ALASKA LEGISLATURE SPECIAL COMMITTEE / SUBJECT FILES 8672
110 SCOMM 9: HOUSE SPEC. COMM. ON PERMANENT FUND 1977-78

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September 9, 1977

Rep. Clark Gruening, Chairman
Special Committee on The Alaska Permanent Fund
528 West 5th, Suite 270
Anchorage, AK 99501

Dear Mr. Gruening:

Thank you for taking the time to visit with me during my recent trip to Anchorage.

As per our discussions during my visit, we have spoken again with Mr. Robert Blixt, Executive Secretary, Minnesota State Board of Investment, and he would indeed be willing to travel to Alaska to provide advice, where meaningful, to your Permanent Fund Special Committee. Mr. Blixt would welcome your telephone call to discuss this subject and he advises us that a convenient time to call him would be 11:00 a.m. Anchorage time on Wednesday, the 21st of September. (Mr. Robert E. Blixt, Executive Secretary, Minnesota State Board of Investment, Room 105 - MEA Building, 55 Sherburne Avenue, St. Paul, Minnesota, 55155. Mr. Blixt's secretary is Caroline Peabody, telephone numbers (612) 296-3328 or 3329. If no answer, try (612) 296-6252.) If you find this time inappropriate, please call me so I can rearrange the schedule. If you do not call, I will assume Mr. Blixt will be hearing from you on the above date.

For your information, I have enclosed a copy of the original letter and material sent to Mr. William Miles covering our ideas on people who might be of service to your Special Permanent Fund Committee. Also enclosed, please note speech made in 1969 covering thoughts on the investment management of Alaska's earlier receipt of oil lease sales monies.

If I or Kidder, Peabody can be of further service, please don't hesitate to ask for our help.

Sincerely yours,

Ernest A. Burgess

Ernest A. Burgess
Vice President

EAB:pe
Enc.

The Research Department

Kidder, Peabody & Co.
INCORPORATED

Monthly Valuation Data

ERNEST A. BURGESS
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628-8557

AUGUST 1977

The Kidder, Peabody Equity Valuation Model has been in use in its present form for more than two-and-a-half years. The methodology itself was refined from work begun in 1973, based largely on that of the early theorists in security analysis. This is the fourteenth publication of these valuations since 1974. They were issued on a roughly quarterly basis until last month, when we switched to a monthly schedule because of the spreading interest in quantitative investment-selection methodologies.

As before, our analysts calculate for each company a normalized earnings base, an estimated long-term growth rate, and an estimated dividend payout rate. The analysts are also asked to suggest a risk group ranking in a range of 1 to 5, which the Portfolio Strategy Group then considers in relation to the total universe. These data are projected into the future and then discounted to present value using what we regard as appropriate discount rates or rate of return requirements for each company. The discount rate for each company is assigned in line with the risk group ranking in order to align the required rate of return with the risk assumed. Theoretical price/earnings ratios and present values are then compared with actual stock prices *for guidance* in identifying overvalued and undervalued stocks.

This month's data are based on market or average discount rates of 12% and 13%, unchanged from last month. We have been using a 12% discount rate with a lean toward 13% since early in the year. This "lean to 13" reflects our overall investment policy, which has emphasized rising risks in the equity area. (For pertinent details, see *Investment Policy* and *Portfolio Strategy* studies of May 5 and June 24.)

In the past, when we were using a single number as the average discount rate, we normally used plus or minus 15% as the breakpoints around theoretical present value. In other words, the price of a stock was deemed too high if it was more than 15% above theoretical value and too low if it was more than 15% below. Because we are, for this report, using a discount rate range of 12% to 13%, the plus or minus 15% breakpoint is less applicable. We continue to suggest, however, that investors use the data with discretion, rather than simply responding to bald statistics. We are therefore continuing to use a "range of value" approach with a breakpoint of plus or minus 7%. That is, stock prices would appear to be too high if they are more than 7% above the range, and would seem to be too low if they are more than 7% below the range. On this basis, of the 189 companies covered in this issue, the prices of 104 look about right (within the range of value) while 26 look too high and 59 look too low. For perspective here, if we were to use a straight 13% discount rate (and a breakpoint of plus or minus 15%), 117 would be within the range while 40 would look too high and 32 too low.

Use of such ranges of value should be particularly interesting during this difficult period for the market. Stock prices that are well outside the range (indicated by + or − signs) should be intensely scrutinized as *possible* sell or buy candidates.

Portfolio Strategy Group
William J. Gillard, CFA-Director
Barre W. Littel, CFA
Jerrold H. Mulder, CFA
Linda H. Cherico, Research Assistant

Portfolio Strategy

Equity Valuation Model Applied to 189 Companies

	Projected			Theoretical PERs		Base-Period	Theoretical Present Values		Price
	Growth Rate	Dividend Payout	Risk Group(a)	13% D.R.	12% D.R.	EPS(b)	13% D.R.	12% D.R.	8/4/77
Basic Industries									
Alcan Aluminium	10	30	5	6.7	7.5	4.25(N)	28	32	27
+Alcoa	10	30	5	6.7	7.5	5.50(N)	37	41	51
–Armco Steel	8	40	4	7.2	8.1	4.25(N)	31	34	24
–Bethlehem Steel	8	30	4	6.4	7.3	4.50(N)	29	33	23
Betz Laboratories	15	30	3	13.9	16.7	1.90	26	32	30
–Boise Cascade	12	30	4	9.4	11.0	4.10	39	45	27
–Champion Intl.	10	30	4	7.5	8.5	3.00(N)	23	26	20
Crown Zellerbach	8	40	4	7.2	8.1	4.40	32	36	35
Georgia-Pacific	12	30	3	11.0	13.1	2.65	29	35	28
–Great Northern Nekoosa	10	30	4	7.5	8.5	4.00	30	34	27
Inland Steel	8	40	4	7.2	8.1	5.50(N)	40	45	39
Kaiser Aluminum¶	10	30	4	7.5	8.5	4.75(N)	36	40	34
National Steel	8	40	4	7.2	8.1	5.00(N)	36	40	35
Phelps Dodge	8	40	4	7.2	8.1	4.00(N)	29	32	28
–Republic Steel	8	40	5	6.5	7.2	4.40(N)	29	32	23
Reynolds Metals	10	30	4	7.5	8.5	4.50(N)	34	38	37
St. Regis Paper	9	40	4	7.8	8.7	3.45	27	30	30
–Union Camp	12	30	3	11.0	13.1	5.50	61	72	52
–U.S. Steel	8	40	4	7.2	8.1	5.50(N)	40	45	35
–Weyerhaeuser	15	30	3	13.9	16.7	3.00(N)	42	50	32
Capital Goods/Construction									
+Babcock & Wilcox	10	30	4	7.5	8.5	4.75	36	40	48
Black & Decker	12	30	4	9.4	11.0	1.50(N)	14	17	16
Browning-Ferris	12	30	5	8.1	9.4	1.05	9	10	9
Bucyrus-Erie	11	30	4	8.5	9.8	2.50	21	24	21
Carrier	8	30	4	6.4	7.3	2.30(N)	15	17	17
Caterpillar Tractor	11	30	3	9.8	11.1	5.20	51	59	53
Chicago Bridge & Iron	11	40	3	10.7	12.3	4.75(N)	51	58	59
Combustion Eng.	10	40	4	8.3	9.3	5.90	49	55	58
–Deere	10	30	4	7.5	8.5	4.50	34	38	27
Emerson Electric	11	50	2	13.3	15.6	2.45	33	38	34
–Envirotech	15	30	4	11.8	13.9	4.00	47	56	40
+Foster Wheeler	8	40	4	7.2	8.1	2.85	21	23	26
+Gardner-Denver	10	40	4	8.3	9.3	1.50	12	14	17
–General Electric¶	11	50	2	13.3	15.6	4.75	63	74	55
General Signal	12	30	3	11.0	13.1	2.33	26	31	28
W.W. Grainger	15	20	3	12.8	15.5	2.30	29	36	30
Ingersoll-Rand	10	50	3	10.2	11.5	5.60	57	64	64
–International Harvester	7	30	4	5.9	6.7	6.90	41	46	31
Johns-Manville	10	30	4	7.5	8.5	4.50(N)	34	38	36
–Masco¶	15	20	3	12.8	15.5	2.00	26	31	21
–Massey-Ferguson	10	30	5	6.7	7.5	5.00(N)	33	38	20
–McGraw-Edison	7	50	3	8.2	9.2	3.65	30	34	26
–Owens-Corning	12	20	3	10.1	12.1	7.10	72	86	65
Peabody Intl.	15	20	4	10.7	12.8	2.25	24	29	23
Reliance Electric	10	40	3	9.3	10.5	3.30	31	35	32
–Sherwin-Williams	10	40	4	8.3	9.3	4.40(N)	37	41	32
+Square D	10	50	4	9.1	10.2	2.45	22	25	27
+Trane	8	30	4	6.4	7.3	4.25	27	31	39
–Waste Management	15	30	4	11.8	13.9	1.60	19	22	16
Westinghouse	7	40	2	6.0	6.7	3.00	18	20	20
Consumer Durables									
Champion Spark Plug	8	50	4	7.9	8.9	1.35	11	12	11
–Chrysler	5	20	5	4.0	4.4	4.50(N)	18	20	16
Ford¶	5	30	4	5.1	5.8	9.30(N)	47	54	44
–General Motors	5	60	3	7.8	8.7	10.20(N)	80	89	68
Genuine Parts	12	40	2	14.1	17.0	2.45	35	42	34

	Projected			Theoretical PERs		Base-Period	Theoretical Present Values		Price
	Growth Rate	Dividend Payout	Risk Group(a)	13% D.R.	12% D.R.	EPS(b)	13% D.R.	12% D.R.	8/4/77
Maytag	8	70	3	10.4	11.5	2.60	27	30	30
–Snap-On Tools	12	30	2	13.1	16.0	2.30	30	37	27
Sunbeam	8	40	4	7.2	8.1	3.15	23	26	23
–Whirlpool	11	40	3	10.7	12.3	2.90	31	36	23
Consumer Nondurables									
–Avon Products	12	60	2	16.1	19.1	3.30	53	63	48
–Chesebrough-Pond's¶	12	40	2	14.1	17.0	1.90	27	32	22
Colgate-Palmolive	12	40	3	12.0	14.1	2.20	26	31	26
+Gillette¶	7	40	4	6.7	7.5	3.00	20	23	27
Int. Flav. & Frag.	15	40	3	15.0	17.8	1.20	18	21	21
Johnson & Johnson	15	30	2	16.7	20.4	4.15	69	85	70
+Noxell*	8	40	4	7.2	8.1	1.75	13	14	18
Procter & Gamble	11	40	1	14.6	17.3	5.95	87	103	81
Revlon¶	12	40	2	14.1	17.0	3.00	42	51	40
+Tampax*	8	50	4	7.9	8.9	3.25	26	29	35
Consumer Services									
–Amer. Broadcasting	12	30	4	9.4	11.0	5.25(N)	49	58	45
Capital Cities	12	10	3	9.1	11.1	5.10(N)	46	57	49
–CBS	12	40	3	12.0	14.1	6.00(N)	72	85	60
Dayton-Hudson	10	30	4	7.5	8.5	4.50	34	38	36
Dow Jones	12	50	3	12.9	15.1	2.25(N)	29	34	34
Eckerd (Jack)	12	30	4	9.4	11.0	2.10	20	23	22
Federated Dept. Stores¶	9	40	3	8.7	9.8	3.80	33	37	38
–Gannett	15	40	2	17.8	21.6	2.60	46	56	36
–Knight-Ridder Newspapers	12	30	3	11.0	13.1	3.45	38	45	34
K Mart	15	20	3	12.8	15.5	2.15(N)	28	33	28
–Longs Drug Stores	15	30	3	13.9	16.7	1.85	26	31	23
Lowe's Cos.	15	10	3	11.7	14.3	1.75	20	25	22
May Dept. Stores	8	40	4	7.2	8.1	3.35	24	27	26
Payless Cashways	15	10	4	9.7	11.7	1.50	15	18	16
Penney, J.C.	9	40	3	8.7	9.8	3.35(N)	29	33	36
Petrie Stores	15	40	4	12.8	15.0	6.20	79	93	75
–Revco D.S.	15	20	4	10.7	12.8	1.90	20	24	18
–Rite-Aid	15	20	4	10.7	12.8	1.80	19	23	16
Sears	9	50	3	9.6	10.7	2.85	27	30	30
Standard Brands Paint	15	20	2	15.5	19.1	2.35	36	45	34
–Times-Mirror	12	30	3	11.0	13.1	2.44(N)	28	33	24
Energy									
–Atlantic Richfield	15	30	4	11.8	13.9	6.00	71	83	57
Cities Service	8	35	4	6.8	7.7	8.50	58	65	58
Continental Oil	9	30	4	7.0	7.9	4.25	30	34	32
Eastern Gas & Fuel	9	30	4	7.0	7.9	3.00(N)	21	24	21
Exxon	9	40	3	8.7	9.8	6.40	56	63	52
–Gulf	9	40	3	8.7	9.8	4.50	39	44	28
–Houston Natural Gas	12	30	3	11.0	13.1	3.70(N)	41	48	32
Marathon Oil¶	9	30	4	7.0	7.9	7.00	49	55	55
–Mobil	9	40	4	7.8	8.7	9.75	76	85	68
–Phillips Petroleum	12	30	4	9.4	11.0	3.80(N)	36	42	32
Pittston	9	30	4	7.0	7.9	4.00(N)	28	32	27
–Royal Dutch	8	30	4	6.4	7.3	11.30	72	82	59
Shell Oil	8	30	4	6.4	7.3	5.15	33	38	32
–Standard of Cal.	10	40	3	9.3	10.5	6.00	56	63	44
Standard Oil (Ind.)¶	9	40	4	7.8	8.7	6.70	52	58	52
Sun Oil	8	35	4	6.8	7.7	6.40	44	49	45
–Texaco	9	50	4	8.5	9.6	3.75	32	36	29
Union Oil of Calif.	8	30	4	6.4	7.3	7.40	47	54	55

	Projected			Theoretical PERs		Base-Period	Theoretical Present Values		Price
	Growth Rate	Dividend Payout	Risk Group(a)	13% D.R.	12% D.R.	EPS(b)	13% D.R.	12% D.R.	8/4/77
Financial Services									
–American Express¶	15	30	3	13.9	16.7	3.65	51	61	40
BankAmerica	11	30	3	9.8	11.4	2.70	26	31	25
+Bankers Trust NY	5	50	5	5.8	6.4	4.80	28	31	37
–Beneficial Corp.	6	30	3	6.3	7.1	4.20	26	30	23
C.I.T. Financial	7	50	4	7.4	8.2	4.75	35	39	36
+Chase Manhattan	7	40	5	6.0	6.7	3.50	21	23	33
Chemical NY R									
–Citicorp	12	30	4	9.4	11.0	3.30	31	36	28
+Connecticut General	8	20	4	5.7	6.5	6.00(N)	34	39	53
Continental Illinois	10	30	4	7.5	8.5	4.00	30	34	28
First Bank System	10	30	3	8.5	9.6	4.50	38	43	36
First Chicago	10	30	4	7.5	8.5	2.75	21	23	21
First Intl. Bancshares	11	30	3	9.8	11.4	4.25	42	48	42
Walter E. Heller Intl.	6	40	4	6.2	7.0	2.70	17	19	20
Household Finance	7	30	3	6.7	7.6	3.00	20	23	20
Jefferson Pilot	10	20	2	8.7	10.2	3.05	27	31	30
+Lincoln National Corp.	6	40	4	6.2	7.0	4.40	27	31	38
–Manufacturers Hanover R									
Morgan (J.P.)¶	11	30	3	9.8	11.4	5.30	52	60	50
NLT Corp.	10	20	2	8.7	10.2	3.05	27	31	26
Southwestern Life	10	20	2	8.7	10.2	2.15	19	22	18
Wachovia	10	30	3	8.5	9.6	1.90	16	18	17
Health Care									
American Home Prod.	11	55	1	16.1	18.9	1.95	31	37	29
Bristol-Myers Co.	12	35	3	11.5	13.6	2.75	32	37	33
Lilly (Eli) and Co. R									
Merck	12	40	3	12.0	14.1	3.65	44	51	54
–Pfizer Inc.	12	40	3	12.0	14.1	2.65	32	37	26
+Schering-Plough	8	40	4	7.2	8.1	3.15	23	26	32
+SmithKline Corp.	12	40	4	10.3	12.0	2.85	29	34	7
Squibb	10	40	3	9.3	10.5	2.60	24	27	26
–Upjohn	12	40	3	12.0	14.1	3.20	38	45	34
+Warner Lambert	10	40	3	9.3	10.5	2.30	21	24	28
Technology									
Automatic Data Proc.	15	30	2	16.7	20.4	1.75	29	36	28
Beckman Instruments	15	20	4	10.7	12.8	2.15	23	28	28
Eastman Kodak	11	50	2	13.3	15.6	4.50	60	70	58
–Fairchild Camera	15	20	5	9.1	10.7	4.00(N)	36	43	27
Hewlett Packard	15	10	2	14.3	17.9	4.75(N)	68	85	80
+Honeywell	8	30	3	7.3	8.2	5.90	43	48	52
IBM	12	60	1	19.1	22.8	17.90	342	408	269
Motorola Inc.	15	30	4	11.8	13.9	3.80	45	53	45
+NCR	8	20	4	5.7	6.5	4.80	27	31	45
Perkin Elmer	12	30	3	11.0	13.1	1.60	18	21	20
Polaroid	12	30	4	9.4	11.0	2.80	26	31	29
–Sperry Rand	11	20	3	8.9	10.4	4.70	42	49	36
–Tektronix	15	20	2	15.5	19.1	2.75	43	53	34
Texas Instruments	15	30	2	16.7	20.4	5.50	92	112	90
Varian Assoc.	15	20	4	10.7	12.8	1.70	18	22	18
Xerox	10	30	3	8.5	9.6	5.00	43	48	51

	Projected			Theoretical PERs		Base-Period	Theoretical Present Values		
	Growth Rate	Dividend Payout	Risk Group(a)	13% D.R.	12% D.R.	EPS(b)	13% D.R.	12% D.R.	Price 8/4/77
Transportation									
Burlington Northern	10	20	5	5.9	6.6	7.00(N)	41	46	49
–Chessie System	10	30	4	7.5	8.5	5.65(N)	42	48	37
–Consolidated Freight	12	30	3	11.0	13.1	3.70	41	48	23
–McLean Trucking	12	20	3	10.1	12.1	3.20	32	39	20
–Missouri Pacific Corp.	10	30	4	7.5	8.5	8.15	61	69	45
–Norfolk & Western	10	30	4	7.5	8.5	4.25(N)	32	36	28
+Rio Grande Industries	10	30	4	7.5	8.5	2.60	19	22	24
–Roadway Express	15	20	2	15.5	19.1	2.45	38	47	30
Santa Fe Industries	10	30	4	7.5	8.5	5.30(N)	40	45	38
–Seaboard Coast Line	8	30	5	5.7	6.4	7.20	41	46	33
Southern Pacific	8	40	4	7.2	8.1	4.65	33	38	36
Southern Railway	10	40	4	8.3	9.3	7.00	58	65	57
Union Pacific	12	40	3	12.0	14.1	4.70	56	66	52
–Yellow Freight	15	20	2	15.5	19.1	2.85	44	54	31
Utilities									
Allegheny Power Sys.	4	60	3	6.9	7.7	2.70	19	21	22
American Tel. & Tele.	5	60	2	8.7	9.7	6.80	59	66	63
Carolina Power and Light	5	60	3	7.8	8.7	3.10	24	27	25
+Central & South West	5	60	4	7.1	7.8	1.95(N)	14	15	17
Cinn. Gas & Elec.	6	70	3	9.1	10.1	2.80	25	28	24
Cleveland Electric	5	70	4	7.7	8.5	4.20	32	36	33
Commonwealth Edison	5	70	3	8.5	9.4	3.10	26	29	31
+Florida Power and Light	6	40	4	6.2	7.0	3.30	20	23	27
General Tel. & Elect.	7	60	3	9.0	10.0	3.70	33	37	33
+Gulf States Utilities	5	60	4	7.1	7.8	1.65	12	13	14
Houston Industries	7	50	3	8.2	9.2	4.30	35	40	34
Illinois Power	5	70	3	8.5	9.4	3.00	26	28	28
Middle South Utilities	5	70	4	7.7	8.5	2.15	17	18	17
+Oklahoma Gas & Electric	5	60	4	7.1	7.8	1.90	13	15	19
+Pacific Gas & Electric	4	50	5	5.2	5.7	3.10	16	18	25
Public Service of Ind.	6	60	3	8.4	9.4	3.20	27	30	31
+Southern Calif. Edison	4	50	5	5.2	5.7	3.60	19	21	26
Texas Utilities	7	50	3	8.2	9.2	2.50	20	23	21
Wisconsin Electric Power	7	60	3	9.0	10.0	3.35	30	33	30

Note: At the close on August 4, 1977, the Dow Jones Industrial Average stood at 888 and the *S&P 500* at 98.7.

\+ The stock is currently more than 7% above the theoretical present value range.

– The stock is currently more than 7% below the theoretical present value range.

R Figures omitted because of SEC or other legal requirements.

(N) Normalized to exclude extraordinary cyclical or other nonrecurring influences.

(a) The risk group reflects our assessment of both fundamental and market risk. On a 1-to-5 scale, 5 indicated the highest risk.

(b) Earnings on which long-term growth rate is based. Typically, the numbers in this column are our fully diluted estimates for calendar 1977.

‡ Kidder, Peabody & Co. Incorporated was manager or co-manager of the most recent public offering of securities of this issuer.

* Kidder, Peabody & Co. Incorporated usually makes a market in these shares and accordingly may have a position in them which may be increased or decreased from time to time.

¶ Kidder, Peabody Securities Limited, a wholly owned subsidiary of Kidder, Peabody & Co. Incorporated, usually makes a market in the convertible Eurobonds of this company and accordingly may have a position in them that may be increased or decreased from time to time.

Appendix

PERs Specified by Equity Valuation Model Using 10% Discount Rate(#)

Projected Annual Growth in Earnings Per Share(%)

Projected Dividend Payout Ratio(%)	3	5	7	8	10	12	15
10						17.3	22.4
20			9.3	10.2	12.0	18.4	23.7
30		8.6	10.2	11.1	13.0	19.5	25.0
40	6.7	9.4	11.0	12.0	14.0	20.6	26.3
50	7.4	10.2	11.9	12.9	15.0		
60	8.1	11.0	12.8				
70	8.8	11.8					

Note: This table reflects the following assumptions regarding terminal multiples:

Growth Rate	3%	5%–10%	12%-15%
Terminal PER	7.5	10.0	13.7

PERs Specified by Equity Valuation Model Using 11% Discount Rate (#)

Projected Annual Growth in Earnings Per Share(%)

Projected Dividend Payout Ratio(%)	3	5	7	8	10	12	15
10						13.9	17.9
20			8.0	8.6	10.2	14.9	19.1
30		7.5	8.8	9.5	11.2	16.0	20.4
40	5.9	8.2	9.6	10.4	12.1	17.0	21.6
50	6.6	9.0	10.4	11.2	13.1		
60	7.3	9.7	11.2				
70	8.0	10.5					

Note: This table reflects the following assumptions regarding terminal multiples:

Growth Rate	3%	5%-10%	12%–15%
Terminal PER	6.8	9.1	11.7

Appendix (Cont'd)

PERs Specified by Equity Valuation Model Using 12% Discount Rate (#)

Projected Annual Growth in Earnings Per Share(%)

Projected Dividend Payout Ratio(%)	3	5	7	8	10	12	15
10						11.1	14.3
20			6.8	7.4	8.7	12.1	15.5
30		6.5	7.6	8.2	9.6	13.1	16.7
40	5.3	7.2	8.4	9.1	10.5	14.1	17.8
50	6.0	7.9	9.2	9.9	11.5	15.1	
60	6.6	8.7	10.0				
70	7.3	9.4					

Note: This table reflects the following assumptions regarding terminal multiples:

Growth Rate	3%	5%-10%	12%-15%
Terminal PER	6.3	8.3	10.1

PERs Specified by Equity Valuation Model Using 13% Discount Rate(#)

Projected Annual Growth in Earnings Per Share(%)

Projected Dividend Payout Ratio(%)	3	5	7	8	10	12	15
10						9.1	11.7
20			5.9	6.5	7.6	10.1	12.8
30		5.8	6.7	7.3	8.5	11.0	13.9
40	4.8	6.4	7.4	8.1	9.3	12.0	15.0
50	5.4	7.1	8.2	8.9	10.2		
60	6.0	7.8	8.9				
70	6.6	8.5					

Note: This table reflects the following assumptions regarding terminal multiples:

Growth Rate	3%	5%-10%	12%-15%
Terminal PER	5.8	7.7	8.9

Appendix (Cont'd)

PERs Specified by Equity Valuation Model Using 14% Discount Rate(#)

Projected Dividend Payout Ratio(%)	Projected Annual Growth in Earnings Per Share(%)						
	3	5	7	8	10	12	15
10						7.5	9.7
20			5.2	5.7	6.6	8.5	10.7
30		5.1	5.9	6.4	7.5	9.4	11.8
40	4.3	5.7	6.7	7.2	8.3	10.3	12.8
50	4.9	6.4	7.4	7.9	9.1		
60	5.5	7.1	8.1				
70	6.1	7.7					

Note: This table reflects the following assumptions regarding terminal multiples:

Growth Rate	3%	5%-10%	12%-15%
Terminal PER	5.4	7.1	7.9

PERs Specified by Equity Valuation Model Using 15% Discount Rate(#)

Projected Dividend Payout Ratio(%)	Projected Annual Growth in Earnings Per Share(%)						
	3	5	7	8	10	12	15
10					5.1	6.3	8.1
20			4.6	5.0	5.9	7.2	9.1
30		4.6	5.3	5.7	6.7	8.1	10.1
40	4.0	5.2	6.0	6.5	7.5	8.9	11.0
50	4.5	5.8	6.7	7.2	8.2	9.8	
60	5.1	6.5	7.4	7.9			
70	5.7	7.1					

Note: This table reflects the following assumptions regarding terminal multiples:

Growth Rate	3%	5%-10%	12%-15%
Terminal PER	5.0	6.7	7.1

(#) When 12% is used as the average discount rate, Risk Group 1 multiples are found in the 10% matrix, Risk Group 2 in the 11% matrix etc. When 13% is used as the average discount rate, Risk Group 1 multiples are found in the 11% matrix, Risk Group 2 in the 12% matrix, etc.

The Research Department

Kidder, Peabody & Co.
INCORPORATED

August 16, 1977

Selected Stock Notes

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Major forest products company continues attractive for aggressive growth.

BOISE CASCADE CORPORATION
(NYSE-BCC)(a)
(29.5 million shares outstanding)

1977 Range	Recent Price	Earnings Per Share 1976	1977(E)	1978(E)	P/E Ratio 1977(E)	1978(E)	Dividend Rate	Current Yield
34-25	26	$3.30	$4.10	$4.50	6.3	5.8	$1.10	4.2%

(a) Options traded on CBOE and Philadelphia Exchange.

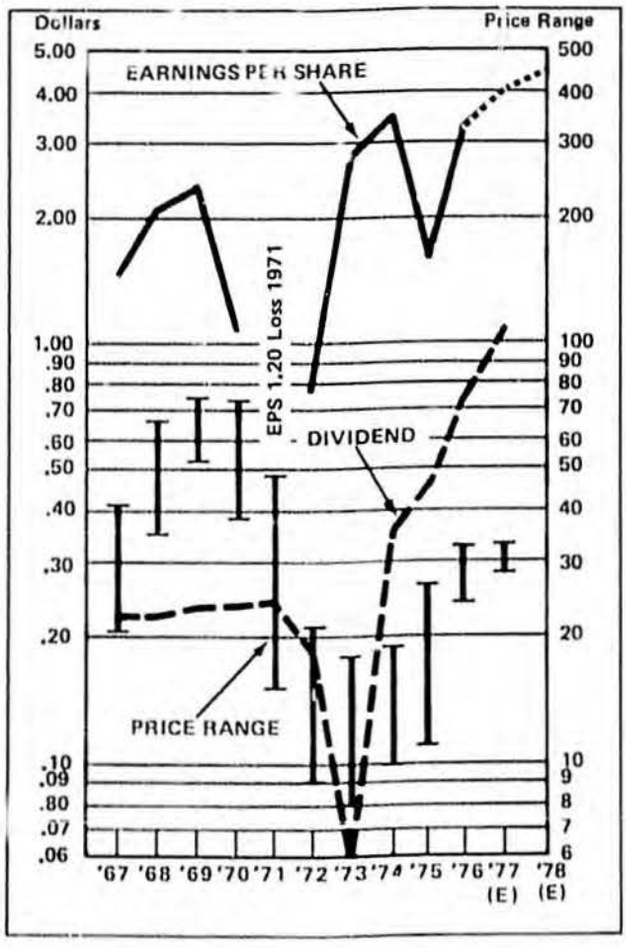
- **Second-quarter earnings in line with expectations.**
- **Profit forecasts for 1977 and 1978 unchanged.**

EARNINGS REPORT AND OUTLOOK

On a 16% year-to-year increase in sales to $591.3 million, Boise Cascade recently reported second-quarter earnings of $1.10, 17% ahead of the 94 cents earned in the second quarter of 1976. As in the first period, the building materials division turned in the best performance, with revenues ahead 35%, reflecting continued strength in the housing market in the western states. The paper and pulp division reported a year-to-year sales gain of 10.8% reflecting, in part, the revenues of two acquisitions made last year. Second-quarter results were penalized 5 cents by the absence of the contribution from nonforest product investments in South America which were sold. Costs increased at a slightly slower rate than sales, widening pretax margins slightly, but the tax rose from 40% to 40.9% to reflect an increase in operating profits relative to capital gains income.

For 1977 as a whole we continue to expect a 19% rise in sales to $2.3 billion, with the paper group contributing the largest portion of operating profits. Because of the company's high sensitivity to housing starts, the outlook for 1978 continues to depend importantly on growth in the overall economy.

The Kidder, Peabody Economics Group expects a slight rise in 1978 housing starts, which should



Investor Services

Boise Cascade Corporation
Operating Results
(Dollars in millions)(a)

	Three Months Ended June 30			Year Ended December 31				
	1976	1977	Change	1976	1977(E)	Change	1978(E)	Change
Net Sales	$509.6	$591.3	16.0%	$1,931.5	$2,300.0	19.1%	$2,597.5	12.9%
Net income	27.6	32.6	18.1	97.3(b)	121.0	24.4	132.0	9.1
Earnings per share	$ 0.94	$ 1.10	17.0	$ 3.30	$ 4.10	24.2	$ 4.50	9.8

(a) Except per-share data.
(b) Before extraordinary gain of $3.5 million or $0.12 a share in 1976.

positively affect prices for wood products, manufactured housing, and kitchen cabinets as well as the building materials distribution operation. Our one-point forecast for 1978 earnings is $4.50 per share, 9.8% ahead of the $4.10 projected for this year.

INVESTMENT SUMMARY

Boise Cascade Corporation, after a disastrous experience as a conglomerate, installed new management that has sold or eliminated losing operations, reduced debt, and returned the company to reliance on forest products and paper operations. Long-term debt, as a percentage of total capital, is well below the average for most forest products companies. Boise management plans to continue its large capital spending program, begun in late 1973, without reliance on equity financing and keeping within a debt to equity ratio of 37.5%. With rising earnings and dividends, investors should again perceive the company as an attractive investment, a prospect that augurs well for potential capital appreciation.

EQUITY VALUATION

Boise's longer term earnings growth rate is projected at 12%, with the expectation that dividends will represent 30% of earnings. In the Kidder, Peabody Equity Valuation Model, Boise common is assigned to a risk category of 4, mainly reflecting the fact that it has a smaller timber base than some industry participants.

Using these assumptions, the model computes a theoretical present value of 45, based on a discount rate of 12 for the market in general. If we raise the market discount rate to 13, the theoretical present value for Boise becomes 39. The mid-point of the 45 to 39 range is 62% ahead of current quotes. We continue to recommend the common for accounts seeking aggressive capital appreciation.

Michele M. Witt

Dow Jones Industrial Average (8/15/77): 874.13
Standard & Poor's 500 Index (8/15/77): 98.18

References: *Investor Services* "Recommendations" (July 17, 1975), "Selected Stock Notes" (April 1, May 24, and September 29, 1976), "Selected Stock Report" (January 7, 1977), "Selected Industry Report" (April 11, 1977) on Forest Products Industry, and "Selected Stock Notes" (June 8, 1977) on Boise Cascade Corporation.

The Research Department

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August 18, 1977

BOISE CASCADE CORPORATION
(NYSE-BCC)
(29.5 million shares outstanding)

Recent Price	26	Dividend	$1.10
1977 Price Range	34-25	Yield	4.2%
1976 Price Range	34-24		

EARNINGS PER SHARE (a)(b)		PRICE/EARNINGS RATIO	
1978 Estimated	$4.50	On 1978 Estimate	5.8
1977 Estimated	$4.10	1977 Estimate	6.1
1976 Actual	$3.30(c)		

(a) Fiscal year-end December 31.
(a) All stock prices in this report are as of August 17, 1977, unless otherwise noted.
(c) Before extraordinary gain of 12 cents a share.

- **Second-quarter earnings of $1.10 cents a share reflected profit improvement from the first period in all major groups.**
- **Full-year estimate of $4.10 a share being maintained.**
- **1978 earnings estimate remains $4.50 a share, although the per-share range has been reduced to $3.60 to $5.00, a share, from $3.90 to $5.50 previously, to reflect increasing uncertainty over the rate of economic growth and level of housing starts in 1978.**
- **Elimination of capital gains treatment of profits on the cutting of timber would reduce company earnings modestly by approximately 6%, or 25 cents a share, this year and next.**
- **Cash flow projections for 1977 to 1981 suggest the company will greatly expand its capital spending program from the current annual rate of $225 million, further supporting our 12% longer term earnings growth rate forecast.**
- **Dividends are expected to continue to rise faster than earnings until a sustained payout rate of 30% is achieved.**
- **Stock continues to sell under theoretical present value range of 39 to 45.**

SECOND-QUARTER 1977 RESULTS

Boise Cascade reported second-quarter sales of $591.3 million, 13.4% ahead of first-period sales and 16.0% higher than year-ago results (see Tables 1 and 2 for selected quarterly statistics).

Timber And Wood Products

Compared with the first quarter, unit sales volume of company plywood and veneer rose 9.2% to 438 million square feet and that of unconsolidated joint ventures, 42.9% to 40 million square feet. (Unit sales data are provided in Table 3.) While the strong plywood sales gains were made relative to the seasonally slow and weather-depressed first quarter, the statistics for wholly owned facilities represented the highest quarterly level in at least the last four years. Compared with the second quarter of 1976, plywood sales were

Company Follow-Up

Table 1
Boise Cascade Corporation

Quarterly Income Statistics
(Dollars in millions)(a)

	1975				1976				1977	
	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	1st Qtr.	2nd Qtr.	3rd Qtr.	4th Qtr.	1st Qtr.	2nd Qtr.
Revenues										
Net sales	$315.3	$369.2	$396.9	$376.7	$399.9	$509.6	$518.4	$503.7	$521.2	$591.3
Interest and other income	5.1	2.2	8.5	10.0	5.5	7.1	15.8	1.8	3.2	4.6
Total revenues	$320.4	$371.3	$405.4	$386.7	$405.3	$516.8	$534.2	$505.5	$524.4	$595.9
Cost and expenses										
Cost of sales	$242.7	$280.7	$309.4	$302.2	$308.4	$396.4	$415.1	$386.4	$404.9	$455.4
Depreciation and cost of company timber harvested	12.8	13.8	14.6	14.8	15.9	17.3	19.2	20.0	20.0	21.1
Selling and admin. expense	39.7	43.4	45.1	43.2	46.3	49.3	50.8	52.7	49.6	54.6
Interest expense	5.3	5.6	5.6	5.7	6.6	7.8	8.8	8.8	9.0	9.6
Total costs	$300.5	$343.5	$374.7	$366.0	$377.2	$470.8	$493.8	$467.9	$483.6	$540.7
Income before taxes	$ 19.9	$ 27.8	$ 30.7	$ 20.7	$ 28.2	$ 46.0	$ 40.4	$ 37.6	$ 40.8	$ 55.2
Income taxes	7.6	9.6	11.0	7.0	11.3	18.4	15.0	10.1	16.8	22.6
Net income(b)	$ 12.3	$ 18.2	$ 19.7	$ 13.7	$ 16.9	$ 27.6	$ 25.4	$ 27.5	$ 24.1	$ 32.6
Earnings per share	$ 0.42(b)	$ 0.61	$ 0.67	$ 0.46(b)	$ 0.57	$ 0.94	$ 0.86	$ 0.93(b)	$ 0.82	$ 1.10
Dividends per share	0.13	0.13	0.16	0.16	0.16	0.20	0.20	0.20	0.20	0.275
Cost of sales as % of sales	77.0%	76.0%	78.0%	80.2%	77.1%	77.8%	80.1%	76.7%	77.7%	77.0%
Pretax margin	6.3	7.5	7.7	5.5	7.1	9.0	7.8	7.5	7.8	9.3
Tax rate	38.2	34.5	35.8	33.8	40.1	40.0	37.1	26.9	41.2	40.9
Net margin	3.9	4.9	5.0	3.6	4.2	5.4	4.9	5.5	4.6	5.5
Dividend payout ratio	31.0	21.3	23.9	34.8	28.1	21.3	23.3	21.5	24.4	25.0
Inventories	$245.8	$230.3	$251.6	$261.9	$280.9	$284.1	$291.3	$313.3	$332.0	$313.2
Debt/invested capital(c)	27.4%	27.7%	27.6%	27.0%	28.2%	31.4%(d)	31.5%	31.7%	32.0%	31.3%

Source: Company published data.
Note: Numbers may not add to totals because of rounding.
(a) Except per-share data.
(b) Before extraordinary items.
(c) Excludes realty debt.
(d) Increase from first quarter reflects borrowing for acquisition of Oxford Paper.

relatively flat, reflecting about capacity operations in both periods. The high level of unit plywood sales in the second quarter of 1977 was achieved during a three-month period when inventories in the field were generally undergoing liquidation after an abnormally large winter buildup.

Production at lumber facilities moved to virtually full capacity during the second quarter, helping to raise unit sales volume 8.3% to 208 million board feet, from the seasonal and weather-depressed first-quarter level of 192 million board feet. Lumber output of joint ventures was flat with the first quarter, at 15 million board feet. Prices of lumber and plywood in the second quarter averaged 10% to 20% above those of the year-ago period. The one notable area of price weakness was in sanded plywood, prices for which increased only 5% on a year-to-year basis in the second quarter. The company has shifted its plywood production mix to contain only 25% sanded, compared with 40% several years ago.

Production of other solid wood products was also strong during the second quarter, especially of fiberboard and particleboard. The capacity of the latter (160 million square feet of industrial-grade board for furniture) is booked out for several months, in sharp contrast to the situation that prevailed throughout 1976.

Boise Cascade accelerated its timber cut in the Pacific Northwest during the first three months of the year, taking advantage of exceptional weather to build log inventories to a level of one month larger than normal. With the threat of labor disruptions past, and fire closures likely to be less

severe than initially anticipated, the company reduced log decks somewhat in the second quarter. Boise Cascade plans to cut approximately 370 million board feet of fee timber in 1977, slightly less than the 387 million board feet cut last year. Overall, higher volume and improved prices raised second-period timber and wood product profits against those of both the first quarter and the year-ago second three months.

Building Materials

Revenues from the building materials distribution system advanced 35% in the second quarter over the year-earlier level. The higher volume reflects the strong housing environment in the Western states, where the building materials distribution centers of Boise Cascade are concentrated. With the sales advance, margins have risen. Manufactured housing shipments have moved ahead as well, especially in the Western region. Full-year production is expected to advance 15% to 20% to approximately 10,000 manufactured housing units, during which time price rises will cover costs. A mix improvement is also occurring with the sale of a greater percentage of larger sized units Furthermore, the company has achieved efficiencies of production from the 1976 closure of two plants. Kitchen cabinet volume rose 30% in the second quarter, although cost pressures have retarded margins. Overall, the building materials group seems to have experienced a healthy rise in second-quarter margins and profits on a year-to-year basis.

Paper

Paper and market pulp unit sales increased 5.3% in the second quarter to 473,000 tons, compared with 449,000 tons in the first three months. Compared with the year-earlier period, second-quarter unit sales were 10.8% higher. This significant gain reflected, in part, revenues of two acquisitions made in 1976. The second-quarter unit sales improvement occurred despite downtime totaling approximately 10,000 tons of newsprint and 3,000 tons of market pulp.

In the second quarter, business papers accounted for roughly 137,000 tons, or 29% of total paper sales; printing papers contributed 22%, or

Table 2
Boise Cascade Corporation

Second-Quarter Income Statement Comparison
(Dollars in millions)(a)

	1976		1977			Change 1977
	Dollars	% of Revenues	Dollars	% of Revenues	Change 1977/76	2nd Qtr./ 1st Qtr.
Revenues						
Sales	$509,610	98.6%	$591,270	99.2%	16.0%	13.4%
Interest and other income	7,140	1.4	4,620	0.8	(35.3)	44.4
Total revenues	$516,750	100.0%	$595,890	100.0%	15.3%	13.6%
Costs and expenses						
Cost of sales	$396,390	76.7%	$455,420	76.4%	14.9%	12.5%
Depreciation and cost of timber harvested	17,340	3.4	21,130	3.5	21.9	5.7
Selling and admin. expenses	49,290	9.5	54,550	9.2	10.7	9.9
Interest expenses	7,750	1.5	9,560	1.6	23.4	5.8
Total costs	$470,770	91.1%	$540,660	9.07%	14.8%	11.8%
Income before taxes	$ 45,980	8.9%	$ 55,230	9.3%	20.1	35.2%
Income taxes	18,400	3.6	22,640	3.8	23.0	35.2
Net income	$ 27,580	5.3%	$ 32,590	5.5%	18.2%	35.3
Earnings per share	$ 0.94		$ 1.10		17.0%	34.1%
Dividends per share	0.20		0.275		37.5	37.5

Source: Company data.
Note: Numbers may not add due to rounding.
( ) Parentheses denote decline.
(a) Except per-share data.

Table 3
Boise Cascade Corporation

Quarterly Unit Sales

	Boise Cascade			Unconsolidated Joint Ventures		
	Paper and Market Pulp(a)	Plywood and Veneer(b)	Lumber(c)	Paper and Market Pulp(a)	Plywood and Veneer(b)	Lumber(c)
1977						
2nd quarter	473	438	208	190	40	15
1st quarter	449	401	192	187	28	15
1976						
4th quarter	433	408	202	203	41	44
3rd quarter	408	434	207	196	36	35
2nd quarter	427	435	209	177(R)	34	12
1st quarter	259	417	191	155(R)	25	12
Year	1,527	1,694	809	731	136	103
1975						
4th quarter	270	382	185	173	21	7
3rd quarter	331	373	166	189	8	12
2nd quarter	316	330	150	164	6	11
1st quarter	302	322	102	151	6	10
Year	1,219	1,407	603	677	41	40
1974						
4th quarter	342	359	115	174	13	8
3rd quarter	361	399	147	85	19	3
2nd quarter	332	395	177	191	17	4
1st quarter	371	381	175	182	19	5
Year	1,406	1,534	614	632	68	20
1973						
4th quarter	327	419	183	179	19	3
3rd quarter	253	427	191	178	14	3
2nd quarter	375	400	198	162	14	3
1st quarter	356	429	184	177	6	2
Year	1,311	1,675	756	696	53	11

Source: Boise Cascade Corporation.
Note: Data on joint-venture paper and market pulp output exclude Bataan, Philippines, mill.
(R) Restated.
(a) Thousands of tons.
(b) Millions of square feet; company restated numbers to eliminate intrabusiness veneer sales.
(c) Millions of board feet.

about 106,000 tons; newsprint 20%, or 95,000 tons; paperboard 18%, or 85,000 tons; converting papers 8%, or 36,000 tons; and a small amount of market pulp totaling 3%, or roughly 14,000 tons. The paper group operated at 101% of the theoretical 1.87-million-ton available capacity, a rate well above the industry average and somewhat above the 96.0% rate of the first quarter.

In joint-venture operations, paper production was allocated as follows: paperboard, 41%, or 78,000 tons; market pulp 29%, or 55,000 tons; converting papers 16%, or 30,000 tons; newsprint 11% or 21,000 tons; and business papers 3%, or 6,000 tons. Thus, based on second-quarter sales of 190,000 tons, and annual capacity of 870,000 tons, we believe the joint-venture paper mills operated at about 87% of capacity, with the major weakness being market pulp. On a combined basis, the total paper capacity of Boise Cascade and its joint ventures of 2.74 million tons operated at 96.7% in the second quarter. Relative to the first quarter, unit volume sales gains occurred in business papers, newsprint (despite the downtime), and paperboard. In joint-venture operations, gains in paperboard more than offset a decline in converting papers, while sales of market pulp, newsprint, and business papers were generally flat.

On the paper pricing front in the second quarter, the company raised prices 4% to 5% on uncoated, white, free-sheet grades and 10.3% on

linerboard. Since the company sells approximately one-third of its linerboard in the open market, the May 1 hike had only a modest positive impact overall in the quarter, although the increase did boost the profits of the paper group. The higher unit volume sold, plus selected price hikes, are estimated to have raised the operating income of the paper group in the second quarter over the first and clearly above the level of the year-earlier period.

Packaging and Office Products

In the packaging and office products category, composite can volume increased year to year in the second quarter, partly because of the success of the new peanut butter can. The division instituted an 8.5% price increase in mid-March after prices had been raised for metal cans, thus helping to offset advancing costs. Corrugated box volume rose only 1% in the first half of 1977 over the initial six months of 1976. This gain, which is somewhat less than the 3.7% average realized by the industry, reflects management's decision to give up some volume to maintain its overall margins. Reflecting this strategy, price increases of 3% had been realized by Boise Cascade on its corrugated boxes by the end of June, in comparison with about only a 2% average industrywide advance. While the price boost was not sufficient to offset the steep rise in linerboard costs, the normal six-week inventory delayed the impact of the increase on profits until mid-June. Envelope operations continued to register a profit improvement. Office products distribution sales rose 18% year to year in the second quarter, partly due to the favorable impact of the sales from two relocated distribution centers. Overall, the operating profits of the packaging and office products group rose modestly in the second quarter over both those of the first and year-earlier periods.

Absent from second-quarter results was the contribution of last year from nonforest product investments in South America, which have been sold. This has penalized earnings an estimated 5 cents a share. Consolidated revenues advanced 15.3% year to year in the second quarter, while costs rose at a slightly slower rate of 14.8%. The increase in costs reflected gains of 14.9% in cost of sales, 23.4% in interest expense (primarily reflecting increased borrowings to finance acquisitions), 21.9% in depreciation, and 10.7% in selling and administrative outlays. The latter was achieved despite the fact that the annual raise in wages of salaried employees occurs in April. A comparison of figures for the first three months of 1977 with the seasonally stronger second quarter of this year reveals that total revenues rose 13.6%, while expenses increased 11.8%. The slightly faster increase in revenues than expenses leveraged second-quarter pretax profits upward by 20.1% relative to that of a year earlier, and in comparison with pretax income in the seasonally slower first quarter of 1977, shows a 35.2% gain.

Offsetting the comparative gain in pretax earnings was a tax rate for the quarter that was slightly higher than the rate of a year ago (40.9% versus 40.0%). A year-end tax adjustment made in the fourth period of 1976 to reflect a larger-than-expected investment tax credit indicates that the second-quarter 1976 tax rate should actually have been lower than was reported. The year-to-year rise is owing to an increase in operating profits relative to captial gains income. Compared with the initial three-month interval, the tax rate declined slightly (from 41.2% to 40.9%), reflecting a more refined estimate of the 1977 tax liability. As a result, second-quarter net income of $32.6 million was 18.2% higher than the year-earlier period and 35.3% above the seasonally weak first quarter of 1977. Second-quarter earnings to $1.10 a share, a company record, were 17% above those of a year-ago period, when Boise Cascade earned 94 cents a share.

OUTLOOK FOR 1977 AND 1978

The sales and earnings estimates for 1977 and 1978 included in Table 4 are predicated on the following economic assumptions: real GNP growth of 5.1% in 1977, slowing to about 4.2% in 1978; housing starts of 1.85 to 1.95 million units in 1977, with possibly a slightly higher level in 1978, plus or minus 100,000 units; and inflation averaging 5.7% this year, increasing to between 6.5% and 7.5% in 1978. As shown in other tabular summaries, 1974 data are included in Table 4 to illustrate trends from the previous peak year.

The 1977 outlook remains basically unchanged from our prior projection (see *Company Follow-Up* of May 12, 1977). In general, sales are forecast to rise 19.2% to $2.3 billion. The paper group is expected to contribute the largest portion of operating profits (37%), although the gain from 1976 is projected at 20.9%, somewhat below the

Table 4
Boise Cascade Corporation

Income Statements
(Dollars in millions)(a)

	1974	1975	1976	1977(E)	1978(E) High	1978(E) Low
Sales						
Timber and wood products	$ 433.2	$ 420.5	$ 588.6	$ 680.0	$ 775.0	$ 635.0
Building materials	323.7	337.0	462.0	615.0	700.0	650.0
Paper	415.9	398.4	558.4	650.0	735.0	700.0
Packaging and office products	424.3	446.2	505.8	600.0	675.0	640.0
Latin American investments	15.7	16.7	20.2		—	—
Other operations	17.7	20.3	27.3	30.0	40.0	35.0
Subtotal	$1,630.5	$1,639.1	$2,162.3	$2,575.0	$2,925.0	$2,660.0
Intercompany elimination	(176.9)	(181.1)	(230.8)	(275.0)	(325.0)	(270.0)
Total sales	$1,453.6	$1,458.0	$1,931.5	$2,300.0	$2,600.0	$2,390.0
Cost of sales	$1,081.0	$1,135.0	$1,506.3	$1,775.0	$1,975.0	$1,865.0
Depreciation and depletion	48.8	56.1	72.4	85.0	100.0	100.0
Allocated SG&A	109.0	121.2	140.1	170.0	195.0	190.0
Allocated costs	$1,238.8	$1,312.3	$1,718.8	$2,030.0	$2,270.0	$2,155.0
Operating profits						
Timber and wood products	$ 24.6	$ 7.4	$ 56.2	$ 85.0	$ 105.0	$ 70.0
Building materials	7.0	2.5	15.8	35.0	43.0	28.0
Paper	111.4	73.3	82.7	100.0	121.0	90.0
Packaging and office products	48.2	37.3	30.9	33.0	39.0	30.0
Unconsolidated joint ventures and affiliated companies	8.5	3.9	11.5	14.0	17.0	13.0
Latin American investments	13.0	19.3	13.5	—	—	—
Other operations	2.2	2.0	2.0	3.0	5.0	4.0
Total operating profits	$ 214.8	$ 145.7	$ 212.7	$ 270.0	$ 330.0	$ 235.0
Corporate overhead	$ (39.1)	$ (47.6)	$ (60.5)	$ (65.0)	$ (73.0)	$ (70.0)
Eliminations	(0.4)	1.0	(0.1)	—	—	—
Pretax income	$ 175.3	$ 99.1	$ 152.1	$ 205.0	$ 257.0	$ 165.0
Income taxes	(71.7)	(35.2)	(54.8)	84.0	110.0	59.0
Net income(b)	$ 103.6(b)	$ 63.9	$ 97.3(b)	$ 121.0	$ 147.0	$ 106.0
Earnings per share(b)	$ 3.51(b)	$ 2.16	$ 3.30(b)	$ 4.10	$ 5.00	$ 3.60
Dividends per share	0.375	0.575	0.76	1.10	1.30	1.15
Cost of sales as % of revenues	74.4%	77.9%	78.0%	77.2%	76.0%	78.0%
Pretax margin	12.1	6.8	7.9	8.9	9.9	6.9
Tax rate	40.9	35.5	36.0	41.0	42.8	35.8
Net margin	7.1	4.4	5.0	5.3	5.7	4.4
Dividend payout ratio	10.7	26.6	23.0	26.8	26.0	31.9

(E) Kidder, Peabody & Co. Incorporated estimates.
( ) Parentheses denote subtraction.
(a) Except per-share data.
(b) Before extraordinary gain of $1.3 million, or $0.04 a share, in 1974 and $3.5 million, or $0.12 a share, in 1976.

company average. However, this will be significantly better than the earnings gain of the paper industry in total, partly because of acquisitions, and also because of the strong orientation of the company toward white paper grades—currently the strongest segment of the paper industry. The ability of management to maximize the profitability of the paper operations must also be considered an important factor in the earnings gain. Strong earnings improvements are forecast for the timber and wood products group, and especially from the building materials area. Only a slight earnings gain is anticipated in the packaging and converted products area owing to margin pressure, especially in corrugated boxes, in the second half of this year. Overall net income in 1977 is projected to rise approximately 24% to $121 million, generating per-share earnings of $4.10, compared with $3.30 in 1976. The range around our one-point estimate is $3.70 to $4.40 a share (see Table 5 for estimate of quarterly earnings). Since the annual dividend was raised 37.5% in the first quarter to $1.10 a share, a further increase is not likely until early 1978.

The outlook for 1978 has become clouded by the growing uncertainty surrounding the magnitude of real growth in the economy and the level of housing starts. This divergence of opinion is the basis for our rather broad earnings range for 1978 of $3.60 a share to $5.00 a share. Utilizing the Kidder, Peabody Economics Group forecast of a slight rise in housing starts year to year (although peaking in the first quarter at a 2.05-million-unit annual rate), wood product prices could rise another 5% to 10% while the unit volume of lumber and plywood sold rises slightly. Although log and other costs will rise, the increased price realizations should be sufficient to generate a modest advance in pretax profits of the timber and wood products group. Similarly the volume and profits of manufactured housing, kitchen cabinet and building material distribution operations are also expected to advance modestly. In paper operations, price increases should keep pace with or slightly exceed cost increases as volume improves somewhat, which could result in a 10% to 15% earnings improvement. This environment should also increase volumes and prices sufficiently in the packaging and office products group to generate what should be a slightly slower gain in pretax profits than in the paper area. Overall per-share earnings are projected on a one-point basis at $4.50, 9.8% higher than the $4.10 estimated for this year. Under these circumstances, the dividend could be raised to an annual rate of at least $1.20 a share.

As previously mentioned, Table 4 contains a range of estimated sales and earnings. At this time, the possibility of a year-to-year earnings decline cannot yet be discounted. If housing starts decline more rapidly than now forecast (the projected annual rate in the fourth quarter of 1978 is 1.9 million units), wood product and building material profits could decline from the level estimated for this year. Furthermore, in the paper area, a significantly slower rate of economic expansion could create a situation where the combination of volume and price improvement does not offset rising costs, which would reduce earnings. On the other hand, housing starts could very well exceed our 1978 expectations, and the profitability of the paper segment could recover with more rapid advances in volume and price. These alternate possibilities form the basis for our estimated range of 1978 earnings of $3.60 to $5.00 a share.

Table 5
Boise Cascade Corporation

1976 and Estimated 1977 Quarterly Per-Share Earnings

	1976	1977(E) High	1977(E) Current	1977(E) Low
1st qtr.	$0.57	$0.82(A)	$0.82(A)	$0.82(A)
2nd qtr.	0.94	1.10(A)	1.10(A)	1.10(A)
3rd qtr.	0.86	1.25	1.15	0.93
4th qtr.	0.93	1.23	1.03	0.85
Year	$3.30(a)	$4.40	$4.10	$3.70

Source: Company quarterly reports.
(A) Actual.
(E) Kidder, Peabody & Co. Incorporated estimates.
(a) Before extraordinary gain of 12 cents a share.

FINANCING FUTURE GROWTH

In November 1973 the management of Boise Cascade announced a five-year (1974-78), $1.13-billion capital spending program. Approximately 23% of this total, or $260 million, has been allocated to necessary projects, including pollution control. The remainder, or about $870 million, has been directed into projects with a required hurdle rate of 12% after taxes on a discounted cash flow basis.

Table 6
Boise Cascade Corporation

Statement of Changes in Financial Position
(Dollars in millions)

Line		1975	1976	1977(E)	1978(E)	1979(E)	1980(E)	1981(E)	1977-81 Total
1	Net income before extraordinary gains	$ 63.9	$ 97.3	$121.0	$132.0	$118.0	$148.0	$171.0	
2	Less: dividends	18.3	22.7	32.7	35.5	37.8	44.4	52.0	
3	Less: adjustments(a)	4.4	11.2	13.3	16.5	14.2	19.6	22.0	
4	Retained earnings—as adjusted (1-2-3)	$ 41.2	$ 63.4	$ 75.0	$ 80.0	$ 66.0	$ 84.0	$ 97.0	
5	Additions to property and equipment	$162.5	$227.3	$195.0	$210.0	$180.0	$225.0	$240.0	
6	Additions to timber, timberland, & timber deposits	16.1	36.1	5.0	15.0	20.0	25.0	35.0	
7	Total capital investment (5+6)	178.6	263.4	200.0	225.0	200.0	250.0	275.0	$1,150.0
8	Less: depreciation, depletion, deferred taxes, other	74.5	78.5	195.0	115.0	130.0	148.0	170.0	
9	Net property additions (7-8)	$104.1	$184.9	$105.0	$110.0	$ 70.0	$102.0	$105.0	$ 492.0
10	Change in other assets—net	3.4	(28.5)	(25.0)	(24.0)	(22.0)	(32.0)	(38.0)	
11	Change in realty and South American assets—net	(20.5)	(153.3)	(20.0)	(15.0)	(15.0)	(10.0)	(2.0)	
12	Change in current working capital (adjusted)—net(b)	(2.8)	73.2	30.0	36.0	25.0	39.0	48.0	
13	INTERNAL FUNDS SELF-SUFFICIENCY (4-9-10-11-12)	$ (43.1)	$ (12.9)	$ (15.0)	$ (27.0)	$ 8.0	$ (15.0)	$ (16.0)	$ (65.0)
	Financed by:								
14	Debt additions	$ 44.7	$274.2	$ 30.1	$ 10.0	$ 11.9	$100.4	$ 3.8	$ 156.2
15	Less: repayments	48.7	158.7	26.1	26.0	31.9	30.4	23.8	138.2
16	Net change in debt financing (14-15)	$ (4.0)	$115.5	$ 4.0	$ (16.0)	$ (20.0)	$ 70.0	$ (20.0)	$ 18.0
17	Equity financing—net								
18	Total financing—net (16+17)	$ (4.0)	$115.5	$ 4.0	$ (16.0)	$ 20.0)	$ 70.0	$ (20.0)	$ 18.0
19	Net change in nonworking capital (13-18)	$ (47.1)	$102.6	$ (11.0)	$ (43.0)	$ (12.0)	$ 55.0	$ (36.0)	
20	Increase (decrease) in marketable securities	(30.5)	76.7		(43.0)	(12.0)	55.0	(36.0)	
21	(Increase) decrease in notes payable and current portion of long-term debt	(16.5)	25.9	(11.0)					
22	Net change in nonworking capital (20+21)	$ (47.1)	$102.6	$ (11.0)	$ (43.0)	$ (12.0)	$ 55.0	$ (36.0)	
23	Marketable securities	$ 6.5	$ 83.2	$ 83.2	$ 40.2	$ 28.2	$ 83.2	$ 47.2	
	Incremental Capacity Financing Capabilities:								
24	Debt as a percentage of invested capital	30.8%	31.7%	30.0%	27.4%	25.2%	26.7%	24.2%	
25	Additional financing possible with debt 37.5% of invested capital			$176.7	$ 73.9	$ 68.1	$ 7.8	$ 75.8	$ 402.3
26	Working capital requirements of incremental capital assets (25 x 13.0%)			23.0	9.6	8.9	1.0	9.9	52.4
27	Additional capital investment possible with debt 37.5% of invested capital (25-26)			$153.7	$ 64.3	$ 59.2	$ 6.8	$ 65.9	$ 349.9
28	Potential capital investment possible with debt 37.5% of invested capital (7+27)			353.7	289.3	259.2	256.8	340.9	$1,499.9
29	Potential of increase in capital investment (27÷7)			76.9%	28.6%	29.6%	2.7%	24.0%	30.4%

Source: Boise Cascade 1975 and 1976 annual and 10-K reports; Kidder, Peabody & Co. Incorporated estimates.
( ) Parentheses denote reduction, unless otherwise indicated.
(a) Equity in earnings of joint ventures and affiliated companies, minority interests in income (losses).
(b) Change in current assets (less change in marketable securities) minus change in current liabilities (less change in notes payable and current portion of long-term debt).

Little return has been realized on this portion of the money to date. Assuming the company realizes a 10% to 12% return by 1981 on the $870-million investment, net income would be almost double the 1976 level. (For further details of this investment program, see our *Company Follow-Up* report on Boise Cascade of November 19, 1976.)

With less than a year and a half to go on the current program, it appears propitious to examine the capital spending potential of Boise for the next five years. Management has stated it plans to continue funding a large capital program beyond 1978 without issuing equity and while remaining within a debt-to-invested-captial ratio of 37.5%. The data in Table 6 include projections of the changes in financial position of Boise Cascade through 1981. Assumptions on net income have been kept close to the conservative end of the likely range (line 1). Total capital investments are generally projected to average $230 million annually, about in line with the current five-year program level of $225 million (line 7). We have assumed liquidation by 1981 of all realty assets (line 11). The working capital necessary to support the rising level of sales through 1981, as well as a dividend payout rate rising to 30% (line 2), have been included in the calculations of internal funds self-sufficiency (line 13). On balance, a capital program of this magnitude ($1.15 billion) over the 1977-81 period could be financed almost entirely by internal sources, leaving a cumulative shortfall of only approximately $65 million (line 13).

To finance this shortfall, the company started 1977 with marketable securities of $83 million (line 23). However, the debt repayments over the period will require $138 million, in addition to the $65 million shortfall in internal funding of investment and dividend needs. Over and above the modest annual debt additions, the company is expected to issue $100 million in long-term debt, possibly in 1979 or 1980. This debt financing, plus a reduction in marketable securities of $36 million and an increase in notes payable of $11.0 million, would be sufficient to finance the continued capital expenditure of $230 million annually, while raising the dividend 129% over the 1976-81 period. Again, no equity financing is assumed.

However, this analysis ignores the fact that with a rising earnings trend, only an $18-million net increase in debt over the 1977-81 period would reduce long-term debt to 24.2% of invested capital by 1981, compared with the year-end 1976 level of 31.7% (line 24). To determine the capital investment financing capability of Boise Cascade over the 1977-81 period, we have assumed a debt-to-invested-capital ratio of 37.5%—the management-imposed limit. We have subtracted the incremental working capital necessary to support the incremental investments. In total, the company could finance about $350 million in capital investment during the 1977-81 period over and above the $1,150-million total suggested by continuance of current spending levels. Although we expect that the company will not borrow up to its self-imposed debt limit, *we do anticipate announcement by the company of a significant increase of its capital investment program for at least the 1979-81 period.* We believe the company has a sufficient number of investment opportunities that will absorb the funds while providing a 10% to 12% aftertax return on a discontinued cash flow basis. However, this higher level of spending is expected to require some public debt financing. *The anticipated level of spending over the 1977-81 period is expected to support a longer term earnings growth rate of 12% and a dividend payout rate of 30%.*

VALUATION

The previous analysis as well as others of prior reports have documented our projection for Boise Cascade of a 12% longer term earnings growth rate. We have also detailed our forecast of a somewhat faster increase in dividends, at least until the payout rate reaches 30% on a sustained basis. We have assigned a risk factor somewhat above the average of the market. This assessment, which is based on both market and fundamental factors, includes: 1) past diversification mistakes; 2) internal operating leverage, which produces significant earnings volatility over the economic cycle; 3) timber self-sufficiency somewhat less than that of several other forest product companies; and 4) a potential requirement for significant capital spending to convert paper manufacturing facilities to alternate energy sources. Predicated on these fundamentals, the Kidder, Peabody Equity Valuation Model suggests a theoretical present value of 45. Based on the current price, the differential from the theoretical value is 38%. The Kidder, Peabody Portfolio Strategy Group has increasingly emphasized the growing uncertainty with respect to the political economic environment for business

Table 7
Boise Cascade Corporation

Valuation History

	Earnings Per Share(a)	Dividends Per Share	Dividend Payout Ratio(b)	Price			Price/Earnings Ratio			Relative to S&P 500			Average Yield
				High	Avg.	Low	High	Avg.	Low	High	Avg.	Low	
1977(E)	$4.10	$1.10	26.8%	34	30	25	8.3	7.2	6.1	0.85(c)	0.78(c)	0.70(c)	3.67%
1976	3.30	0.76	23.0	34	29	24	10.3	8.8	7.3	0.94	0.87	0.79	2.62
1975	2.16	0.58	26.6	27	19	11	12.5	8.8	5.1	1.02	0.80	0.57	3.05
1974	3.51	0.38	10.7	19	15	10	5.4	4.1	2.8	0.48	0.45	0.41	2.53
1973	2.89	0.06	2.2	18	13	8	6.2	4.5	2.8	0.42	0.34	0.25	0.46
1972	0.78	0.19	24.0	21	15	9	26.9	19.2	11.5	1.45	1.09	0.73	1.27
1971	(1.02)	0.25	—	49	32	15	—	—	—	—	—	—	0.78
1970	1.08	0.24	22.2	74	59	39	68.5	52.3	36.1	3.76	3.22	2.67	0.41
1969	2.35	0.24	10.0	76	65	54	32.3	27.7	23.0	1.76	1.63	1.49	0.37
1968	2.03	0.23	11.3	67	52	37	33.0	25.6	18.2	1.75	1.48	1.20	0.44
1967	1.48	0.21	15.5	41	31	21	27.7	21.0	14.2	1.51	1.23	0.94	0.68
1967-76 average			14.6%				22.3	17.2	12.1	1.31	1.11	0.91	1.26%
1972-76 average			17.3				12.3	9.1	5.9	0.86	0.71	0.55	1.99

(E) Kidder, Peabody & Co. Incorporated estimates.
( ) Parentheses denote deficit.
(a) Before extraordinary items.
(b) Cash dividends as percentage of earnings per share.
(c) Based on the Kidder, Peabody estimates for the *S&P 500* of $11.00 in 1977.

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in general and thus the risk associated with owning equities. As a result the discount rate on the market may be approaching 13%. Assuming such a rate for the market as a whole, the theoretical price/earnings ratio for Boise Cascade drops to 9.4, and the theoretical price to 39. However, this is still a price differential of 33%.

Investor concern about strength of real economic growth as well as a peaking of housing over the next 18 months have negatively impacted the performance of Boise Cascade common. Possible elimination of capital gains income have raised investor concerns. Such an elimination without other offsetting changes in the tax laws would have reduced company net income 8.5% on average, over the last 5 years. The estimated reduction in 1977 per share earnings from elimination of capital gains is 25 cents a share or less, or equal to about 6% of projected earnings. However, we believe there is currently a high probability that some compromise will be reached with respect to this issue, limiting the negative impact on the company.

We believe this, as well as other short term concerns will be eliminated or sharply reduced in the next 6 to 9 months. Emphasis on the strongly positive long-term fundamental value of the stock during this period of near-term uncertainties continues to make it a recommendation of the Kidder, Peabody Portfolio Strategy Group.

George H. Boyd III, CFA

SCOMM

#9:19

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Member
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LEGISLATIVE COUNCIL

House of Representatives

POUCH V JUNEAU 99811

M E M O R A N D U M

RE: ADL Study

TO: Reps. Malone & Gardiner

FROM: Rep. Gruening

DATE: May 5, 1978

Attached is a copy of a March 22, 1978 letter from Mr. Hurley of ADL stating that the addendum to the main ADL study "Economic Development in Alaska" was done in lieu of task 5 of the original proposal. Task 5 was not done - "...we will not be completing the development of investment criteria for the fund since our earlier work and our report suggest this step will not be neccessary." To the contrary, the report and addendum ($7.4 billion in capital needs for candidate industries) show that investment criteria are absolutely necessary. I did not approve redefinition of task 5 nor approve the addendum study as required by free conference intent.

At Hugh's urging, I wrote ADL asking for a response to the unanswered questions (letter attached). According to Peter Bushre of Revenue, who has taken Edenso's former position, the bottomfish industry feasibility study is part of the redefined task 5 which will not exceed $14,500.

Attached is a draft copy of the proposal which will have some of the same deficiencies the original ADL study has. Edenso is now in San Francisco talking to ADL and the final ADL proposal for bottom fishing is being developed. I suggest we contact ADL and Edenso (Hyatt House 415 398-1234) and get a meaningful study done.

PF Consult:
A D Little

Arthur D. Little, Inc.
SAN FRANCISCO

ARTHUR D. LITTLE, INC.

QUALIFICATIONS AND RELATED EXPERIENCE

Arthur D. Little, Inc.

STRATEGIES FOR

ECONOMIC/INDUSTRIAL DEVELOPMENT:

REGIONAL AND LOCAL

Massachusetts 'Quality of Life' Analysis

ADL made a detailed statistical analysis of the "quality of life" in Massachusetts for the Massachusetts Department of Commerce and Development. The study focused on the relative standing of 22 major states regarding governmental affairs, business conditions, living conditions, transportation, health, environment, culture, recreation, and education.

Illinois: Growth Opportunities

For the Central Illinois Public Service Company, we examined the regional economy in an effort to identify its assets and liabilities for the purpose of determining opportunities for future industrial growth. The locational advantages of the region were analyzed in light of current market and technological trends within industry groups, to identify those industries most likely to locate and expand in the region.

Mississippi: Local Investment

In an effort to stimulate the interest of local investors in opportunities within the state, the Mississippi State Legislature passed the Internal Industrial Development Act in 1960. ADL was asked to assist the Mississippi Agricultural and Industrial Board in identifying suitable operations for local investment and by preparing feasibility studies of the most promising opportunities.

The preliminary survey of the Mississippi economy and its resources uncovered a number of possible investment opportunities, several of which were recommended for detailed evaulation. Among them were operations involving refrigerated storage, canning, tool and die manufacture, plastics fabrication, furniture assembly, and plywood production.

For each business, feasibility studies identified the potential markets for specific products manufactured or handled, special marketing techniques that would be involved, suitable manufacturing operations, the size of the operation dictated by the potential market, manpower requirements, raw-material availability, transportation facilities needed, investment requirements and operating costs were detailed so that investors could calculate the effect of greater or lesser investment or of joint investment programs on each projected operating business.

Service Sectors of New England Economy

For the New England Regional Commission, Arthur D. Little, Inc., has just completed a study of the service sector as a factor in the economic growth and prosperity of New England. The purpose of the study was to develop actionable guidelines for future policies and programs aimed at stimulating growth in the service sector in the region.

ADL's Ongoing Multiclient Input/Output (I/O) Forecasting Program

ADL has been active in various phases of input/output (I/O) analysis for more than fifteen years. In addition to almost continuous activity in economic forecasting for industry and government clients at home and abroad, we have undertaken a number of I/O studies for a broad spectrum of private and government clients. These studies have been carried out by ADL staff teams made up of individuals experienced in long-range planning, product development, market research, economic and industrial forecasting, technological forecasting, computer programming, mathematical modeling, and data analysis.

The model used in these annual studies, one of the largest of its kinds, is an expanded version of one previously developed for North American Aviation in a diversification planning study. Over the years, the size and detail of the forecasts have substantially increased, and the model is being further modified and expanded to serve as the basix framework for this year's forecasting study.

ADL plans to continue and expand the industrial forecasting program in future years. Later developments will include further industry disaggregation, preparation of additional short-term forecasts and of other forecast information that the clients feel will be of value, and possibly the use of a computer time-sharing system.

California State Development Plan

The California State Planning Office retained ADL to prepare an economic and demographic forecasting model for use by the California State Development Plan. This was developed to prepare forecasts of statewide economic growth as part of an extensive research program designed to provide reliable, consistent, and comprehensive information on statewide and regional development trends, potentials, and the problems facing the California legislature and state administration.

The ADL study steam developed a labor force input/out growth model which made it possible to analyze statewide and regional manpower problems and opportunities. On the supply side, labor force projections and detailed demographic studies provided forecasts of the labor force by year, by age and sex. On the demand side, labor force projections were made through a detailed structural interindustry relationship analysis of the California economy. One unique feature of the projection model was that it estimated the demand levels for the goods and services produced by different industries through the use of wage data and the use of a combination of input/output and multiple-regression analysis techniques.

The model, which was programmed for solution on a computer, was designed so that it could be readily updated when new information was obtained as part of the routine data collection program of the state. The model enabled ADL to test out the repercussions of different state and federal spending policies and programs, such as the reduction in national defense spending.

North Dakota

In an attempt to broaden the base of North Dakota's economy and to stop the population decline in the state, 16 large business concerns having business interests in the region banded together as the "Resources Research Committee" and employed Arthur D. Little, Inc., to appraise the possibilities for industrial development based on the extensive lignite deposits. A comprehensive program of study was undertaken and included as a first step in a study of the technology of lignite (which brought together all available data on lignite), an appraisal of United States energy needs and where lignite fits in; and an economic survey of the region. Information obtained in these studies provided the basis for feasibility studies of specific opportunities, such as an aluminum smelter in the North Dakota area, utilizing lignite in the iron ore industry, producing ammonia and methanol from North Dakota lignite, locating a chlor-alkali plant in North Dakota, production of organic chemicals from lignite, and similar studies.

Missouri

Arthur D. Little, Inc., was retained to assist in identifying potential new opportunities in all manufacturing sectors outside agriculture. We evaluated considerable statistical material on industrial growth, Missouri resources, and industrial trends as well as environmental factors bearing upon the rate of development. We helped to identify those industrial sectors which, based upon their relationship to regional resources and markets and their growth potential, would be logical additions to Missouri's industrial economy. Recommendations were made of those sectors in which further detailed feasibility studies should be undertaken. We also recommended action which the Missouri Division of Commerce and Industrial Development should take to accelerate the rate of industrial development. This approach permitted the Division and other development groups to devote their efforts to attracting those industries which could benefit directly from a location within Missouri, preventing diffusion of attention over the entire industrial spectrum.

West Virginia

For the State of West Virginia, Arthur D. Little, Inc., undertook a four-year industrial development program that contributed substantially to the growth of capital investment in the state. After an initial base study of the state's economy, specific industrial feasibility studies were carried out in the fields of chemicals, apparel, metal fabricating, plastics, electronics, woodworking, aluminum, and nuclear energy.

Maine

In 1958, Arthur D. Little, Inc., made a comprehensive survey of the economy of Maine and of Washington County in Maine for the U.S. Army Corps of Engineers. The object of this study was to determine the economic impact of a proposed tidal power project in the Passamaquoddy Bay area. The report included analyses of population, employment, income and business fluctuations; Maine's fishing, manufacturing, and forest products industries; transportation; tourism and recreation; banking and finance; and mineral and other natural resources. It also assessed the interest of selected U.S. industries in the Passamaquoddy Power Project.

Industrial Development Study for the New York City Planning Commission

Concerned about the continuing decline in the city's manufacturing base and the consequent loss of job opportunities, the New York City Planning Commission asked ADL to study and recommend the types of financial assistance and administrative organizations and procedures needed to facilitate the development and maintenance of a healthy industrial environment. Upon analyzing New York's unique industrial problems, ADL made several recommendations. One of these was the creation of a new agency, with the suggested name of "Public Development Corporation," which would help provide low-cost space for industry. It could be established under existing state legislation and would not require any constitutional amendments in order to be used under the city's urban renewal powers.

The Public Development Corporation would be wholly owned by the city and would provide funds to carry out viable projects. A line of credit for the corporation would be established by using the city-owned vacant, condemned, and underdeveloped land as collateral. This presently unused land would make it financially possible for the corporation to borrow outside the city's debt limit. By drawing on the line of credit made possible by the fluid land reserve (estimated at more than $100 million), the corporation could borrow additional funds and undertake the construction of major development and subsequent leasing of space to appropriate industries.

Development Program for the Harrisburg Economy

ADL completed a project for the city to develop a practical and effective program for the development of the Harrisburg economy. A five-part program of work was designed to carry out the proposed project. It provided both a sound basis for an industrial and economic development program, and an implementation strategy that will be effective in yielding both immediate and long-term results. The results of the project were summarized in a short-range (immediate) action program which took advantage of immediate opportunities, and assisted firms which had not fully recovered from the effects of Hurricane Agnes. A longer-term implementation program to be carried out over the next three years suggested improvements that require more time to be accomplished, such as providing industrial and commercial sites through redevelopment, developing plans for areas that can developed only after flood control projects or new highways have been completed, and a marketing program designed to complement the implementation phase of the Harrisburg, Inc., project. A detailed administrative program and budget for the industrial and economic development program to be carried out during the next three years was also prepared.

Assessment of the New England Economy

ADL conducted a study for the New England Regional Commission, performing a general assessment of the New England economy. For this study, we conducted systematic comparative analyses of the significant relationships between the nation, New England, the states of New England, and the states' subregions utilizing relevant and currently available economic and demographic data. ADL also made an analysis of recent economic projections and presented a set of projections for 1975 and 1980, fully documented with respect to underlying assumptions. On the basis of our analyses, the contractor undertook to plan public investment programs for the region on a five-year plan to 1980.

Economic Study for Puget Sound Regional Transportation Agency

ADL conducted an economic study for the Puget Sound Regional Transportation Agency, Seattle, Washington, to forecast the economic growth potentials of a four-county area for a 15-year period. ADL developed forecasts for this region by using a modified economic base input/output forecasting model. The model traced the existing flows of goods and services among the various sectors of the region's economy and the relationship between the region's economy and the economy of the western United States.

Special questionnaire surveys were conducted among manufacturing industries of the four-county region to augment published data. In addition, special studies of selected industry sectors significant to the area were carried out by ADL industry specialists and incorporated into the model to forecast future growth patterns. The information generated from this study has been used in long-range transportation planning for the Puget Sound area.

Land Use Program for Colorado

ADL assisted the State Land Use Commission in building a program that would provide a framework and process whereby the state and its political subdivisions can guide future development. The study focused on the issues, regions, goals, policies, programs, delivery system, and implemenation action.

The recommended land use program emphasized the local and regional levels of government as the primary decision makers on local questions of land use, and imposed an equitable and consistent discipline on development decisions, rather than a piecemeal and haphazard development. It established a new framework with closer working relationships among agencies and provided a process for guiding growth focused on enhancing the quality of life.

The final report was divided into three parts. Part One contained projections of population and economic trends for Colorado and its five regions, and an explanation of the planning process and the selection of goals, targets, and policies. Part Two presented the recommended programs by region in the areas of environment, economic growth and population, natural resources, and social concerns. Part Three described regulatory tools, organizational structures, and short- and long-term strategies for carrying out the Colorado Land Use Program.

Mendocino County General Plan

ADL was selected to prepare the General Plan for this Northern California county. Our report to the Board of Supervisors and the County Planning Commission involved the traditional projections and allocations of transportation, land use, and public facilities, but was distinguished by its extensive analysis of the economic underpinnings which determine and shape the county's future development. A separate document was prepared which dealt with the land and resources in their economic context as well as with the future potential of the basic industries. A program was recommended to maximize their growth so as to insure a stable and prosperous base for the future physical development.

Lassen County Development

This study was to determine how public lands and facilities should be developed in Lassen County in order to encourage maximum development of private industry. Lassen County was attempting to relate its public expenditures directly to economic development and desired that its Master Plan include an explicit set of public actions to be implemented between 1967 and 1990. The study also included considerations of public controls over the environmental quality of Lassen County's scenic attractions.

Illinois Regional Growth Potential

For the Central Illinois Public Service Company, ADL examined the regional economy in an effort to identify its assets and liabilities for the purpose of determining opportunities for future industrial growth. The locational advantages of the region were analyzed in light of current market and technological trends within industry groups, to identify those industries most likely to locate and expand in the region.

Iowa Development Policy

The Iowa Development Commission commissioned ADL to divide the state into regions in terms of development policy, and to identify industrial and related growth opportunities for the state and its regions. We called for a reorientation of Iowa's program, stressing the vital interdependence of urban and rural areas and the regional approach on a multicounty basis. We used the principle of focal points to divide the state into regions, thus providing the basis for regional opportunity and organizational studies. Numerous specific opportunities were identified and discussed as the first step in proving industrial feasibility and developing prospects. In order to carry out the required feasibility studies, recommendations for staffing the state organizations were included.

New England Economic Diversification and Growth

For the Federal Reserve Bank of Boston, ADL surveyed New England's industrial opportunities by analyzing its human and material resources and the problems of its declining textile industry. The objective was to discover new markets and opportunities for New England manufacturers and to establish new industries suitable to the region. Emphasis was placed on the feasibility of developing the region as a center for several major new industries which, by their nature and locational requirements, would be appropriate to the area.

Washington State Economic Model

ADL developed an econometric model of the Washington State economy for the Washington State Legislature that is now being utilized by the Legislature in order to forecast tax revenue. The model was programmed after a period of research and analysis aimed at identifying the structure and relationships of the Washington economy. The model was tested by the ADL team working with the staff of the Legislative Budget Committee. The model was programmed for and is now being run on a computer owned by the State of Washington.

New York Public Development Corporation

Concerned about a continuing decline in the City's manufacturing base and the consequent loss of job opportunities, the New York City Planning Commission asked ADL to recommend the types of financial assistance and administrative organizations and procedures needed to facilitate the development and maintenance of a healthy industrial environment.

While New York has followed national trends, it has a number of unique industrial problems. The city's unemployment levels it not high percentage-wise, but the number of unemployed is large -- exceeding the entire labor force of Delaware. Two-thirds of its firms employ fewer than 20 people. Many of these firms have limited rent-paying abilities and lack the resources to upgrade their facilities.

As one of its recommendations, ADL suggested the creation of a new agency, with the suggested name of "Public Development Corporation," which would help provide low-cost space for industry. It could be established under existing state legislation and would not require any constitutional amendments in order to be used under the city's urban renewal powers.

The Public Development Corporation would be wholly owned by the city and would provide funds to carry out viable projects. A line of credit for the corporation would be established by using the city-owned vacant, condemned, and underdeveloped land as collateral. This presently unused land would make it financially possible for the corporation to borrow outside the city's debt limit. By drawing on the line of credit made possible by the fluid land reserve (estimated at more than $100 million), the Corporation could borrow additional funds and undertake the construction of major developments and subsequent leasing of space to appropriate industries.

Miami Valley Regional Planning Commission

ADL conducted an extensive analysis of the retailing systems contained within this five-county Ohio region. A research program of surveys and inventories was used to develop the coefficients required for a model of this retailing environment. The model was constructed jointly by the planning agency staff and ADL. Its successful completion permits the planning agency to monitor the factors that determine retail agglomeration locations and sales. The model is currently being used to predict the impact of shifts and demographic characteristics of shopping center and store locations. The same model may also be used to forecast the sales potential of specific sites when zoning policy changes are being requested by developers. Several cities within the region, including Dayton, have already utilized the MVRPC's model to aid them in developing plans for their own jurisdiction.

Development Program for the Port of Astoria, Oregon

ADL completed a comprehensive port development program for the Port of Astoria Master Plan based on a multi-purpose planning and technical approach. Recognizing the port's unique geographic location in a natural deepwater area where the Columbia River meets the Pacific Ocean, the study began with an assessment of the existing setting, i.e., an analysis of port operations and capacity within both a regional and national framework, and a social, economic, fiscal, and ecological profile of the port and Clatsop County. ADL then developed a regional framework and established a development program for the Port of Astoria, taking into consideration its future competitive position, public actions required, evaluation of alternative sites, and a comparative impact analysis of sites. Finally, the study developed a preliminary site plan for high priority sites. In examining the onshore characteristics of suitable shoreline properties, the study concentrated on hydrologic and environmental characteristics which would affect future development options.

Long-Term Development Strategy of the Southern Waterfront, Port of San Francisco

As a part of an overall strategic study, the ADL San Francisco office carried out an analysis of the financial implications of developing containership/LASH facilities at India Basin. The analysis related the specific economics of the proposed new facility to the overall capital investment and ongoing budget and financial resources of the Port of San Francisco. The study showed that significant additional non-maritime development on the northern waterfront of the Port of San Francisco would be required to carry out the development of new facilities and amortize the bonds against these obsolete facilities that the Port held.

Commercial Development of the Northern Waterfront, Port of San Francisco

For the Port of San Francisco and in cooperation with the San Francisco Planning Department, ADL completed an in-depth financial analysis of the potential for additional commercial development on the northern waterfront of the Port that would be supportive of the new maritime facilities contemplated for the southern waterfront. The study investigated the economic feasibility of all possible facilities or uses for the area, the demand for alternative uses, and their physical possibilities. It also investigated the impact of the port on the economy of the city, the economic future of the port, and the development potential of the port property on the Northern Waterfront. The investigation was analyzed to recommend a time-phased development program. This program was designed to facilitate the development of revenue for the port so that they could finance the expansion of maritime activities as indicated by our investigation of their economic future. Concomitantly, this development program considered the overall interests of the City of San Francisco as it would be affected by changing land uses along the Northern Waterfront.

Hawaii's Potential for Ocean-based Industries

The Hawaiian business community engaged ADL to appraise Hawaii's potential in the field of oceanics, or ocean-based industries. The broad purpose of the assignment was to establish whether this field held promise for future economic growth in the Islands. ADL estimated the size and timing of oceanics activity in Hawaii over the next five years, and measured its impact throughout the economy by means of an economic input/output model which had already been developed as part of an earlier transportation study on Oahu.

We assessed Hawaii's attractiveness as a site for oceanics activity as compared with other locations, and sought to identify particular attributes which might help the state to become an important oceanics center. We also noted specific detriments to development of such a center and their possible cures. Our recommendations included steps to be taken by the business community, the University of Hawaii, the state government, and all sectors concerned with oceanics in Hawaii, in order to realize the state's potential in oceanics. Finally, after reviewing the status and potential of the various private and public national programs and funding, we identified those most suited to Hawaii's resources and capabilities.

Southeast Asia Seaport Development Requirements

ADL conducted a major analysis of the seaport development requirements of seven Southeast Asian nations as part of our multi-modal, long-range Regional Transport Survey for the Asian Development Bank. The study was based on the interrelation of economic needs and transportation development in creating a healthy investment climate. We characterized the economic and transport systems of Indonesia, Singapore, Malaysia, Thailand, Laos, Vietnam, and the Philippines and prepared forecasts to 1990 of the needed regional economic and transport structures; recommended measures for greater inter-country cooperation; determined how transport could develop the region's resources and raise its standard of living; established a framework and model by which transport-related investment plans could be assessed and coordinated; developed specific programs for the Bank or outside investors, and recommended institutions for transport development and for collecting and maintaining basic data.

Arthur D. Little, Inc.

ECONOMIC ANALYSIS OF VARIOUS IMPACTS

AND

ECONOMIC FORECASTING

SPECIFIC INDUSTRY AND DEVELOPMENT IMPACTS

Impact of Naval Installation on Kitsap County

ADL recently completed a study of the economic, environmental, and community impact of a planned Trident nuclear submarine base in Kitsap County, Washington, for the Central Puget Sound Economic Development District. Study elements included a detailed analysis of the housing needs for future population, development of new communities, and the development of a population trend model. ADL determined infrastructure costs under several alternative development scenarios, analyzed sources of funds (federal, state, and local), and determined those developments which would have occurred in the absence of this specific naval installation. The study provided an evaluation of alternative development programs and their environmental, social, and economic impacts on current and future residents of the county. For each of the four alternative scenarios, ADL evaluated various techniques for the implementation of development programs, including recommended changes in relevant county ordinances and requirements for new legislation.

Reuse Analysis of NIKE Site in Southern California

With the planned U.S. Department of Defense deactivation of a NIKE missile base lying within its boundaries, the newly incorporated City of Rancho Palos Verdes asked ADL to determine through a study the best nonmilitary use for the site. Because the Palos Verdes Peninsula is a desirable residential area, the study considered housing and population trends and their relation to the city's General Plan. The demand for retail and/or commercial uses was also analyzed, as were such potential public uses of the site as governmental or educational administrative offices, auditorium and multi-purpose activity center, post office, fire station, and recreation and open space. ADL's assignment also included developing a specific site plan relating to the most promising uses, and preparing an environmental assessment.

Butler Valley Dam Economic Impact, Humboldt County, California

For the U.S. Army Corps of Engineers, ADL completed an economic impact statement that determined the short-run and long-run effects of the proposed dam/reservoir project on the flood plain of the Mad River, the lands surrounding the reservoir, and on the county. The economic variables considered included population, market value of land, employment, and income, under the assumptions of the dam being built and not being built. Projections extended to the year 2050.

Economic Analysis of Pacific Northwest Aluminum Industry

ADL undertook an economic analysis of the role of the aluminum industry in the Pacific Northwest states of Washington, Oregon, and Montana. The focus of the analysis was the ten primary aluminum reduction plants, seven of which are located in Washington. The study examined the regional setting in terms of a variety of standard economic indicators. It then analyzed the economic impact of the aluminum industry. In addition to factors like employment, purchases, and taxes, the analysis reviewed uses of aluminum. Of special note was a separate analysis on power consumption. This section traced historical power consumption of the industry and set forth a detailed discussion of actual electricity use compared with overall regional electric power deliveries.

Tourism Impact Study - City of San Diego

ADL completed a study for the City of San Diego which assessed the economic, fiscal, and other impacts of the tourism industry in San Diego. The issue had been the focus of growing public controversy over the use of city funds for tourist promotion. Elements analyzed included economic sector impact, land use consumption by the tourism industry, the cost and benefit of providing public services to tourists, impacts on public facilities such as beaches, and related environmental impacts such as air pollution.

Economic Impact of City of Long Beach's Pacific Terrace Convention Hotel

For the Long Beach Economic Development Corporation, ADL in 1975 assessed the probable economic impact of a proposed destination convention resort hotel in the greater Long Beach area. ADL determined the employment likely to be created and the direct and indirect effects of expenditures during construction and operation of the hotel. The purpose of the analysis was to provide the development corporation and the Economic Development Administration, the financial sponsor, a basis for quantitatively evaluating the major impacts associated with the project.

Tourism Impact Analysis for the State of Maryland

ADL conducted a tourism impact analysis for the Department of Economic and Community Development in the State of Maryland. In that study, ADL developed tourist profiles for the most economically significant types of tourists in each of seven regions of the state. The profiles indicated the economic impact (in terms of jobs, income, and tax revenue) each of these tourists has on the region and the state in total. The study also investigated the relationships between the state, local governments, and the private sector with the intent of identifying options and opportunities the state has in influencing other groups in Maryland to be involved in tourism development. Finally, the study looked at the resources and facilities the state has and assessed their potential for tourism development.

Economic Impact of Redwood National Park in Northern California

ADL was asked by the U.S. Department of the Interior to examine the economic impact of its proposal to establish a Redwood National Park in Northern California and to prepare both short- and long-term projections of employment and income levels in local areas. Two sets of projections were made; the first was based on the assumption that there would be no park, and the second was based on the assumption that the park would be set up. The local government's fiscal position was examined in light of both possibilities. Since the site to be occupied by the park contained much of the commercial timber stands of the local area, ADL analyzed the impact of the park on the lumber and wood products industry and concluded that establishing a park would reduce jobs in this industry by 28%. However, we forecast an overall increase in available jobs in the area due to the positive impact of tourism.

TAX IMPACTS

Major California Headquartered Bank

For a major California headquartered bank, ADL is currently developing demographic and economic baseline data for the bank's internal use. These data comprise a review of past trends (10 years) in state and local governmental costs and revenue sources. Our work has also included a projection of the impact of alternative proposed legislation for dealing with local taxation and, in addition, has considered the impact of SB 90, Serrano Priest court decision, and other major pieces of litigation and legislation.

San Francisco Tax Alternatives

In 1967 the California Legislature passed a law stipulating a uniform assessment ratio for all California real property. The law stated that all property should be assessed at 25% of its market value. In San Francisco the previously existing range of assessment ratios had gone from an average of about 10% on single-family to 50% on commercial properties. Therefore, it was important for the city to find out what the impact of new assessment ratios would be on the city's residents, by subgroups, and on various kinds of housing types.

ADL was able to gauge this impact by using the census data on housing cross-tabulated with household types that had been prepared initially for the San Francisco simulation model. Extensive computer-using analytical manipulation of the data permitted us to break out population subgroups on the basis of the kinds of dwelling units they occupy. Census data on housing rent or value was methodically treated with the inclusion of capitalization assessments to present a distribution of actual housing costs (implicit and explicit) for each category of household.

Estimates of existing assessment practices were utilized to indicate the existing tax for all dwelling units. We then simulated the impact of the tax charge under the assumption of a uniform assessment ratio of 25%. Estimates were made of the change in housing costs that would apply to the various household and dwelling unit types following the tax impost. These estimates were then found to be substantially in accord with the results of a detailed tax study conducted by the assessor with the use of assessment records. Thus, these data and simulation techniques permitted us to gauge the impact on different kinds of income groups and housing types. It also facilitated an estimate of the new tax generation.

Property Taxes and Urban Blight

The Department of Housing and Urban Development asked ADL to determine whether property taxes affect the rate of deterioration of inner city housing. ADL interviewed owners of over 400 properties in 10 cities across the country to determine how their investment decisions and rehabilitation plans are affected by the property tax. The study reports on the type of landlords who invest in city housing and when they are most directly affected by the property tax. The study also suggests alternative methods for inner city housing taxation.

Hawaii's General Excise Tax

Arthur D. Little, Inc., was engaged by the State of Hawaii to analyze and evaluate the general excise tax within the context of Hawaii's tax structure. We measured its performance against a variety of criteria such as equity, ease of administration, responsiveness of yield to economic growth and impact on industrial development. We developed an input-output model of the Hawaiian economy to measure quantitatively the economic multiplier effect of imposing the general excise tax on certain products. We performed a simplified sensitivity analysis to illustrate how critical the excise tax may be in investment decisions, particularly as it affects cash flow. Our major conclusion was that the general excise tax should be retained provided that the business community could be substantially relieved of the burden of paying the "retail" rate on inter-industry purchases. We also made other recommendations designed to alleviate the most discriminatory aspects of the general excise tax.

Washington State Economic Model

We have developed an econometric model of the Washington State economy for the Washington State Legislature that is now being utilized by the Legislature to forecast tax revenue. The model was programmed after a period of research and analysis aimed at identifying the structure and relationships of Washington economy. The model was tested by ADL working with the staff of the Legislative Budget Committee. The tests included specific forecasts for 1968-69 and 1970-71. The model was programmed for and is now being run on a computer owned by the State of Washington.

New Hampshire Cigarette Tax Study

For the State of New Hampshire, ADL estimated the amount of sales of cigarettes in the state to out-of-state buyers in order to determine what effect raising the New Hampshire tobacco tax rate might have on purchasing patterns. We conducted a consumer survey of a representative sample of over 1000 households in Massachusetts. We estimated the extent to which Massachusetts residents buy cigarettes in New Hampshire, the quantities purchased, and the seasonality of purchasing patterns. Knowledge of consumer preferences, coupled with a statistical analysis of relevant economic and social variables, enabled ADL to predict the effects of changes in the tax rate on cigarette sales. The forecast for Fiscal Year 1967 was accurate within a margin of error of two-tenths of one percent.

Arthur D Little, Inc.

PUBLIC POLICY PLANNING AND IMPACTS

Nuclear Power Plants -- Guidelines for Impact Statements

A 1971 decision handed down by a U.S. Circuit Court of Appeals (Calvert Cliffs Coordinating Committee, Inc., et. al. vs. United States Atomic Energy Commission et.al.) stated that the AEC had failed to live up to the mandate embodied by NEPA. As a result of this decision, the construction of the nuclear power plants was slowed and in some cases halted.

In reconsidering its licensing procedures, the AEC requested ADL to develop guidelines for both the preparation and analysis of impact statements. ADL's area of concentration was the impact of the manufacturing operations in the nuclear fuels cycle, including ore mining and fuel fabrication and reprocessing. The final report analyzed the legal framework within which the interests of environmental integrity must be balanced with those of industrial activity and the problems inherent in measuring environmental costs. Format and approach were recommended for applicants preparing impact statements, and guidelines were given for the AEC in discharging its regulatory responsibilities under NEPA.

Environmental Impacts -- Department of Transportation Projects

ADL assisted the U.S. Department of Transportation in responding fully and effectively to the mandates of NEPA without interfering unreasonably with the achievement of long-range transportation goals. A major part of the study was a state-of-the-art analysis of the problems inherent in measuring environmental impacts, particularly those for which qualitative rather than quantitative evaluations were required. The study defined ten categories of impact, encompassing the significant issues for transportation projects, ranging from impacts on air and water quality to impacts on the aesthetic environment.

Decision-making procedures were recommended that would interject environmental considerations into the planning of transportation projects at all levels of government. The Office of Environmental and Urban Systems, which has the responsibility for DOT compliance with the NEPA, was evaluated in terms of its role in and the options available for full compliance with environmental legislation.

Environmental Decision-Making by States

As a follow-up to the previous study for the U.S. Department of Transportation, ADL has been engaged to examine the degree to which state governments are prepared to take over various responsibilities on capital grant projects (such as highways and airports) affecting the environment. This study is in anticipation of possible revenue-sharing problems, unified transportation trust funds unrestricted by modal designation, and decentralization of accountability for projects of regional or local rather than national significance.

ADL staff members have traveled to three states to observe how environmental impact statements are prepared and by whom, what criteria are used in reviewing and approving them, and how broad a spectrum of skills and disciplines is brought to bear on environmental analyses. Currently, one state is being studied in detail to gauge the extent to which organization, staffing, budgeting, and orientation affect the quality of decision making.

Environmental Planning System -- City of Denver, Colorado

In response to increasing local concern for environmental quality, the City of Denver became one of the first cities in the United States to initiate the designing of a comprehensive environmental planning system. In the first part of a two-phase program, ADL was engaged to develop a conceptual framework and assist in developing strategies for system implementation.

Through case studies of selected projects, the environmental decision-making process was evaluated. In making its recommendations, ADL considered the prerequisites for development of the consensus, policies, plans, and government structures that would ensure decision making uniformly consistent with environmental policy. Among the considerations were the critical procedure steps in this decision-making process, the principal actors, the requirement for an environmental data base, the environmental impact statement as a vehicle for decision-making, and the problems in evaluating dimensions and significance of impacts.

National Commission on Water Quality - Regional Assessment Study

Recognizing that the new Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) would have varying impacts on different geographic regions, the National Commission on Water Quality commissioned ADL to conduct a regional assessment study on the San Francisco Bay-Central Valley of California. The purpose of the study was to ascertain, describe, and explain the region-specific impacts of achieving or not achieving the goals and requirements of PL 92-500. Further, it was to clarify and describe the relationship between the existing social, environmental, and economic conditions and the types of impacts engendered by the Act.

The study was structured into two phases. Phase I focused on developing a baseline profile of the region including the identification of the principal issues, problems, and representative subareas. Phase II addressed and analyzed the important social, economic, environmental, and institutional changes from the baseline profile which would occur if specific actions were implemented to control or abate water pollution.

The study found that there was a period of adjustment of state policies and programs to PL 92-500 which resulted in implementation delays. It identified two major problems of water quality control: agricultural wastewater and urban runoff pollutants -- both of which would require new programs and funding sources for effective control. It also pointed out that, in California, water quality improvements are highly interrelated with resource uses and achievement of greater cooperation in this relationship has been stimulated by planning and institutional arrangements responsive to PL 92-500.

Regional Solid Waste Management -- Buffalo, New York

ADL participated with the engineering design firm Camp, Desser, and McKee in a study of regional solid waste management for the State of New York and the Erie-Niagara Counties Planning Board. The planning area encompasses heavily industrialized communities around Buffalo, New York with a population projected to exceed two million over the time span of the solid waste plan.

ADL provided technical analysis of industrial wastes and recommendations for financing and management of the solid waste program. From the many financial, regulatory, legislative, administrative, and institutional alternatives for system implementation, ADL found that a redistribution of management responsibilities would be conducive to effective operation and intergovernmental coordination of the program. According to this plan, responsibility for recycling and for use and procurement of recycled materials would lie at the bi-county level, with villages, cities, and towns responsible for waste storage and collection, and counties overseeing disposal operations and transfer, processing, and hauling of solid waste.

Effluent Guidelines -- Plastics and Synthetics Industry

ADL has recently begun a study for the Environmental Protection Agency to develop effluent limitation guidelines for the plastics and synthetics industry. In addition to characterizing the waste streams from plants in all segments of the industry, ADL is evaluating the control technologies available to treat the waste streams and the solid waste pollution created by them. Treatment capabilities are being assessed at exemplary plants with respect to waste treatment for each industry category. The use of substitute raw materials is being explored, as well as the use of recirculated solvent systems in place of water systems.

Condominiums/Cooperatives Study - Department of Housing and Urban Development

For the U.S. Department of Housing and Urban Development, ADL conducted a study leading to new legislation and regulatory procedures with respect to condominiums and cooperatives in the United States. The study was mandated by Congress in response to proposed legislation to federally regulate the construction and sale of these two forms of multi-family dwellings. In a comprehensive 30-week effort, ADL reviewed the regulations, legislation, and litigation in 50 states, conducting interviews with 1200 owners of condominiums and representatives of the various industries serving the condominium market in order to determine the efficacy of existing regulation, state and local, and the need for new policy. The study concentrated on the housing demand in six SMSAs and resulted in projections for overall housing demand in specific states and the national trend with respect to condominiums and cooperatives.

California Energy Shortage Contingency Plan

For the California Energy Resources Conservation and Development Commission, ADL has recently prepared an Energy Shortage Contingency Plan for the State. The Plan addresses itself to short- to medium-term energy shortages (weeks, months, a year or so; but not hours, days, or several years). It is a procedure for dealing with a significant shortage of a particular source of energy or a simultaneous shortage in several sources of energy. The Plan attemps to bring demand for energy into balance with supply in a manner which imposes the least burden on society. The sacrifices required by the Plan are temporary and necessary to provide a smooth bridge between periods of normal supply. The Plan does not attempt to resolve the long-term energy shortage problem; it is not a long-term energy resource allocation scheme; and is not intended to substitute for or interfere with the capability of energy suppliers to deal with operational day-to-day emergency shortages.

The emphasis of the Plan is on providing for the operation of production activities to the fullest extent possible, given the constraint of energy shortages. The Plan seeks to protect the operation of essential activities, such as public health, safety, and welfare in general during an energy shortage. In general, it relies heavily on public cooperation and voluntary compliance, and on an open decision-making framework in the expectation that an informed public will cooperate more fully than will an uninformed public. There are, however, provisions for mandatory compliance. An appeals procedure is included to grant exemptions to those aggrieved by the mandatory provisions of the Plan.

The Plan requires a mechanism for evaluating the extent of an energy shortage. It also requires the maintenance of reasonably up-to-date energy-use information. Lastly, it requires enforcement measures to assure compliance with mandatory provisions.

Northwest Energy Policy Project

The Governors of Idaho, Oregon, and Washington decided in Spring 1975 that important energy issues for their states could best be addressed by a comprehensive regional energy study to be undertaken under the direction of the Pacific Northwest Regional Commission. Within the commission, the administration of this study was carried out by the Northwest Energy Policy Project. For the project, ADL was one of the contractors. Our responsibilities were for the Energy Shortage Contingency Planning study module.

ADL prepared recommendations applicable to the three northwest states on the elements of energy shortage contingency plans, data requirements, sets of measures designed to alleviate energy emergencies, lists of essential activities, legislative and organizational requirements, and recommendations on how to identify and measure contingencies and implement and enforce plan measures.

FORECASTING AND PROJECTIONS

ADL is particularly well qualified in the area of forecasting and projections of economic and demographic factors that shape a region. It has been a pioneer in the development of input/output technique, one of the newest forecasting tools. A few ADL projects are described below.

- For the State of California, our assignment was to prepare an economic and demographic forecasting model for use by the California State Development Plan. The ADL team developed a labor force model which will permit the state to analyze its manpower needs or surpluses on a statewide and a regional level. The labor force totals were developed by a detailed demographic forecast of future population for each year to 1975 by age and sex. These detailed population totals were converted into future labor force, school-age population, old-age population, etc. Labor force demand was estimated by a fine structural analysis of the California economy which broke out exports, local markets, and inter-industry demand from wage data by multiple correlation techniques. The model makes use of modern computer techniques which offer the opportunity of keeping up-to-date material which is gathered as part of the routine administrative requirement of state programs. In this way, it offers an opportunity for a continuously sensitive system for testing the repercussions of state policies and programs.

- As part of the Community Renewal Program for the City of Stockton, Calif., financed partly through a Housing and Home Finance Agency grant, we prepared economic forecasts of income and employment for the Stockton economic area. We also identified the major sources of wage and non-wage incomes and their relative growth potential. The prime source of information for this study was a questionnaire survey. Because certain business enterprises represented a large fraction of employment in their particular sector, personal interviews were also used to acquire the necessary information. The study suggested that the input/output model provides an accurate statement of the linkages existing between business establishments operating in the local market and those serving primarily the export market. The study also projected future residential, commercial, and industrial land requirements.

- The San Francisco City Planning Commission asked ADL to assist in the preparation of a Community Renewal Program, a long-range plan encompassing all the residential, commercial, and industrial areas of the city. The fundamental objective of the program was the establishment of a schedule for both private investment and public actions to stimulate the renewal of the city. The program had to be one that could be modified as time passed and conditions changed. The systems concept, in which a mathematical model is adapted to electronic computers, was judged to offer the most promise for dealing with the complexities of an urban environment. By the use of this technique, city officials will be in a position to test in

advance the effects of various programs and to select those which achieve the desired results. They will also be able to identify key symptomatic indicators, or warning signals, which will alert them to changes in population, land use, etc., that call for public action and the revision of plans.

- For the Planning Commission of the City of New Bedford, Mass., we undertook a study of the economic base of the metropolitan area to determine the factors affecting industrial growth, to prepare a forecast of an attainable level of future employment, and to forecast future land requirements for income-producing activities within the city. The results of this study served as an input to the preparation of a comprehensive land-use plan. Personal interviews and a questionnaire survey provided important data inputs on the relationship between New Bedford industry and that in other areas.

- For the Puget Sound Regional Transportation study of Seattle, Wash., ADL carried out a program to analyze the sources and levels of economic activity in the region, to forecast future levels of economic activity and population, and to estimate the amount of land required for development. In developing the forecast of future economic activity, we developed a modified "economic base-input/output" economic forecasting model. The model describes the flow of goods and services among the various major industrial groups within the region and, in turn, the relationships between the industries within the region and the "rest of the world." Of particular importance in this study was the need to forecast the probable level of employment of the Boeing Company since the prospects for this company play such an important part in this local economy. The input/output approach made it possible to better understand the relationships which exist and the changes which would occur as the employment at Boeing varied.

- In the spring of 1962, the Ohio River Division of the U.S. Army Corps of Engineers engaged ADL to prepare a 50-year forecast of economic activity in the Ohio River Basin as part of the major study of future water requirements. The study called for estimates of employment and physical output for individual manufacturing industries and for the major nonmanufacturing sectors of the regional economy. In addition to providing a forecast for the Ohio River Basin as a whole, the contract called for dividing the basin into subareas, delineated roughly along tributary basic boundaries. Forecasts of economic activity to the year 2010 were required for each of the subareas.

- A similar study was completed of the New England region, states, and substate areas for the New England Division of the U.S. Army Corps of Engineers. This study used regression analysis as a basic methodological framework. The study was completed in 1965 and published under the U.S. Army Corps of Engineers Division, New England, under the title "Projective Economic Studies of New England."

- In 1964 we carried out a preliminary feasibility study on forecasting construction costs for the Bureau of Yards and Docks, Department of the Navy. Our feasibility study indicated that by applying statistical forecasting techniques to labor wage rates and a few basic construction materials, excellent forecast of the escalation of major cost components could be obtained. We estimated that statistical procedures could be developed to forecast construction costs, for different kinds of facilities and for different geographic areas, three years into the future with a forecast error of less than 2.5%.

- For the Florida Development Corporation, ADL conducted a study of the state's economic stability and growth and made a lo-year projection of its population and labor force development. The ADL case team stressed Florida's major economic features -- manufacturing, agriculture, and tourism -- but also investigated the area's business climate and described its economic condition in terms of per capita income, employment rates, sources of income, tax revenues, and public services.

- The Atchison, Topeka & Santa Fe Railway Company retained ADL to study future economic growth and prospects for rail freight in the West. Specific objectives of the study, the results of which were presented before the Interstate Commerce Commission, were to analyze the regional economy and forecast economic growth and to analyze the relationship between economic activity and the demand for transportation, study carrier competition for freight and forecast rail traffic in the West.

More recently, Arthur D. Litte completed research and prepared testimony for the Chicago and Northwestern-Santa Fe petition for control of the Rock Island Railroad. In support of the Santa Fe position, we performed an analysis of all long-haul truck movements across the region served by the railroads.

Also, we evaluated a development plan for tidewater property in the San Francisco Bay area for the Santa Fe Railroad.

Arthur D. Little, Inc.

INDUSTRIAL PARKS PLANNING

AND

BUSINESS LOCATION STUDIES

Evaluation of Commercial/Industrial Activity in San Francisco

ADL undertook a research and analysis study for the San Francisco Department of City Planning to (1) analyze the economic structure of San Francisco and project future employment and land use, (2) estimate the major impacts of the projected trends on the city and its residents, (3) evaluate the desirability and feasibility of public intervention to alter trends, and (4) suggest alternative strategies for the city's commercial and industrial areas.

The study had included two interrelated elements: economic analysis and land use analysis. Based on these analyses, this study addressed the identifiable locational preferences of industries, possible public action which might affect locational decisions, and strategies for the major commercial and industrial districts of the city. It included an analysis of the city versus the suburb vis-a-vis external and internal economies of location and site for industries and dealt extensively with the implications of city policy for future land-use trends.

ADL's work was the basis of a Commerce and Industry element for the Planning Department's Comprehensive Plan, which was being revised and updated.

Industrial Park Feasibility Study - City of Salem

For the City of Salem, Oregon, ADL in 1975 investigated the feasibility of developing the city-owned property located at McNary Field for industrial park use. To accomplish this objective, a land use and marketability analysis for the 103.8 acre site was performed by ADL under the guidance of the city's Community Development Department. Included in this work was an assessment of economic activity trends, labor force characteristics, development potential, physical site conditions, and riverfront relocation opportunities. As a result of this analysis, a management plan for implementing the recommendations was formulated. The plan considers planning and environmental factors and control measures, facility improvements required, and associated cost estimates and management strategies.

Utilization Study for Dallas-Love Field, Texas

The City of Dallas, responding to growing demands on its airport facility, had decided to transfer its major airport operations from Love Field to the new Dallas-Fort Worth airport by 1973. ADL was responsible for designing the transfer system which would take into account the immediate changeover system as well as the long term land use potential of the Love Field facility. Using a multidisciplinary team of airport planners, market analysts, real estate planners, urban transportation planners, and economic forecasters, ADL designed an effective management system to structure the initial planning process, taking into account the inventory of socioeconomic and land use data, aviation trends, financial constraints, and the identification of special development opportunities. In addition, the ADL design initiated the necessary interim management strategies and prepared the final development program for the future use of the Love Field site. Throughout the planning process, the ADL design took into account the importance of formulating policies and programs which were technically sound as well as politically sensitive and socially responsive.

Industrial Parks Development

For Lincoln, Nebraska; Columbia, South Carolina; Tampa, Florida; Albuquerque, New Mexico, we established the feasibility of and prepared overall plans for the development of industrial parks. Included in these projects were the preparation of cost estimates and restricted covenants, the development of a recommended method of operation, the identification of the type of tenants most likely and suitable to occupy the parks, and a flexible land use plan consistent with the types of potential tenants identified.

Case-Western Reserve

Case-Western Reserve, in partnership with several other institutions in Cleveland's University Circle, asked ADL to determine the feasibility of establishing a "research park" on land abutting the school in order to establish a closer relationship between industry and the faculty and laboratory resources of the institutions of higher learning. In carrying out this related study, it was necessary to pinpoint the links between fundamental and applied research and to determine the desire of industry for physical proximity to centers of higher education.

A Publicly Owned Industrial Park at JFK Airport

ADL was asked by the newly formed Public Development Corporation (PDC) in New York to investigate the potential of a 100-acre tract adjacent to Kennedy Airport for airport-related industries--particularly air freight. The key questions asked of the ADL team were:

- Who are the potential users of the site?
- What are the requirements of these users?
- What are the physical development problems?
- What is the best layout?
- What are the costs and benefits?
- What role should PDC play in the development?

Nogales Industrial Park

The Parque Industrial de Nogales, S.A. (PINSA) is located south of Tucson, Arizona in Nogales, Mexico. In 1968, ADL was employed by the U.S. developer on a five-year contract to assist in creating the park, starting with the raw land and carrying through in all aspects. Currently, PINSA is in successful operation with many prime U.S. companies producing there under the "Twin Plant" concept of the Mexican Border Program It matches the highest standards of design and operational performance, comparable to the best parks in the United States.

Conference on Industrial Parks

Arthur D. Little, Inc., and the New Hampshire State Planning and Development Commision's Industrial Division sponosred a conference on industrial parks held at Dartmouth College. The objectives of this two-day conference were to define the term, "Industrial Park," identify the advantages and disadvantages of industrial park locations, and to examine major economic and governmental issues ariisng from industry's movement to suburban locations from urban industrial centers. Conferees were drawn from the fields of consulting, government, industry, real estate, and transportation. A major contribution of this conference was its delineation of issues--particularly those urgently in need of research, study and action.

St. Louis

For the St. Louis Metropolitan Chamber of Commerce, Industrial Park Corporation, Arthur D. Little, Inc., assessed the feasibility of an industrial development project in Columbia Bottoms. This project involved the development of 2700 salable acres of industrial land in Columbia Bottoms.

Nebraska Chamber Industrial Development Corporation

For the Lincoln, Nebraska, Chamber Industrial Development Corporation, and for the Columbia, South Carolina, Chamber of Commerce, Arthur D. Little, Inc., assisted in the overall plans for the development of industrial parks. Through interviews with business leaders, industrial managers, bankers, government officials, railroad representatives, and industrial realtors, and examination of pertinent economic data, we were able to develop a comprehensive master physical plan consistent with the types of potential tenants identified. Included in these projects was the preparation of cost estimates and restricted covenants and the development of recommended methods of operation. Our industrial park projects have also extended into the areas of management organization, promotion, installation of facilities and utilities, landscape and architectural planning.

Houston Farms

For the Houston Farms Development Company, Arthur D. Little, Inc., was asked to prepare a flexible land-use plan under which Houston Farms could dispose of or use a tract of land of approximately 40,000 acres it owns in Galveston and Brazoria Counties, Texas. This land was determined to be suitable primarily for industrial use, but agricultural, industrial-residential, commercial, and institutional use potentials were also recognized. The land-use plan prepared by Arthur D. Little, Inc., and its guiding criteria were based on the recognition that full development of the land may require up to 30 years. We took into account the demonstrated growth in Texas, which has often been more rapid than forecast.

Tampa Chamber of Commerce

For the Greater Tampa Chamber of Commerce, Arthur D. Little, Inc., devised a plan of development for 1000 acres of industrial property. We conducted an economic/industrial survey of the Tampa area and the whole of Florida to determine labor supply and wage levels, the tax structure, the transportation system, and the characteristics of the local markets for industrial and consumer products. Our recommendation of target industries was based upon this survey and also upon our evaluation of the kinds of industries which are best suited to such a park development. In addition, we recommended restrictive covenants on land use to ensure a park-like atmosphere and the control of such nuisances as smoke, gas, noise and vibrations. We developed a scheme of management for the park during its period of construction and thereafter. And cost outlines were outlined for such necessities as park roadways and entrances, sewarage pipes, drainage systems, systems, lighting and other utilities, and common landscape areas.

Albuquerque's Industrial Park

ADL recently completed a study for the Albuquerque Industrial Development Service, Inc., and the Industrial Foundation of Albuquerque, Inc., to (a) assist the Friden Division of the Singer Company in selecting a site in the proposed industrial park, and (b) plan for the total development of the industrial park. The latter objective included determining industries and companies likely to locate in the park, recommending management and controls for the park, and planning for physical development.

Indonesian Industrial Park

With Westinghouse Electric Corporation ADL conducted a marketing feasibility study for the proposed Pula Gadung Industrial Estate outside Djakarta. This study was a part of a larger one which was aimed at obtaining (1) the participation of the Government of Indonesia as a partner in the Industrial Estate and (2) a substantial loan from the World Bank.

Reuse Analysis of NIKE Site in Southern California

With the planned U.S. Department of Defense deactivation of a NIKE missile base lying within its boundaries, the newly incorporated City of Rancho Palos Verdes asked ADL to determine through a study the best nonmilitary use for the site. Because the Palos Verdes Peninsula is a desirable residential area, the study considered housing and population trends and their relation to the city's General Plan. The demand for retail and/or commercial uses was also analyzed, as were such potential public uses of the site as governmental or educational administrative offices, auditorium and multi-purpose activity center, post office, fire station, and recreation and open space. ADL's assignment also included developing a specific site plan relating to the most promising uses, and preparing an environmental assessment.

Oil Company

A large oil company interested in establishing data-processing facilities asked Arthur D. Little, Inc., to assist in determining the number of centers it should have, how large they should be, where they should be located, and what their estimated costs would be. An ADL team composed of specialists in management information systems, equipment design and layout, site location, and regional economics analyzed the company's data-processing requirements. Their analysis indicated that all credit-card and general accounting activities should be consolidated into two centers, one in the East, and one in the Midwest. The team evaluated potential locations in these regions, considering specialized labor requirements, operating costs, and building requirements, and then recommended equipment and layouts for each installation.

Wholesale Supply House

A large Boston wholesale supply house handling electrical and refrigeration equipment requested Arthur D. Little, Inc.'s assistance in relocating the firm's facilities within the greater Boston area. Considered as necessary by the client in the relocating process were such factors as nearness to customer work areas, ease of transportation both to and from facilities, room for expansion, and proximity to pertinent growth areas in greater Boston. ADL was successful in relocating the firm in an area that maximized the requirements desired by the client.

Commercial Aircraft Manufacturer

For one of the nation's three largest manufacturers of commercial aircraft, Arthur D. Little, Inc., was asked to assume responsibility for a crash program of site selection to locate three plants needed to manufacture airframe sub-assemblies for a major new aircraft type. In addition to specifying fully developed sites to minimize delays in plant construction, the manufacturer required special rail clearances between the site and the home plant to permit shipment of outsized assemblies. ADL was successful in locating three sites which met these specifications and three plants are now under construction.

Pharmaceutical Company

A nationwide manufacturer of pharmaceuticals approached Arthur D. Little, Inc., for assistance in locating a centralized facility to be used for coast-to-coast mail distribution of its products. In addition to requiring a first-class site, a readily available labor force, and an attractive community environment, the client sought a location which would minimize delay in the receiving of mail orders and in the return shipment of small parcels to its customers. Location in a major transportation hub was indicated, yet it was necessary to avoid the congestion of a very large city. Through an analysis of postal dispatching procedures, it was possible to locate a midwest city offering an ideal combination of airmail and parcel post routes.

Retail Store Location

We have completed five studies for an expanding retail chain in San Francisco. We assessed the advisability of specific sites that were considered for new location and also suggested optimum patterns of location for major urban areas which the retailer intends to penetrate. We utilized survey techniques to identify the kinds of consumer most likely to shop at the client's stores. We also investigated geographical patterns of preference or attitude of those potential consumers.

We then estimated the sales that would be obtainable at alternative sites and evaluated factors crucial to the selection of retail locations. In addition to suggested locational patterns that will be most beneficial to sales, we were concerned with the long-run effect of the firm's association with alternative groups of other stores on the company's long-range competitive strength and consumer image.

Major Financial Institution - Site Selection and Development Alternatives

We were requested to develop and comprehensively evaluate several site selection and development alternatives. A branch office was to be located in Southern California, and the executives of the organization were uncertain as to how best to plan for its facilities. The alternatives included several different sites in the same city, and different possible sizes, types, and arrangements of structures on each site. After the reasonable range of alternatives was established, operations research techniques were used to systematically rate the costs and benefits of each. Criteria considered included convenience, prestige location, building economy, traffic generation, land cost, and financing opportunities.

A New Banking Facility in Texas

For a major bank in Texas, ADL analyzed facilities requirements in preparation for a move to a new headquarters building. This included analysis of growth patterns by various elements of banking activity, innovations within the banking industry that will generate changes in facility requirements, appropriate detailed space standards for banking personnel, interrelationships within the bank, and the space "envelope" that would house the bank efficiently and productively. The growth analysis required a consideration of regional as well as local banking trends. The department relationship analysis was designed to increase productivity through appropriate groupings. An important part of the work, oriented toward insuring future flexibility, was the inventorying of space under short-term leases at appropriate places in the banking facility. We also performed the necessary financial analysis to insure that the bank's facility requirement and capital investment would be integrated with, and supported by, a major program of tenant office space.

Arthur D. Little, Inc.

ARTHUR D. LITTLE, INC.

STAFF BIOGRAPHIES

Arthur D Little, Inc.

KENNETH A. JENSEN

Mr. Jensen is a senior staff member with extensive experience in governmental systems analysis, forecasting and economic model building for problem solving in the public sector.

In the past 10 years with ADL, Mr. Jensen has participated, frequently as project director, in studies that have included analyses of potential for economic development, housing economics, budget analyses, assessments of public service delivery systems, socioeconomic forecasting, and development of macro-economic models.

He recently had responsibility for an assessment of the probable economic impacts of Public Law 92-500 (the Clean Air Act) on industrial, municipal, and utility activities in the San Francisco Bay-Central Valley region of California for the National Commission on Water Quality. Important aspects were the likely impacts on power generation facilities in the area and possible power plant siting problems. An inter-industry model of the California economy was used to determine the direct and indirect impacts.

For the City of Rancho Palos Verdes, California, he analyzed the potential future uses of a federal NIKE site and the economic and environmental impacts of alternative uses.

He was the project director of a study which assessed the impact on Kitsap County, Washington, of the proposed Trident submarine installation at Bangor Annex. By examining four alternative patterns of urban growth that might occur over the next 20 years, public costs and revenues were developed for each alternative to provide public decision makers with a range of public costs likely to be encountered in accommodating growth. Included in this analysis was the development of a housing demand model by income class.

He was also project director of a study for San Diego, California, determining the economic, environmental, and public costs associated with tourism activity. Based on estimates of volume and types of tourists, as well as their expenditure patterns, direct and indirect impacts on the regional, state, and U.S. economy were determined based on an input-output model.

He has analyzed the impacts of a proposed redevelopment project in downtown San Francisco and a proposed residential/commercial complex near San Francisco. He was also in day-to-day charge of a project determining the environmental impact of the proposed Palmdale International Airport near Los Angeles.

KENNETH A. JENSEN (Continued)

Earlier Mr. Jensen was employed as a systems engineer with the Aerojet-General Corporation in Sacramento. His work involved him in long-range planning and systems analysis for the company.

In 1965 and 1966, he was a research assistant at the Center for Real Estate and Urban Economics of the University of California while completing his M.B.A. degree in operations research and econometrics. This work involved him in a study for the Housing and Home Finance Agency in which long-range forecasts of land use, employment, and population were made for the nine-county San Francisco Bay Area. An important part of this study was the development of an industrial location model which evaluated alternative sities for various industrial activities.

Mr. Jensen has written several articles on forecasting, including "An Approach to Forecasting Tax Revenue," which appeared in the fall 1969 Journal of the Western Regional Science Association. Most recently, along with Paul Isaki, Associate Director of the Central Puget Sound Economic Development District, and John Horsley, Trident Coordinator for Kitsap County, he delivered a paper on Trident secondary community impacts to the Tenth Annual Pacific Northwest Regional Economic Conference.

Mr. Jensen received his B.S. degree in mechanical engineering (nuclear option) from Arizona State University and an M.B.A. degree from the University of California at Berkeley, with specialization in operations research and regional economics. He has done additional postgraduate work in econometrics at Massachusetts Institute of Technology. He is a member of the Regional Science Association, the Operations Research Society of America, the Institute of Management Sciences, and the American Economics Association.

Arthur D Little Inc

VINCE P. FICCAGLIA

Mr. Ficcaglia is a senior staff economist concentrating in the areas of regional economic development, industrial economics, and economic forecasting. For five years, he was manager of ADL's economic analysis and forecasting center which monitored and prepared assessments of the performance of the U.S. economy and over 200 individual industries. As a result, he has gained a broad understanding of the market and locational factors important to various industries.

His experience directly related to the proposed study includes:

- For the Commonwealth of Massachusetts, Mr. Ficcaglia was responsible for the preparation of business development strategy aimed at attracting three selected industries to the state. As part of this effort, he analyzed the growth potential, location requirements, and other characteristics of the computer peripherals, biomedical instrumentation, and pollution control equipment industries. Based upon a review of the Commonwealth's infrastructure, resources, and existing business development programs, Mr. Ficcaglia propared a series of action steps to be implemented by the Commonwealth in its attempt to attract such industries to the state.

- In a related case effort for the Commonwealth of Massachusetts Mr. Ficcaglia was part of an ADL team charged with assessing the quality of life in the Commonwealth in comparison to other states. He was responsible for the development of the methodological approach used in the study, the selection of comparative states, and the development of the criteria upon which the quality-of-life assessment and measurement was conducted.

- For a group of East Coast banking and financial executives concerned with industrial development and location, Mr. Ficcaglia provided a comparative evaluation of several urban areas. As part of this assignment, he was responsible for identifying attitudes and impressions held by business decision makers of various urban centers. Mr. Ficcaglia was then charged with assessing these impressions and utilizing objective information to determine their validity. As a result, the study did substantiate some of the attitudes which business decision makers had regarding these urban areas; at the same time, it clearly illustrated that others were false.

- For many clients over the years, Mr. Ficcaglia has prepared baseline economic profiles and long-term outlook projections of many areas of the United States. These areas have included most of the 50 states, major SMSA's, and a limited number of counties. As part of these reviews, much research was directed to gaining a clear understanding of the major determinants of growth within an

VINCE P. FICCAGLIA (Cont.)

area and changes occurring that would alter historical trends. At present, he is directing such an effort concerned with several municipalities and counties in the States of Ohio and Pennsylvania.

Mr. Ficcaglia, a graduate of Brandeis University, received his B.A. degree in economics in 1968. He obtained an M.A. degree in economics in 1970 from Boston College, where he is currently a candidate for the Ph. D. While at Boston College, Mr. Ficcaglia held a teaching fellowship for three years. At present, he is also Professor of Economics in the Arthur D. Little Management Education Institute which offers a program of study leading to a master of science degree in management.

Arthur D Little Inc

BRIAN J. LAYNG

Mr. Layng is a senior consultant in ADL's San Francisco office. During his eight years with ADL, he has concentrated on problems in consumer marketing, retailing, and corporate planning. His experience includes utilizing traditional market research techniques to develop essential information upon which corporate strategies and product strategies can be based. Mr. Layng has been particularly interested in creating techniques whereby critical market information can be developed and integrated in the planning process on an ongoing basis. He has participated in several seminars and presentations to major U.S. companies and overseas affiliates instructing the participants on methods and approaches to the corporate planning process.

In the consumer products area, Mr. Layng has led and participated in several assignments for major corporations in which both corporate and business strategies have been identified, developed, and successfully implemented. He has worked closely with chief executive officers, vice presidents, and planning staffs in the installation of planning systems, and in the development of plans. He has focused on the development of business strategies for diversified corporations operating in a wide variety of markets under different conditions. Specific strategies have included product diversification, acquisitions, efficiency improvements, and divestiture.

In the area of market research and marketing strategy, Mr. Layng has considerable experience in designing and structuring market research projects which include the defining of research objectives, selection of survey instruments and sampling techniques, and the translation of the results onto specific marketing programs and strategies. He has been responsible for several assignments in which clients were entering new markets (both domestic and international) with existing products and services which required detailed evaluations of buyer behavior, competitive conditions in the market, and key factors for success.

His specific industry and marketing expertise includes general merchandise retailing, petroleum marketing, food and beverage distribution, forest products markets, the travel industry (airlines and shipping), the automobile industry, and financial services.

Mr. Layng has been a member of ADL's San Francisco office for four years after spending four years in Cambridge headquarters. His experience in corporate planning assignments and his familiarity with the staff resources in ADL's Management Counselling Group enables him to be an effective case team member for assignments that are for West Coast clients that require professional input from several ADL groups and offices.

Before joining the staff of ADL, Mr. Layng spent several years with an international oil company where he was involved in various marketing and planning assignments.

Mr. Layng received a B.A. degree in government and economics from Lafayette College and an M.B.A. degree from Columbia Business School in marketing and international business.

Arthur D Little Inc

DONALD TATZIN

Mr. Tatzin specializes in urban economics and public policy planning and evaluation. He has been associated with ADL as a consultant since 1972 and is currently a member of the San Francisco office.

He is currently involved in a study for the Department of Ecology in the State of Washington where he is measuring the different economic impacts of alternative scenarios for handling Alaskan crude oil in Washington. His responsibilities include developing an assessment procedure and measuring the impact of several development scenarios on local economies. The Department is particularly concerned with the growth-inducing implications of further direct sector development, and ADL will estimate the population growth which will occur in these areas because of oil-related activities.

Participating in a study for the State of Maine which provided new directions for the development and promotion of the tourism industry, he developed a technique that estimates the cost to both state and local governments of providing services to tourists. For the City of San Diego he helped to provide information the city could use to determine the proper level of tourism it should attract, given its concerns about the future growth of the community. His work included the assessment of the growth-inducing aspects of the tourism industry.

For Kitsap County, Washington, Mr. Tatzin prepared the initial design of a model which forecast the amount of housing to be demanded by migrants to a new defense base. The model considered several types of alternative supply responses and evaluated the differences in costs of several different development plans. The county was particularly interested in the growth implications of the new base and ADL's work included an assessment of the growth-inducing effects of the base.

Prior to joining ADL, Mr. Tatzin worked for the Massachusetts Office of Planning and Program Coordination where he helped to design and conduct a study that looked at the economic feasibility of regionalizing water and sewerage services. His work included defining and applying measures of quality for several urban services. He has helped a Florida county design new industrial promotion programs, completed a community facilities study, and evaluated the potential and impact of tourism.

Mr. Tatzin is a graduate of the Massachusetts Institute of Technology where he received a master's degree in city planning with specialization in urban economics and public policy planning. He also received B.S. degrees in both urban studies and planning and economics from MIT. He was awarded a Rotary Foundation Graduate Fellowship which he used to obtain a master's degree in economics from the Australia National University.

CAMBRIDGE,
MASSACHUSETTS

SAN FRANCISCO
WASHINGTON
ATHENS
BRUSSELS
CARACAS
LONDON
PARIS
RIO DE JANEIRO
TORONTO
WIESBADEN

11:15

George Hahman phoned. He's at 279-7661 (Sheffield). will try to be here at 1:30. He said if the contract is OK with Clark, it's OK with him. Questioned whether you could sign or if it did have to be Clark.

Lou Ann

PROFESSIONAL SERVICES CONTRACT

This contract, effective as of the _____ day of _____, 1977, between the STATE OF ALASKA, DEPARTMENT OF REVENUE, TREASURY DIVISION (hereinafter called the STATE), and ARTHUR D. LITTLE & CO., (hereinafter called the CONTRACTOR),

WITNESSETH THAT:

WHEREAS, the STATE requires professional contractual services in connection with the Alaska Permanent Fund; and

WHEREAS, the CONTRACTOR is willing to undertake the performance of this contract under the terms of this contract; and

WHEREAS, the Commissioner of Revenue may, pursuant to AS 37.10.070(g) enter into contracts for professional services;

NOW THEREFORE, the parties hereto agree as follows:

ARTICLE I.

SERVICES TO BE PERFORMED

The CONTRACTOR shall provide for the Department of Revenue such papers and information deemed necessary:

A. SECTORAL ANALYSIS

At least in concept, the creation of the Permanent Fund, with its ability to supplement and complement the existing commercial banking activity in Alaska with the capacity to provide long-term loans and/or equity participation on development basis, could well be an important mechanism for diversifying the economy and providing for greater utilization of Alaska's resources within Alaska.

One way of establishing a mechanism for budgeting and allocating scarce investment resources among alternative opportunities is to prepare a sectoral analysis of the Alaska economy to identify those sectors, industries, or portions of economic activity that appear to have the greatest payoff in the long run for Alaska in terms of diversification, income distribution, and the various other economic goals the state might develop. This sectoral analysis would provide an overview of the economy, linking both the existing sectors and those that might exist in the future to the overall markets within the

U.S. and the international economies, particularly the economies of the Pacific Rim. By focusing investments in those sectors of the Alaska economy that are likely to have long-term markets and meet state economic goals, it is most likely that those investments will provide long-term gain for the Alaskan economy.

Referring again to the proposed legislation to establish the Permanent Fund, "sectoral analysis" has been identified as one important means for the Fund to identify sound investment projects. Included in the section "Duties of the Policy Board" is an element relating to the annual review and approval of long-range operating plans based on sectoral analysis of the Alaskan economy.

Further, in the section entitled "Operational Principles," various guidelines are provided for in the operation of the proposed public corporation. In addition to establishing the "prudent person rule of investment," this section requires that the particular project or investment being considered be able to stand on its own in terms of financial productivity. Should the Permanent Fund have before it a case requiring a subsidy, this must be explicitly identified and the Legislature must provide for the subsidy component of such an investment out of General Fund revenues.

The same section states further that the corporation will make investment decisions with regard to "economic and other considerations including consideration of employment, income distribution, environment, health, social, and other factors. The corporation shall be sensitive to the views of the affected local community and shall include an analysis of those views and proposals for large investments."

Thus, throughout the draft legislation, the need for the application of economic analysis to proposed investments of the Permanent Fund is clearly identified.

This proposal addresses itself to the establishment of a structure or framework against which projects requesting assistance from the Permanent Fund can be evaluated so that a ranking and prioritizing of projects can be achieved. The net result becomes one of maximizing the productivity of the investments made by the Permanent Fund for economic development purposes.

STATE OF THE ALASKAN ECONOMY

Alaska and its surrounding ocean areas are currently viewed as the United States' greatest reservoir of energy resources required for energy

development in the critical period ahead. The question becomes this: Will Alaska continue to provide the resources but not necessarily the translation of this resource base into increased levels of economic activity through vertical integration. The Alaskan economy is at a watershed. In general, the potential exists for increased economic activity at some sustainable level. What direction will future investments in the Alaskan economy take? Will they be a continuation of current and historical resource extraction investments resulting in cycles of high economic activity followed by a state recession when the resource is exhausted, or will Alaska participate in the further utilization of these resources?

To place in perspective the role of economic development and, in particular, the purpose of a sectoral analysis providing a structured framework for investment decisions by the Permanent Fund, it is useful to briefly examine the overall Alaskan economy and its components.

The relative thinness of the Alaskan economy reflects the fact that so much of the consumer goods as well as a good portion of the industrial requirements are imported, indicating tremendous leakage of Alaskan income to the lower 48 and elsewhere. Recently in Alaska, the distribution of wage and salary employment, a measure of economic activity, has been roughly in the following proportions (this excludes self-employed workers, which exclusion would tend to understate, among other things, the fishing component of the Alaskan economy):

Mining (including oil and gas extraction)	3%
Contract construction	17%
Manufacturing	5%
Transportation, communication, public utilities	10%
Trade	16%
Finance, insurance, and real estate	5%
Services	16%
Government	29%

The above figures indicate the dependence of the economy on government - federal, state, and local. Contract construction representing 17% of recent total wage and salary employment is obviously distorted because of pipeline construction and related activities. Mining, even including oil and gas activity, provides only a modest proportion of the wage and salary employment

in the Alaskan economy. Thus, even with recent pipeline activity, sectors important to increasing the amount of income retained within the Alaskan economy remain small. In fact, in the period from 1970-1975 manufacturing employment actually grew very modestly and stands at no more than 9000-10,000, primarily in fish processing and forest product activities.

Excluding government employment, the Alaskan economy relies in greater or lesser amount on the following activities:

Mineral exploration, development, and production, including fuels and metallic and nonmetallic materials. Here the possibility exists for expansion in a number of areas. It appears that the coal potential along with petroleum natural gas can provide an ongoing thrust to economic activity.

Fisheries. With the passage of Public Law 94-264 extending the U.S. Conservation and Management zone to 200 nautical miles, fishing is still in a period of flux. It can be anticipated that at least some portion of the yield of groundfish currently going to Russian and Japanese ships, will go to Alaska either through actual participation in the fishing or some payment mechanism. In addition, the traditional catches of the Alaskan fishing industry - salmon, king crab, snow crab, shrimp, and halibut - will continue to provide a basis for possible expansion of this sector.

Forest products. This sector, in which the current demand is primarily for pulp for both the lower 48 as well as Japan, reflects the sensitivity of the industrialized economies to materials competition. With the recent rise in oil prices, pulp has been substituted to some extent for petroleum-based fiber. The balance to be struck in the forest products industry in the future is unknown.

Tourism. Certainly in large measure a renewable resource, tourism has emerged recently as an important component of the Alaskan economy. Because its impact covers numerous sectors in a typical economy, it is difficult to measure. Whatever the combination of cruise ship, highway, ferry, liner, plane, and motor coach modes of travel, tourism will continue to grow over the next 10 years. Ways of insuring maximum returns to Alaska of tourism activity are still to be determined.

Agriculture. Agriculture - mainly eggs, potatoes, and milk - provide a modest contribution to Alaska's domestic needs. Similarly, truck farming surrounding the urban areas meets a modest part of the increasing demand in the

urban population. Importation of food products from the lower 48 continues to be an important "leakage" out of the economy, and it can be anticipated that opportunities in this sector will emerge over time.

PURPOSE, SCOPE, AND APPROACH

As a beginning point for the ongoing economic analysis that will be required for proper project assessment by the Permanent Fund, this proposal is directed toward developing a structure and/or framework for evaluating proposed projects for investment. We have termed this a sectoral analysis - an examination of the Alaskan economy from a macro viewpoint, linking its current and potential outputs with those of the rest of the U.S. economy as well as Pacific Rim areas, to identify those long-term markets in which Alaska can most probably compete. Our work would also include an assessment of the internal Alaskan demand for various outputs, to identify areas where there is a possibility for "import substitution." In other words, given certain investment potential among various sectors of the Alaskan economy, what areas will have the greatest payoff to the Fund, balancing risk and return.

Our proposed work would identify the assets that would foster growth and the liabilities that constrain or inhibit development of particular activities in Alaska, and the mechanisms that might be used to remove or at least mitigate impediments in various sectors. To the extent that long-term capital will assist in removing impediments to development, clearly the Permanent Fund can well become an important mitigating measure.

The crux of our approach is to build upon existing studies, data compilations, and investigations of current activity in a manner which will maximize the involvement of the private sector as well as the public sector. This will assist in the identification of appropriate sectors in the evolution of economic diversity and stability within the Alaskan economy.

Specifically, our analysis would include:

1. An assessment of the long-term outlook for the U.S. economy as well as Japan.
2. An assessment of growth prospects for individual industries.
3. An assessment of the outlook for the Alaskan economy and industry:
    a. Identification of influence of national, international, and state trends.

b. Identification of factors contributing to our inhibiting growth in Alaska-based industry.

4. Evaluation of major sectors of the Alaskan economy:

   a. Resource extraction, such as petroleum and natural gas, other minerals, forestry, fisheries, and agriculture.

   b. Manufacturing and processing, such as fish processing, other food processing, petroleum- and natural gas-related processing, and wood products.

   c. Tourism.

   d. International and domestic trade linkages.

   e. Energy.

5. Identification of candidate industries for possible establishment in Alaska.

6. Preparation of sectoral analyses:

   a. Characterization of industry at national level.

      Size

      Location

      Concentration

   b. Historical development.

      Major growth influences

   c. Long-term growth prospects.

      Macro economy

      New products

      New markets

      Other considerations

   d. Industry in Alaska.

      Contributing factors

      Inhibiting factors

   e. Industry development and the Permanent Fund.

      Consistency of goals

      Recommendations for further action

7. Suggested project financial productivity measures:

   a. Fund investment criteria.

   b. Sector financial measures.

   c. Initial sector priorities.

The underlying goal of the above analysis is to utilize the revenues derived from non-renewable resources to achieve maximum use of renewable resources within the state.

METHODOLOGY

The development of a sectoral analysis emphasizing identification of possibilities for vertical integration within the Alaskan economy to capitalize on existing renewable and non-renewable resources as well as expanding the availability of goods and services for the internal Alaskan economy requires a broad approach and a wide array of methodologies. The product of this proposed study is not just the output of a macroeconomic model; rather, it is the results of several flows of analyses coming together, leading to the identification of sectors appropriate for consideration by the Permanent Fund for project investment - sectors that are either represented currently in the Alaskan economy or are likely candidates for inclusion in the economy over the next few years. This would include vertical integration in terms of the processing of both renewable and non-renewable natural resources, as well as consideration of ways to reduce the leakage out of the domestic economy. For instance, over the next few years certain threshholds may be reached within the economy, permitting the establishment of business activity that heretofore could not viably compete because of such factors as lack of economies of scale, sufficient domestic market, etc.

WORK PROGRAM

To achieve the purposes of the project, we propose to undertake the following tasks:

1. Characterization of existing conditions;
2. Assessment of the present Alaskan economy:
3. Determination of the domestic/international markets related to outputs of key sectors of the Alaskan economy;
4. Preliminary analysis of the comparative locational advantage for Alaska by major sector;
5. Intersectoral cost/benefit comparison and development of investment criteria; and, upon approval of the Department, the House and Senate Permanent Fund Committee,
6. Suggested sectoral priorities for the Permanent Fund.

TASK 1 - CHARACTERIZATION OF EXISTING CONDITIONS IN ALASKA

To establish a consistent set of baseline information for determining suitable sectoral investment focuses and developing economic development strategies, we will first initiate a reconnaissance program to bring together relevant information on the existing situation within Alaska. This will cover existing studies and ongoing research including relevant data and analysis from the numerous affected public agencies in Alaska as well as private sector sources.

To compliment the review of existing published data and analyses, we will conduct a structured interview program with appropriate persons primarily in the private sector in the major areas of activity in the state. This program will provide additional background on issues we consider it necessary to address and on the current nature of economic activity, and will also provide a preliminary assessment of the ability of existing Alaskan industry to compete in expanded markets.

There are a number of studies in progress that provide information on the current state of the Alaskan economy; this includes both statistical information and "models of the economy." Among these basic sources of information are the following:

Alaska Department of Commerce and Economic Development.

Alaska Department of Revenue.

Alaska Department of Labor.

Governor's Office, Policy Development and Planning.

University of Alaska, particularly the Institute for Social, Economic and Government Research related to their "Main in the Arctic Program."

Bureau of Land Management, quantitative models developed for assessing impact on the Alaskan economy of oil and natural gas development.

Trade flow models developed both in the State of Washington and in Alaska linking the Alaskan economy to the Northwest portion of the lower 48.

Other public agency information.

The set of Regional Profiles prepared by the University of Alaska for the state and the Joint Federal-State Land Use Planning Commission for Alaska.

Our analysis of the availability of infrastructure and level of community development will be based upon information provided by the Alaska Department of Transportation, the U.S. Bureau of Land Management, and the U.S. Bureau of Indian Affairs, supplemented by local area information from the Alaska Department of Community and Regional Affairs.

For specific sectoral information - i.e., historical measures of economic activity - we would utilize information from such entities as the Alaska Department of Natural Resources, Alaska Department of Fish and Game, the Division of Economic Enterprise of the Department of Commerce and Economic Development, the National Marine Fisheries Service, the Bureau of Indian Affairs, the U.S. Forest Service, and the Bureau of Mines.

TASK 2 - ASSESSMENT OF THE PRESENT ALASKAN ECONOMY

To place Alaska in perspective, we will utilize the baseline information developed in Task 1 to prepare an assessment of the present Alaskan economy. This will include:

Trends in economic indicators;

Identification of structural relationships within the Alaskan economy;

Delineation of regional economic activity in Alaska;

Nature of economic development factors;

Characteristics of the major sectors of the current economy;

Level of infrastructure development; and

Preliminary identification of constraints and impediments to future economic growth.

This assessment will be utilized later in work program to compare Alaska's potential as well as development constraints with likely emerging markets within Alaska, elsewhere in the United State, and abroad. Labor supply and wage structure, transportation and communications, capital availability, utilities, tax structure, and existing markets will be included in our examination of development-related factors.

The major basic sectors of the economy, including resource extraction (e.g., petroleum and natural gas, other minerals), forestry, fisheries, and agriculture, plus the currently limited manufacturing and processing areas, will be characterized in terms of their long-term potential. Tourism - an activity that cuts across a number of sectors of the regional economy - will be quantified to the extent possible, and the sensitive factors in it will be

identified. Energy development including utilization of coal and hydro, the potential of geothermal, and the utilization of oil and natural gas, will be defined.

TASK 3 - DETERMINATION OF DOMESTIC/INTERNATIONAL MARKETS RELATED TO OUTPUTS OF KEY SECTORS OF THE ALASKAN ECONOMY

We will utilize the Arthur D. Little economic analysis model which provides information (among other things) on the output from 220 industry sectors. This will be used as a take-off point for estimating 10-year demand for outputs of various industrial sectors and, in combination with the results of Task 2, will enable us to screen down to those sectors that represent possible expansion potential.

We note that, in addition to the utilization of information on the U.S. economy, along with information on trends in the Japanese economy, we will examine (again based on the information from Task 2) possibilities in non-basic sectors of the Alaskan economy such as the service, trade, and other areas that might represent important growth prospects. It is our feeling that there is a need for a blend of quantitative analysis with qualitative judgments regarding possibilities for expansion of some of the smaller sectors in the Alaskan economy for which local manpower and local resources can be utilized. To the extent possible, utilization of renewable resources will be stressed to enable the economy to reach a sustainable level of activity.

TASK 4 - PRELIMINARY ANALYSIS OF COMPARATIVE LOCATIONAL ADVANTAGE FOR ALASKA BY MAJOR SECTORS

The results of Task 3 will identify on a preliminary basis those sectors both existing and potential that may offer the opportunity for expanded economic activity in Alaska. In this task we will utilize industry (or sector) specialists to determine on a pre-feasibility study basis the ability of Alaska to compete with other areas providing similar outputs or products. Having previously identified growth sectors, we will evaluate which of Alaska's characteristics operate to its advantage as an industrial location and which operate to its disadvantage. This will require knowledge of the sectors' resource input requirements, labor and capital requirements, and market distribution.

The key factors in the determination of the locational requirements of the potential sectors addressed will include proximity to suppliers and markets, availability of labor force, sensitivity to other input costs, taxes,

infrastructure requirements, and related industrial factors. Ranking of the relevant importance of each of the above will be made for sector and industry types.

The candidate industries would be those whose locational requirements would be most closely met by Alaska as compared to other potential areas.

TASK 5 - INTERSECTORAL COMPARISON AND DEVELOPMENT OF INVESTMENT CRITERIA

The results of Task 4 will provide an estimate of the likely ability of Alaska to compete in the identified sectors on a statewide basis. While the economics of a particular establishment might indicate potential for Alaska, for example, lack of development of infrastructure and related factors may hinder economic development in a given sector or industry. As part of this task we will examine on a subregional basis the likely distribution of future economic activity related to major sectors with the goal of identifying problems associated with, for example, infrastructure that would provide access or supply water or energy to the particular economic activity. This will enable us to make a preliminary ranking of appropriate sectors in terms of viability of a particular enterprise or establishment, and of the types of investment in infrastructure that probably would be required to facilitate development.

The results of this intersectoral comparison will be a preliminary set of investment criteria for establishing on a project-by-project basis the necessary types of information that will be required when a proposed investment comes before the Permanent Fund.

In the evaluation process of choosing among projects one key assumption is that investment decisions will most likely be made under a capital rationing situation. This means that the Fund itself will be limited in size and that if presented with several "attractive" investment opportunities, the selection process must decide upon only a few projects out of the total array of possibilities.

The Fund will thus be faced with developing a strategy for allocating its resources among competing projects. Basically, this becomes a problem of screening and ranking the various proposed projects to ensure that those projects eventually chosen meet the Fund's criteria. This investment analysis requires the design of a methodology for measuring various projects by using such measurement tools as sensitivity analysis and the development of risk/return profiles on each project under consideration. In this task the

following steps will be taken to arrive at a process for project selection and ranking:

1. First, an overall fund strategy will be developed. This will include identifying the mix of projects desired in the Fund, and their risk, return, and capital requirements. Once the NPV is computed, a sensitivity analysis should be undertaken. A sensitivity analysis determines how a certain level of change in a particular project assumption effects the overall risk/return profile of the project and thus measures how "volatile" the financial productivity of the project would be under different assumptions. If a company has a performance history against which variables can be verified and adjusted, this task is much simpler. If, on the other hand, the Fund is presented a proposal for a new project with untested characteristics, this exercise becomes more difficult. The sensitivity analysis provides another tool of measurement and helps define more clearly the risk level of the project.

The risk analysis of a project investment decision does not simply entail measuring the risk of a project relative to its potential return. A particular project's risk must also be judged against that of other projects and as well against the risk of criterion of the Fund itself. This type of analysis permits balancing the various projects for which the Fund will be providing capital. For example, a low risk project can be balanced against a high risk criterion established by the Fund. For example, an objective of the fund strategy might be to select the combination of investment proposals that provides the highest net present value subject to any constraints for the period. For a project within a particular sector, its financial productivity should bear a relationship to the long-run characteristics of the industry in which the project is located. The goal of the fund strategy will be to develop a rational process to ensure proper management of the Fund's assets.

2. Once the strategy for the Fund and the associated criteria are developed, it becomes necessary to establish the project evaluation process. For evaluation purposes, each project must be analyzed according to criteria such as the net present values (NPV) of earnings it proposes to achieve within a specific timetable. The Fund will value this proposed stream of earnings according to the amount, timing, and any opportunity costs it is likely to incur.

Other measurements of projects exist, such as the payback method which analyzes the number of years required to return the original investment -

the far simplest method. Payback criteria, however, do not consider income beyond the payback period. Therefore, if the Fund portfolio is to be viewed as an ongoing sources of cash, attention must be given to events beyond the one project's payback period.

> [Task 5 is to be deferred until such time that the Department, the Committees and the Company agree to commencing Task 5, except if Task 5 is undertaken, it must be completed prior to the expiration date of the contract. If Task 5 is not undertaken within the term of this contract then the amount of the contract is correspondingly reduced by the amount proposed for Task 5. This reduction amount shall not exceed $14,500 in total.]

TASK 6 - SUGGESTED SECTORAL PRIORITIES FOR THE PERMANENT FUND

To provide the decision-makers within the Permanent Fund with useful sectoral information against which to evaluate proposed projects, this task will focus on assigning priorities to sectors and/or industries that appear to justify possible public investment. We will suggest short-term as well as long-term priorities, based on not only market and resource use criteria but the state of development of the associated infrastructure necessary for the establishment of certain industries. For example, it might be that in the immediate future, certain projects that might be proposed within particular sectors may be in existing, developed areas where access to available labor and infrastructure is relatively easy. These projects may have more immediate public returns.

For long-term projects, it may be that investment might be required not only in the enterprise itself but in the infrastructure such as roads, utilities, etc., necessary to make it feasible. Thus investment in these projects, even though within promising sectors, may require greater investments over longer periods of time.

B. REPORTS:

All reports, correspondence, graphs, computer programs, and other documents prepared under this contract are the property of the STATE and it shall have the full right to use these documents for its purposes, or other wise, when and where the STATE may designate without any claim on the part of the CONTRACTOR for additional compensation.

The work shall be done in accordance with generally recognized standards of professional consulting services. In the event that any work does not meet these standards, the Commissioner of Revenue may serve written notice and satisfactory correction shall be made within ten (10) days. Completion dates

for any portion(s) of the work shall be set by mutual agreement and corresponding written progress reports submitted to the State. Failure to complete the work on time shall result in liquidated damages of One Hundred Dollars ($100) per day, except for delays due to causes beyond the control and without fault or negligence of the CONTRACTOR. Liquidated damages shall not exceed the total payments allowed under the contract and may be deducted from payments that are owing.

The Commissioner of Revenue may terminate this contract upon written notice of the necessity for doing so and payment shall be made for satisfactory work. Any dispute concerning a question of fact that relates to the CONTRACTOR's performance, if not disposed of by agreement between the parties, shall be decided by the Commissioner of Revenue, who shall notify the CONTRACTOR. This decision, unless appealed to a court of competent jurisdiction within ninety (90) days of the completion or termination of the contract, shall be final and conclusive.

ARTICLE II.

PERIOD OF PERFORMANCE

The period of performance under this contract shall commence on June 15, 1977 and expire on June 14, 1978. Performance may be extended for additional periods by the mutual agreement of the parties.

ARTICLE III.

CONSIDERATION

In full consideration of the CONTRACTOR's performance hereunder, the STATE shall pay the CONTRACTOR the customary hourly fees not to exceed $98,000. Payments shall be made to the firm on a monthly basis commencing August 30, 1977 except that no payment shall be made for any task not undertaken and completed. Progress reports will accompany said monthly billings.

~~ARTICLE IV.~~

~~ADDITIONAL CONTRACT PROVISIONS~~

~~Appendix A attached hereto and made a part hereof sets forth additional general contract provisions of this contract.~~

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IN WITNESS WHEREOF, the parties have executed this contract this _____ day of _____, 1977.

CONTRACTOR:

By: _____

_____
(Official Title)

STATE OF ALASKA, DEPARTMENT OF REVENUE
TREASURY DIVISION

By: _____

_____
(Official Title)

APPROVED:

_____
Department of Administration

_____
(Date)

Arthur D. Little, Inc. ONE MARITIME PLAZA · SAN FRANCISCO CALIFORNIA 94111 · (415) 981-2500

July 7, 1977

Mr. Jim Edenso, Deputy Commissioner
State of Alaska, Department of Revenue
Pouch SBL
Juneau, Alaska 99801

Dear Mr. Edenso: 1-8883 (Revised)

Arthur D. Little, Inc., is pleased to submit this proposal to provide economic development advice to the Department of Revenue and the State Investment Advisory Committee. We view this as an exciting opportunity to be "present at the creation" of what could emerge as one of the more momentous economic development mechanisms so far conceived. We appreciate having had the opportunity to participate in a number of State Investment Advisory Committee meetings and to meet with interested parties within the Administration and the Legislature regarding the possible scope of our services and the need for assistance in defining economic development analyses appropriate to the Permanent Fund.

We have prepared this proposal on the basis of: meetings and discussions with various people in Alaska; an examination of previous as well as current studies focused on the compilation of data and the analysis of economic activity and industrial development in Alaska; and our knowledge in the broad area of economic development, both domestic and international. We believe we have the necessary combination of experience and professional skills to assist you in developing the necessary economic information and analysis required for initiation of the Permanent Fund.

Our proposal is divided into the following sections, reflecting our understanding of your requirements:

- Background
- Sectoral Analysis
- The State of the Alaskan Economy
- Purpose and Scope of the Study
- Methodology
- Work Program
- Management Organization and Staffing
- Cost, Duration, and Billing Procedures

Mr. Jim Edenso, Deputy Commissioner
State of Alaska, Department of Revenue 1-8883

We have made a diligent effort to respond to your needs on the basis of our professional judgment as to the appropriate manner in which to conduct this project. Should you wish modifications of our work program, we hope that we will have the opportunity to jointly review your needs in order to make the necessary changes in our response.

We believe that Arthur D. Little is unusually well qualified to meet the needs of Alaska in the area of economic development, including analysis and development of recommendations. We base this belief on the following factors:

- Members of the Arthur D. Little staff who will be assigned to this project have recently conducted or are completing assignments of a similarnature. Such studies provide us with a good background for evaluating the suitability and appropriateness of potential economic sectors.

- Staff assigned to this project have operational as well as consulting experience with public agencies and public entities which have as their primary concern appropriate economic development and facilitation of this development through various financial mechanisms. We are experienced both in the area of public policy and of industrial and economic analysis.

- Our Western Regional office in San Francisco specializes in regional planning and industrial development projects. We have assigned to this project senior personnel with excellent credentials in the area of industrial development.

BACKGROUND

Based on existing best estimates, between now and 1985 Alaska's share of North Slope, Prudhoe Bay, and other Outer Continental Shelf (OCS) oil and gas production can be expected to exceed $7 billion. In addition, the possibility exists for additional state income from the extraction of coal, iron ore, and other minerals. With this large potential revenue from non-renewable resources flowing in at an increasing rate over the coming period, it becomes necessary to determine from a public standpoint the optimal ways to best utilize this income.

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Until now, the majority of the oil-related revenues have gone into the state's General Fund. While these revenues have provided for much-needed improvement in services and facilities provided by the state, a saturation point has probably been reached in terms of the ability of state government to absorb much additional revenue on a current operating basis. This will be underscored by the significant increase in state revenues following the start of the flow of oil through the pipeline.

Last November the Alaskan voters overwhelmingly approved the concept and the creation of the "Alaska Permanent Fund." Simply put, the concept was to provide a means of collecting at least a portion of the ongoing non-renewable resource revenues and placing these revenues in a permanent fund where the revenue capital would be maintained (the concept of permanence) while the income from the fund could be utilized for various purposes. This action was taken in anticipation of the fund's providing a sound basis for ongoing economic development beyond the period of non-renewable resource extraction.

Along with the passage of the referendum on the Alaska Permanent Fund, the ongoing State Investment Advisory Committee was expanded with additional citizen members reflecting a wide range of viewpoints to consider the questions of the structure and organization of the proposed Permanent Fund. Over the past few months, the investment committee, in association with its consultants, has developed draft legislation detailing the proposed management and organization for the Alaska Permanent Fund.

Quoting from Section 37.13.020, "Purpose of the Permanent Fund," House Bill 298, one version of the proposed legislation, provides an indication of the thrust of the goals of the Permanent Fund:

> "(a) The purpose of the Permanent Fund is to provide a means of conserving a portion of the state's revenues from mineral resources to the ultimate benefit of present and future generations of Alaskans. The revenues so conserved shall be invested in income-producing investment which will provide further benefits to present and future generations of Alaskans.
>
> "(b) Further benefits may be derived from the use of the Permanent Fund to:

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1-8883

"(1) Assist the diversification of the economy of Alaska by making sound investments in Alaska's renewable and non-renewable resources.

"(2) Seek to smooth the cyclical pattern of growth of the Alaska economy.

"(3) Encourage and assist the participation of private capital from both within and outside Alaska in private enterprises of benefit to Alaskans . . . ."

The Permanent Fund, at least as envisioned in the legislation under consideration, will be both a savings bank as well as a development bank. The draft bill provides that:

- Half the revenues derived by Alaska from its mineral resources will be put into the Permanent Fund. At a minimum 40% of the fund's balances must be put into "investment grade securities."

- As much as 30% of the remainder of the Permanent Fund will go to providing long-term investment capital for expansion of private sector economic activity in Alaska when sufficient capital is not available from other sources.

- No more than 30% can go to public works for community development projects for municipalities and public entities within Alaska.

Thus, a significant amount of revenue will be available to the Permanent Fund for purposes of providing investment capital for existing and potential economic activity within the state.

Having agreed upon the concept of the Permanent Fund, it becomes important to determine on what basis and through what set of criteria will financial assistance by the Permanent Fund in economic development projects be determined. As in any capital budgeting decision, typically, the fund will be faced with a set of proposed projects whose cumulative financial requirements exceed the Permanent Fund's financing capability at that point in time. Given this budget constraint, the question is then how to allocate scarce investment resources among a set of proposed projects.

In addition, the State of Alaska has historically been utilized as a resource base for the rest of the United States and to some extent Japan. Today it remains an economy primarily devoted to the extraction of both renewable and non-renewable resources with little value added from the processing of such resources. Pipeline activity has been a significant short-term boost to the state economy over the last several years, but it may well leave behind little residual long-term economic activity because of the relative "thinness" of the Alaskan economy. This would once again confirm the "boom and bust" characterization of the Alaskan economy.

SECTORAL ANALYSIS

At least in concept, the creation of the Permanent Fund, with its ability to supplement and complement the existing commercial banking activity in Alaska with the capacity to provide long-term loans and/or equity participation on a development basis, could well be an important mechanism for diversifying the economy and providing for greater utilization of Alaska's resources within Alaska.

One way of establishing a mechanism for budgeting and allocating scarce investment resources among alternative opportunities is to prepare a sectoral analysis of the Alaska economy to identify those sectors, industries, or portions of economic activity that appear to have the greatest payoff in the long run for Alaska in terms of diversification, income distribution, and the various other economic goals the state might develop. This sectoral analysis would provide an overview of the economy, linking both the existing sectors and those that might exist in the future to the overall markets within the U.S. economy as well as the international one, particularly the Pacific Rim economies. By focusing investments in those sectors of the economy that are likely to have long-term markets and meet state economic goals, it is most likely that the investments will provide long-term gain for the Alaskan economy.

Referring again to the proposed legislation to establish the Permanent Fund, "sectoral analysis" has been identified as one important means for the fund to determine what projects it will finance and in what manner. Included in the section "Duties of the Policy Board" is an element relating to the annual review and approval of long-range operating plans based on sectoral analysis of the Alaskan economy.

Further, in the section entitled "Operational Principles," various guidelines are provided for the operation of the public corporation. In addition to establishing the "prudent person rule of investment," this section requires that the particular project or investment being considered be able to stand on its own in terms of financial productivity. Should the Permanent

Fund have before it a case requiring a subsidy, this must be explicitly identified and the Legislature must provide for the subsidy component of such an investment out of general fund revenues.

The same section states further that the corporation will make investment decisions with regard to "economic and other considerations including consideration of employment, income distribution, environment, health, social, and other factors. The corporation shall be sensitive to the views of the affected local community and shall include an analysis of those views and proposals for large investments."

Thus, throughout the draft legislation, the need for the application of economic analysis to proposed investments of the Permanent Fund is clearly identified.

This proposal addresses itself to the establishment of a structure or framework against which projects requesting assistance from the Permanent Fund can be evaluated so that a ranking and prioritizing of the projects can be achieved. The net result becomes one of maximizing the productivity of the investments made by the Permanent Fund for economic development purposes.

STATE OF THE ALASKAN ECONOMY

Alaska and its surrounding ocean areas are currently viewed as the United States' greatest reservoir of energy resources required for energy development in the critical period ahead. The question becomes this: Will Alaska continue to provide the resources but not necessarily the translation of this resource base into increased levels of economic activity through vertical integration. The Alaskan economy is at a watershed. In general, the potential exists for increased economic activity at some sustainable level. What direction will future investments in the Alaskan economy take? Will they be a continuation of current and historical resource extraction investments resulting in cycles of high economic activity followed by a state recession when the resource is exhausted, or will Alaska participate in the further utilization of these resources?

To place in perspective the role of economic development and, in particular, the purpose of a sectoral analysis providing a structured framework for investment decisions by the Permanent Fund, it is useful to briefly examine the overall Alaskan economy and its components.