysis of the real estate and its alternative uses.)
2. But price is set in the marketplace. To serve his client's needs, the appraiser seeks to predict the price at which the subject property will probably sell. Viewing the property as a package of potentially productive qualities, the appraiser must predict the outcome of the interaction of the market forces of demand and supply to which the property might be exposed and which could trigger a transaction from which market price will emerge. (A land use must be marketed to both political groups and individual consumers. Thus, alternative uses are screened for legal-political constraints and then screened for supply and demand characteristics.)

3. Economics is a behavior science, descriptive of the economic behavior of people under various conditions. It is the appraiser's task to predict how people, both buyers and sellers, will behave with respect to the subject property when it is exposed for sale. People make values and determine prices. (People's perceptions affect offers and acceptances, and so bargaining position and changing market moods become significant externalities.)[1]

HIGHEST AND BEST USE - CONTEMPORARY APPRAISAL

Since the 1960's, the professional appraisal organizations have been critiquing their own theoretical concepts and have proposed what they perceive to be needed changes in appraisal format. This reevaluation has caused a division within the appraisal membership, resulting in two appraisal camps being identified. The older, conservative, more dogmatic group is commonly referred to as the traditional school and the opposing group is commonly referred to as the contemporary school.

Suggestions by Ratcliff, as well as Kinnard, Wendt, Smith, Racster, Case and Graaskamp, form the conceptual basis for the "Contemporary School" of appraisal thought and lead directly to the evolving debate in appraisal.[2] The two major areas of debate are concerned with conceptual conflicts of value and valuation theory and conflicts in the application of appraisal procedure. For the purpose of this review, the conflicts in the application of appraisal procedure are most important.

In appraisal work the concept of highest and best use is introduced as a link between the need to estimate fair market value and the recognition of land as an economic good.

The central premise to fair market value is the determination of the highest and best use which, in the opinion of the appraiser, will serve to focus selection of market comparison sales, or illustrate the economic logic of other approaches to value. (In appraisal practice, the concept of highest and best use represents the premise upon which value is based. A special implication is that the determination of highest and best use results from the appraiser's judgment and analytical skill--that is, that the use determined from analysis represents an opinion, not a fact to be found.)

Historically, the concept of highest and best use focused only on wealth maximization for the owner of the land, regardless of the external costs or opportunity costs imposed on society as a whole.[3] The rise of consumerism and environmentalism in the '60s and '70s has meant that the official definitions of the appraisal professional societies now recognize a land ethic. Consider the basic definition and discussion in the fundamental textbook THE APPRAISAL OF REAL ESTATE (7th Edition):

Highest and best use for land is the use that, at the time of appraisal, is the most profitable likely use. It is the use that will provide the greatest return to the land after the requirements of labor, capital and coordination have been satisfied. Thus it may also be defined as the available use and program of future utilization that produces the highest present land value.

The most profitable likely use cannot always be interpreted strictly in terms of money. Return sometimes takes the form of amenities. A wooded urban site, for example, may have its highest and best use as a public park; or the amenities of living in a private dwelling may represent to its owner satisfaction that outweighs a monetary net rental yield available from rental to a typical tenant. In this time of increasing concern over the environmental effects of land use, environmental acceptability is becoming an addition to the highest and best use concept.[4]

A somewhat more detailed definition of highest and best use is found in the revised edition of the AIREA-SREA joint publication REAL ESTATE APPRAISAL TERMINOLOGY HANDBOOK:

...that use, from among reasonable probable and legal alternative uses, found to be physically possible, appropriately supported, financially feasible, and which results in highest land value.

...Implied within these definitions is recognition of the contribution of that specific use to community environment or to community development goals in addition to wealth maximization of individual property owners. Also implied is that the determination of highest and best use results from the appraiser's judgment and analytical skill, i.e., that the use determined from analysis represents an opinion, not a fact to be found.[5]

Not only does the Terminology Handbook avoid the ambiguity of the term highest and best use, a real estate anachronism from 19th century laissez-faire economics[6], but it is more explicit in recognizing collective values as distinct from social values when it refers to a community of interests. With growing frequency, it is recognized that maximizing values for single individuals may be the result of externalizing cost on the community of other landowners quite unintentionally. Reasonable behavior by one landowner may in the aggregate be unacceptable if practiced by the community of landowners. For example, the home owner on the lake who cuts down trees on the shore to enjoy the view of the wooded shoreline is quickly frustrated by all the other cottage owners who do the same, thus decimating the shoreline. The Institute definition hints at the aggregate creation of value as it speaks of return in the form of amenities. However, the Terminology Handbook is more specific in dealing with the aggregate value created by concern for the collective environment, and therefore, this definition is felt more applicable to the subject case.

The contemporary school is more issue-oriented than the traditional school. Ratcliff saw that the empirical techniques used in appraisal could be expanded from simple straight statistical, descriptive analyses to other approaches suggested by the scientific method. Ratcliff

perceived that there was some need for cause and effect determination into the whys of market behavior. He also implied that, given appropriate judgment by the appraiser, observational analytical techniques are applicable in appraisal.[7]

Ratcliff summarized the case against the traditional concept of highest and best use and the distortion of its semantics as follows:

There seems to be little doubt that most investors optimize or satisfy and that few of them rely on the single classical criterion of maximizing net income. To the extent that this is true, the "highest and best use" determined by maximization of net income is an unrealistic concept because it does not reflect actual human behavior. Actual decisions are complex but the primary skill of the appraiser is to predict human behavior in terms of the probable outcome. The "highest and best use" thus becomes the "most probable use" and the prediction of market behavior in general, for whatever purpose, must be founded on the manner in which real people arrive at decisions rather than the unreal assumption of the single maximization text."[8]

The current definition of highest and best use not only recognizes the need to adapt land use selection to community requirements, but also expressly recognizes selection of a most probable alternative from among several alternatives. In short, alternatives that are physically possible must be screened for compatibility with:

The recognition of the difference between the most fitting use and the most probable use suggests an element of uncertainty, which suggests that a conclusion regarding value based on probable use must also contain an element of uncertainty. The definition of most probable sales price would then be that price at which a property would most probably sell if exposed to the market for a reasonable time and under market conditions prevailing at the time of the appraisal.[12]

MARKET VALUE - CONTEMPORARY APPRAISAL

The purpose of the reviewed appraisal was identified as being an estimate of "current Just Compensation for the real property rights to be acquired" (Page 4, Appraisal), based on an estimate of fair market value. But what is the contemporary definition of fair market value? Ratcliff argues that the great majority of appraisals require the appraiser to predict the transaction price at which the property would probably sell. Therefore, market value is synonymous with the definition of most probable price and terms at which a transaction would occur:

The most probable price is that selling price which is most likely to emerge from a transaction involving the subject property if it were to be exposed for sale in the current market for a reasonable time at terms of sale which are currently predominant for properties of the subject type.[13]

The Ratcliff approach converts the traditional single value conclusion of a traditional appraisal into an explicit statement of the central tendency around which the transaction price is likely to fall. In a few situations, the transaction zone might be a statistical statement of standard error, but in most cases it represents an economic statement of how high the buyer might be willing to go in the negotiation process and how low a price the seller would be willing to accept.[14] Therefore, the statement of probable price within a transaction zone is neither a clean statistical measure of random dispersion nor a measure of fairness to one party or the other. It is a pragmatic recognition that forecasting is imperfect, that bargaining talents are unequally distributed among the participants, and that the appraiser must resort to presumptions and unreliable observations.[15]

APPRAISAL ORGANIZATION - CONTEMPORARY APPRAISAL

The contemporary appraisal process displayed in Figure 1.1 illustrates six general topical areas. This review has been directed toward and within each of the general areas.

1. The Purpose of the Appraisal

"The purpose of the appraisal leads to specification of a value definition and assignment of subject matter."[16]

The stated purpose of the appraisal has been defined as the estimation of "Just Compensation for a perpetual easement to be acquired for the portions of the Willow to Healy Intertie electric transmission line right of way that will cross lands owned or selected by Ahtna, Inc." (cover letter of appraisal).

2. Identification of Possible Alternative Uses

"Identification of possible alternative uses through detailed analysis of the real estate. While the present use of a property might be its most probable use in a majority of cases, the appraiser must consider alternative scenarios that are suggested by the productivity attributes of the subject property."[17]

The identification of possible alternative uses of the site would be based upon a detailed analysis of the following five attribute subsets:

- A. Physical Attributes
- B. Legal - Political Attributes
- C. Linkage Attributes
- D. Dynamic Attributes
- E. Environmental Attributes

A. Physical Attributes

The physical attribute analysis begins to narrow alternative uses of the site and should include both the facts and their implication for productive use of the site and cover such topics as:

1. Dimensions - size and shape of subject and area.
2. Physiography - topography, soils, geology, slope stability, bearing capacity, septic suitability, potential for subsidence, etc.
3. Hydrology - water table, wells streams, ponds, storm water swales, shoreland edges, bulkhead lines, flood plain designations, etc.
4. Habitat - flora and fauna which enhance marketability or which might cause environmental impact litigation.
5. Easements: location - concealed utility easements, old foundations, etc.
6. Easements: capacity - existing on-site utility services and capacity.
7. Ingress/Egress - access points to public thoroughfares or private right-of-ways.
8. Physical Improvements - site improvements such as paving, retaining walls, pedestrian paths, culverts, etc.

9. Unique/Social - landmark attributes or historical site features.

B. Legal/Political Attributes

The legal attributes should move from any specific site controls imposed by local zoning ordinances, to state and federal regulations, as well as private controls which may intervene in controlling use of the site. It is also important to make note of foreseeable attitudes or future legislation which will affect administration of these ordinances relative to future uses of the site.

1. Building Envelope - all alternative setback lines and building envelope interpretations relative to the site
2. Zoning Conditions - legal uses under applicable zoning and critical limitations of each relative to Floor Area Ratios, Bulk, Parking Requirements, Dwelling Unit Count, etc.
3. Special Zoning Options - special zoning options which may be available at owner's option such as rezoning, downzoning, PUD zoning, etc.
4. Special Zoning Conditions - special controls imposed by extra-territorial zoning, tax conservancy commitments, subdivision process, urban renewal districts, tax increment districts, etc.

5. Public Attitudes - public attitudes of public commissions for sewer, water, highway, planning, or building administration.
6. Public planning premises of community master plans relative to sprawl, restoration, redevelopment, and other land use priorities as these attitudes will affect administration of the law.
7. Existing or impending legislation relative to such matters as:
 - a. Septic tank installation
 - b. Water quality for ground water, water recharge areas, storm water runoff, salt water encroachment, etc.
 - c. Air quality standards relative to use, HVAC performance, microclimate interface, etc.
 - d. Conservation of environmental edges, prime agricultural land, wet lands, etc.
8. Building Codes: Local, State & National - define physical system sub-systems:
 - a. Foundation system
 - b. Structural system
 - c. Floor system
 - d. Ceiling system
 - e. Roof system
 - f. Exterior wall system
 - g. Interior wall system
 - h. Horizontal circulation system (privacy, interaction, congestion, confusion)
 - i. Vertical circulation systems (handicapped code, cost, economy of scale and height)
9. Bulk Regulations - delineation of functional systems:
 - a. Bay spaces
 - b. Module unit
 - c. Ceiling heights
 - d. Visual codes - such as mass, entrance, claustrophobic signals

10. Public controls on alternative special uses such as restaurants, places of public assembly, schools, etc.

Following the detailed analysis of the static physical and legal/political attributes of the site and structure, the results should be summarized in terms of competitive advantages and disadvantages of plausible alternative uses in terms of:

1. Costs
2. Pricing
3. Marketing
4. Political Administration of compatibility

During the analysis of the static and legal/political attributes, it is important to recognize when unique combinations of these attributes begin to profile the identity of the most probable user types of the attributes present. It is also important to recognize that some unique combinations of static and/or legal/political attributes can provide monopoly advantages because suitability is unique relative to alternative lands surrounding the subject, due to possible exemption from certain regulations, or existing approvals of development plans. There are also site attributes that lead to higher total construction costs, resulting in the requirement of excessive rents or prices being demanded to achieve economic goals.

Our limited analysis performed thus far has turned up two significant attributes, relative to the Ahtna lands. The first is in the general condition of the physiography within the region, and its impact on soil formation and resulting development suitability. The land between Cantwell and Healy is oriented to the Denali Fault which crosses the Parks Highway near Windy Creek. This feature creates a natural passageway through the Alaska Range. Any reasonable alternative route would require crossing the Alaska Range, which would most probably add significantly to construction costs, whatever the intended use might be.

The other important characteristic is that the Ahtna land is much more developable in terms of minimal governmental controls. Most of the adjoining land is designated as either State or National Park which introduces a significant level of governmental control. It should be pointed out that a sizeable portion of the Denali National Park is designated Wilderness Land, which by its very nature imposes an even greater level of governmental control and restriction on incompatible uses, thus making the Ahtna land more valuable. This suggests that the Ahtna land exhibit construction advantages because the Ahtna land is a long narrow sliver of relatively flat land passing through an otherwise mountainous area, onto which a relatively small amount of governmental control is imposed.

C. Linkage Attributes

Following the analysis of the static and legal/political attributes, the next step, in contemporary appraisal, is to relate the profiles of the indicated probable user types to the site's association with delivery networks, population centers and activity centers that might generate potential demand for the subject property.

Linkage analysis is used to screen out, from the proposed site user types, those users for which the population or delivery systems are unsatisfactory, thus focusing the analysis upon a smaller number of possible user types.

For the Ahtna lands under study this step would evaluate the spatial relationship of the lands relative to the population centers of Anchorage and Fairbanks, the State and National Park systems in the vicinity (as activity centers), and access to the highway and railroad delivery networks.

In terms of access, the lands owned by the Ahtnas exhibit the significant advantage of being accessible year around, by both paved road and railroad. This relative ease of access, not only simplifies all forms of communication and construction, but casts doubt on

the suitability of the backlands for subsistence use, (the indicated highest and best use suggested in the appraisal) if only because game would be discouraged and thinned by any encroachment.

D. Dynamic Attributes

The remaining proposed user types are next matched against the dynamic site attributes such as status (located next to Denali National and Denali State parks), anxiety, beauty, imagery, sentimentality or other perceptions which attach to the subject property to the degree that these attributes are economically significant. This analysis will further focus and refine the relationship between the attributes of the site and the proposed user groups.

Analyses formats such as Visual Assessment and Visual Management in combination with techniques such as VIEWIT, used by the Forest and Park Services, would greatly restrict land use on the public lands. In terms of the Ahtna lands, the lands will be excused from the extensive administrative control of perceived beauty and imagery that would be in direct conflict with a powerline use. Moreover, placing a powerline on a portion of the Ahtna lands will greatly damage the Apparent Naturalness of the remaining Ahtna lands

viewing the powerline, implying a severance damage to all acreage within the viewshed of the powerline.

The issue of severance was not addressed as a direct value component within the appraisal. The revised edition of REAL ESTATE APPRAISAL TERMINOLOGY defines severance as:

It is the diminution of the market value of the remainder area, in the case of a partial taking, which arises (a) by reason of the taking (severance), and/or (b) the construction of the improvement in the manner proposed.

The terminology definition of severance defines two general classes of severance damage; the taking, and the manner of construction. Our preliminary evaluation of the subject property indicates the possibility of severance due primarily to the method of construction being introduced upon the lands being taken. Our preliminary analysis indicates that a substantial portion of the remaining lands will be within the viewshed of the powerlines and towers. This negative impact (currently being recognized as a significant negative attribute in other parts of the country) is not recognized in the appraisal.

For consideration of severance damages the UNIFORM APPRAISAL STANDARDS FOR FEDERAL LAND ACQUISITIONS states the following:

"severance damage should be considered only when there exists exact identity of ownership, (the Ahtna's current corporation meets this test) unity of use of the lands, (a highest and best use as a corridor meets this test) and physical contiguity."[18]

The reference goes on to state that the reduction in market value must be proven with market data. This is judicially noted in the following:

"...the extent to which the utility of the property has been destroyed and its market value diminished must necessarily be established by factual data having a rational foundation in support of such a claim."[19]

Building on this point, the uniform appraisal standards outline the type of data necessary to support the severance damage claim. Of particular interest is the statement:

"Reasonably accurate maps showing all physical conditions pertinent to the entire property before the taking and to the remainder after the taking are necessary to a determination of whether there has been, in fact, a diminution in the value of the remainder because of the taking."[20]

This review of the attributes making up a claim for severance damage is presented to indicate that severance damage must be shown in the market and then how severance damage impacts upon the subject property. We propose that the impact of severance damage, caused

by the location and construction of the power corridor upon the taken lands, can be evaluated through the use of advanced spatial computer analysis. Figures 2, 3, and 4 are partial printouts from a previous appraisal illustrating how the concept of viewshed can not only be defined but measured. Figures 2 and 3 represent the relative centroid elevation of a spatial unit (in this example a 10 acre cell) and the identification of viewing platforms (cells from which viewing estimates will be determined). Figure 4 illustrates how the relative exposure of all spatial units, from the viewing platforms, can be displayed. The computer program used to determine the extent that any cell within the data base could be seen from the viewing platforms is a modified version of the VIEWIT program, developed by the U.S. Forest Service to assist in view quality assessment. We suggest that this type of analysis could be utilized to assess the extent to which adjoining lands are impacted by the method of construction being proposed.

[illegible]

[illegible]

[illegible]

E. Environmental Attributes

This final analysis relates the site and its potential user groups to the much larger natural system of which it is a part. Elements such as Water Rights, Pollution (water, air, etc.), Storm Water Runoff, Solar and Wind, etc. can only be evaluated as part of the natural systems for which they are a part.

Relative to the Ahtna lands, most of the adjoining lands, especially those designated Wilderness, are impacted by a wide array of environmental regulations which can be tested in court by any number of interest groups. The Ahtna lands, on the other hand are owned by a single private enterprise which is exempt from many forms of environmental regulation that are in place on adjoining public lands. The ability to decide upon a use, without fear of legal action, greatly increases the marketability of the Ahtna land.

3. Ranking Alternative Uses

"Ranking of alternative uses regarding their fit within the context of market supply and demand, legal and political restraints, and financial risk and return potentials leads to a conclusion about most probable productive use of the property at the time of the appraisal." [21]

Under the contemporary format, the remaining proposed use types are evaluated and ranked relative to the forces of demand and supply, current and immediate future, and how they fit typical financial risk and return potentials for similar types of use. This evaluation leads to the conclusion about the most probable productive use of the property at the time of the appraisal. For purposes of communication only, this use would be called Highest and Best Use. Our analysis thus far suggests that the 36 mile long subject parcel is by its shape a corridor, by physiography a corridor, by economic motivation of selection a corridor. Therefore, it is our suggestion that a further evaluation of the subject property as a corridor should be initiated.

4. Most Probable Buyer Profile

"Selection of a most probable use conclusion leads to recognition of alternative buyer types. Basic selection criteria of these types can be matched to specific property attributes to suggest the most probable buyer type or types who can afford to make the most fitting use of the property."
[22]

The contemporary format provides the appraiser with the ability to evaluate alternative buyer profiles by matching the detailed analysis of the parcel under study with the expectations of buyers through evaluation of previous buyer transactions. Through the analysis of alternative buyer

profiles, the profile best suited to the attributes of the subject can be determined, thus the most probable buyer is determined.

The 36 mile long subject parcel is by its shape a corridor, by physiography a corridor, by economic motivation of selection a corridor and therefore the most probable buyer will be a corridor user. A study by Harbor House Inc. has identified 27 different economic uses for land corridors, and in this case gas lines, coal slurry pipe lines, and transmission lines for the Susitna Dam seem prime alternative users. The combination of most probable use and most probable buyer define the search area for comparable sales, as sales of corridors.

5. Market Area Identification

"Identification of the buyer type provides a general definition of the market area in which to search for comparables or to interview for motivations." [23]

The identification of the most probable buyer profile leads directly to the specification of the market area in which the buyer profile functions. The geographical range of the market area could be as small as several miles (the typical residential sub-market) or nation wide (the market area for unique natural landscapes and major transmission corridors). The contemporary format emphasizes consistency

in application of probable buyer transactions rather than proximity of location (emphasized in traditional appraisal concepts).

6. Valuation Method Selection

"Choice of valuation method must interact with availability of relevant data about past activities or current needs of the most probable buyer group. Unlike the traditional appraisal, which presumes many potential buyers of equal need and means, the Ratcliff approach can conclude from the most probable use determination that one specific buyer might be the likely candidate. For example, it might be the existing tenant, or the contiguous property owner who has few options but purchase, or specific buyer whose use value is unique enough to justify monopoly pricing." [24]

General Valuation Methods

The search and application of collected data must be utilized in methods that most accurately represent buyer and seller behavior. It is well recognized in appraisal practice that a priority exists in the utilization of pricing data. The priority of pricing methods is as follows:

1. Prediction from what buyers have done in prior transactions (inference).
2. Simulation from how buyers would calculate offering price (simulation).
3. Demonstration of how buyers should determine price (normative economics).

The search for procedure and precedent, relative to corridors, must include recent Special Court rulings under the 3R and 4R Railway Acts and real estate tax decisions involving the western major railroads. In addition there has been a variety of utility leases, purchases, and trades which would provide further information for pricing the Ahtna corridor.

SUMMARY

This section has shown that within the appraisal profession there is no consensus as to how an appraisal for property such as the subject property should be structured. The recognition that the contemporary appraisal method provides a smooth transition from the specification of the value being sought to the estimation of the transaction zone in which the final price is expected to fall is of critical importance to this review. Finally, this section has shown that the valuation method most acceptable is the procedure which relies on what buyers of similar properties have recently done. This procedure, commonly known as market

comparison, should be the primary valuation method utilized by the appraisal. (However this does not preclude the use of the income approach, if appropriate.)

End Notes

[1] James A. Graaskamp, The Appraisal of 25 N. Pinckney: A Demonstration Case for Contemporary Appraisal Methods, (Madison, WI: Landmark Research Inc., 1977), p. 8.

[2] The Appraisal of Real Estate, 7th Edition, (Chicago, IL: Textbook Review Committee, AIREA, 1978), p. 43.

[3] Ernest M. Fisher and Robert M. Fisher, Urban Real Estate, p. 481.

[4] The Appraisal of Real Estate, 7th Edition, (Chicago, IL: Textbook Review Committee, AIREA, 1978), p. 44.

[5] Byrl N. Boyce, comp. & ed. Real Estate Appraisal Terminology, Revised Edition, (Cambridge, MA: AIREA/SREA, Bollinger Publishing Co., 1981), p. 188.

[6] The Appraisal Of Real Estate, pp. 9-20.

[7] H.R. 7792, Public Law 94-357, Alpine Lakes Area Management Act, 94th Congress, July 12, 1976.

[8] Richard U. Ratcliff, Valuation for Real Estate Decisions, (Santa Cruz, CA: Democrat Press, 1972), p. 69.

[9] James A. Graaskamp, The Appraisal of 25 N. Pinckney: A Demonstration Case for Contemporary Appraisal Methods, (Madison, WI: Landmark Research Inc., 1977), p. 7.

[10] Ibid.

[11] Ibid.

[12] Ibid.

[13] Ratcliff, p. 55.

[14] Graaskamp, p. 8.

[15] Ibid.

[16] Graaskamp, p. 9.

[17] Ibid.

[18] Uniform Appraisal Standards for Federal Land Acquisitions, Interagency Land Acquisition Conference, 1973, (U.S. Government Printing Office, 5259-0002), p. 21.

[19] Ibid. p. 22

[20] Ibid.

[21] Graaskamp, p. 9.

[22] Ibid.

[23] Ibid.

[24] Ibid.

