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EXAMPLE

Computing Benefits and Costs
in Present Value Terms

AVAILABLE DATA--MIDWEST AGRIC. W/S
(50 yr. evaluation period @ 7 1/8%)

INST 2/1/7104

Construction Period

<u>Yr.</u>	<u>Structure</u>	<u>Costs</u>		<u>Benefits</u>
		<u>(Installation)</u>	<u>(O&M)</u> <i>AVG ANN</i>	<u>(Avg. Ann.)</u>
<u>FLOOD PREVENTION</u>				
1	*3-A	225,000	(6,800)	24,800
2	4-B, 5-A	800,000	(24,000)	88,300
		800,000	(24,000)	88,300
3	5-A	825,000	(24,800)	91,000
4	1-B, 6-C	450,000	(13,500)	49,700
		450,000	(13,500)	49,700
5	4-C, 7-A	400,000	(12,000)	44,200
		360,000	(10,800)	39,700
		4,310,000	(129,400)	475,700

RECREATION

1	*3-A	225,000	(6,800)	---
2	---	---	---	---
3	---	---	---	---
4	*Facilities	300,000	(9,000)	57,900
5	---	---	---	---
		525,000	(15,800)	57,900

PRESENT VALUE COSTS
(beginning of evaluation period)

FLOOD PREVENTION

1	*3-A	225,000 X 1.31693 ^{1/} =	296,300
		6,800 X 4.44816 ^{2/} =	30,200
		6,800 X 13.58564 ^{3/} =	92,400
		Sub total	418,900

* Multi-purpose structure

1/ Compound interest, 4 yrs.

2/ Ann. of 1/yr., 4 yrs.

3/ PV, ann. of 1/yr., 50 yrs.

4/ Compound interest, 3 yrs.

5/ Ann. of 1/yr., 3 yrs.

6/ Compound interest, 2 yrs.

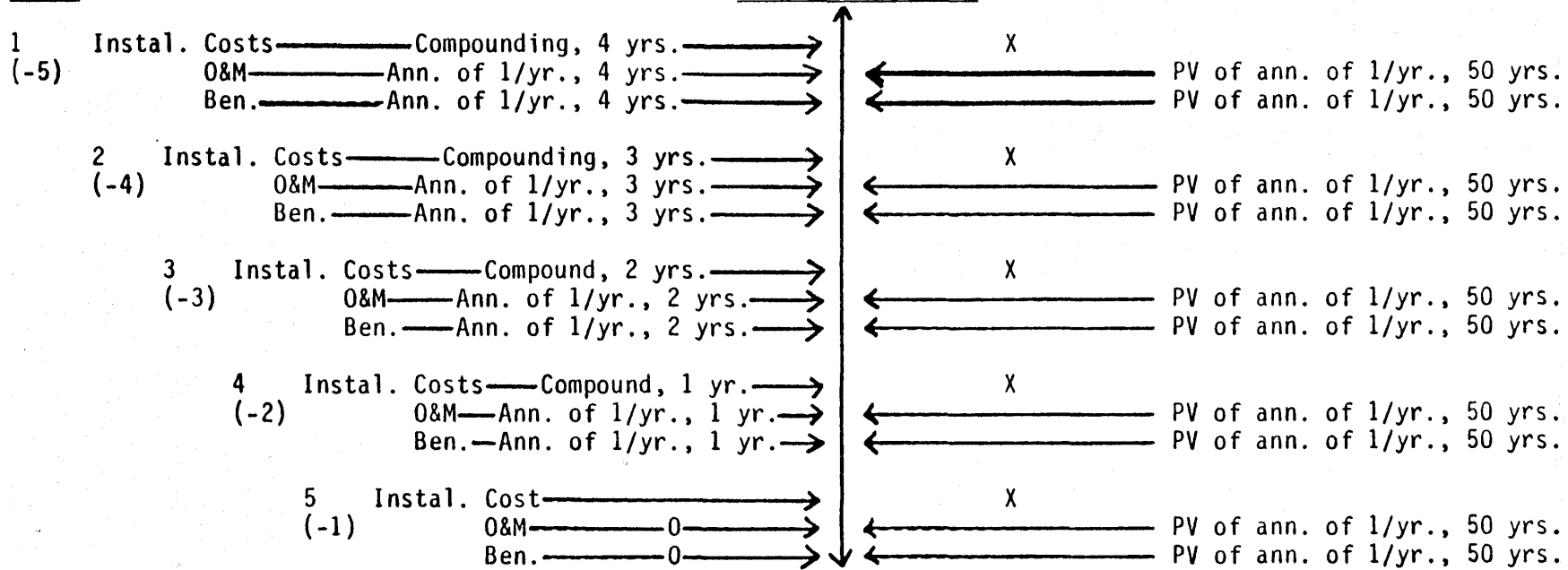
7/ Ann. of 1/yr., 2 yrs.

8/ Compound interest, 1 yr.

COMPUTING BENEFITS AND COSTS AT A COMMON POINT
IN TIME

Installation Schedule
Years

Beginning of
Evaluation Period



FLOOD PREVENTION CONT.

2	4-B	800,000 X 1.22935 ^{4/5} =	983,500
		24,000 X 3.21882 ^{3/5} =	77,300
		24,000 X 13.58564 ^{3/5} =	326,100
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		Sub total	1,386,900
3	5-A	800,000 X 1.22935 ^{4/6} =	983,500
	5-A	825,000 X 1.14758 ^{6/7} =	946,800
		48,800 X 2.07124 ^{7/3} =	101,100
		48,800 X 13.58564 ^{3/3} =	663,000
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		Sub total	2,694,400
4	1-B	450,000 X 1.07125 ^{8/9} =	482,100
		13,500 X 1.00 ^{9/7} =	13,500
		13,500 X 13.58564 ^{3/3} =	183,400
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		Sub total	679,000
	6-C	450,000 X 1.07125 ^{8/9} =	482,100
		13,500 X 1.00 ^{9/7} =	13,500
		13,500 X 13.58564 ^{3/3} =	183,400
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		Sub total	679,000
5	4-C	400,000 X 1.00 ^{9/3} =	400,000
		12,000 X 13.58564 ^{3/3} =	163,000
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		Sub total	563,000
	7-A	360,000 X 1.00 ^{9/4} =	360,000
		10,800 X 13.58564 ^{4/3} =	146,700
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		Sub total	506,700

RECREATION

1	*3-A	225,000 X 1.31693 ^{1/2} =	296,300
		6,800 X 4.44816 ^{2/3} =	30,200
		6,800 X 13.58564 ^{3/3} =	92,400
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		Sub total	418,900
4	*Facilities	300,000 X 1.07125 ^{8/9} =	321,400
		9,000 X 1.00 ^{9/7} =	9,000
		9,000 X 13.58564 ^{3/3} =	122,300
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		Sub total	452,700
		Grand total	7,799,500

Present Value Benefits (beginning of evaluation period)

Flood Prevention

1	*3-A	24,800 X 4.44816 ^{2/3} =	110,300
		24,800 X 13.58564 ^{3/3} =	336,900
		Sub total	<u>447,200</u>
2	4-B	88,300 X 3.21882 ^{5/3} =	284,200
		88,300 X 13.58564 ^{3/3} =	1,199,600
		Sub total	<u>1,483,800</u>
3	5-A	179,300 X 2.07124 ^{7/3} =	371,400
		179,300 X 13.58564 ^{3/3} =	2,435,900
		Sub total	<u>2,807,300</u>
4	1-B	49,700 X 1.00 ^{9/3} =	49,700
		49,700 X 13.58564 ^{3/3} =	675,200
		Sub total	<u>724,900</u>
	6-C	49,700 X 1.00 ^{9/3} =	49,700
		49,700 X 13.58564 ^{3/3} =	675,200
		Sub total	<u>724,900</u>
5	4-C	44,200 X 13.58564 ^{3/3} =	600,500
		Sub total	<u>600,500</u>
	7-A	39,700 X 13.58564 ^{3/3} =	539,300
		Sub total	<u>539,300</u>

Recreation

4	*Facilities	57,900 X 1.00 ^{9/3} =	57,900
		57,900 X 13.58564 ^{3/3} =	786,600
			<u>844,500</u>

Grand Total 8,172,400

Present Value--Benefits = \$8,172,400

Present Value--Costs = \$7,799,500

TABLE 4

<u>STRUCTURE</u>	<u>AMORTIZED COSTS</u> ^{1/}	<u>OM&R</u>	<u>AVERAGE ANNUAL</u>
7 structures and facilities	408,600 ^{2/}	165,400 ^{3/}	574,000
TOTAL	408,600	165,400	574,000

^{1/} Amortized at 7 1/8% for 50 years.

^{2/} Includes \$52,700 for interest on costs incurred during installation period.

^{3/} Includes \$20,200 for interest on costs incurred during installation period.

TABLE 6

AVERAGE ANNUAL BENEFITS

<u>STRUCTURE</u>	<u>FLOOD PREVENTION</u>	<u>RECREATION</u>	<u>TOTAL</u>
7 structures and facilities	539,300 ^{1/}	62,200 ^{2/} 57,900	601,500
TOTAL	539,300	62,200	601,500 597,200

1/ Includes \$63,600 for interest on benefits accruing during installation period.

2/ Includes \$4,300 for interest on benefits accruing during installation period.

<u>AVERAGE ANNUAL COSTS</u>	<u>BENEFIT COST RATIO</u>	<u>NET BENEFITS</u>
574,000 ^{3/}	1.05:1	27,500
TOTAL 574,000	1.05:1	27,500

3/ From TABLE 4.