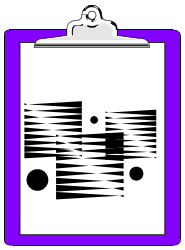
LIST OF ATTACHMENTS



ATTACHMENT NO. 1

SEPARABLE COST–REMAINING BENEFITS CALCULATIONS

ITEM	RECREATION	CONTROL	IRRIGATION	TOTAL
COSTS TO BE ALLOCATED:				27,500.00
a. Benefits	9,200.00	12,800.00	12,000.00	34,000.00
b. Alternative Costs	8,800.00	14,000.00	12,000.00	34,800.00
c. Justifiable Expenditure	8,800.00	12,800.00	12,000.00	33,600.00
d. Separable Costs	2,300.00	10,100.00	6,500.00	18,900.00
1. Construction Costs	(2,000.00)	(6,100.00)	(3,800.00)	(11,900.00)
2. OM&R Costs	(300.00)	(4,000.00)	(2,700.00)	(7,000.00)
e. Remaining Justifiable Expenditure	6,500.00	2,700.00	5,500.00	14,700.00
f. Percent Distribution	44.22%	18.37%	37.41%	100.00%
g. Remaining Joint Costs	3,802.72	1,579.59	3,217.69	8,600.00
1. Construction Costs	(3,306.71)	(954.00)	(1,881.11)	(6,141.82)
2. OM&R Costs	(496.01)	(625.59)	(1,336.58)	(2,458.18)
h. Total Allocated Costs	6,102.72	11,679.59	9,717.69	27,500.00
1. Construction Costs	(5,306.71)	(7,054.00)	(5,681.11)	(18,041.82)
2. OM&R Costs	(796.01)	(4,625.59)	(4,036.58)	(9,458.18)

This cost allocation method uses the costs that can be identified for each purpose and the remaining benefits for each purpose to allocate the joint costs among them. The costs associated with each specific purpose (separate costs) are charged to each purpose. The joint costs of the project are divided among the purposes according to the amount of benefits that remain for each after separate costs are paid.

A line-by-line approach is used to describe this method. Each line is defined and the calculation used to determine the values is described as follows:

COSTS TO BE ALLOCATED: This is the total cost of the project, including all construction costs and operation, maintenance and replacement costs. Both separate and joint costs are included in this total. The example cost is $27,500.00.

a. **BENEFITS:** This is the expected value of benefits that will be derived for each of the project purposes.
b. **ALTERNATIVE COSTS:** This is the estimated cost for a single purpose project that would generate the same benefits as those expected for the multi-purpose project.
c. **JUSTIFIABLE EXPENDITURE:** The lesser of a. and b. is selected for each purpose. This is the maximum costs that can be allocated to the purpose and is therefore the justifiable expenditure.
d. **SEPARABLE COSTS:** This is the marginal cost of adding that purpose last.
e. **REMAINING JUSTIFIABLE EXPENDITURE:** The separable cost for each purpose is subtracted from its justifiable expenditure to determine the remaining justifiable expenditure.
f. **PERCENT DISTRIBUTION:** The proportion of the total remaining justifiable expenditure for each purpose. For example, the remaining justifiable expenditure (RJE) for recreation is $6,500 and the RJE for all is $14,700. The percent distribution for recreation is $6,500 divided by $14,700 or 44.22%.
g. **REMAINING JOINT COSTS:** The total separable costs are subtracted from the total project cost ($27,500 – $18,900 = $8,600) to determine the remaining joint costs. This amount is allocated to each purpose according to the percentages calculated in set “f”.
h. **TOTAL ALLOCATED COSTS:** This value is the sum of the separable costs (item d.) and the distributed remaining joint costs (item g.). For the recreation purpose, it would be $2,300 + $3,802.72 for a total of $6,102.72.

ATTACHMENT NO. 2

CASH FLOW STREAM – FORMAT

YEAR	PROJECT YEAR	FEASIBILITY ENGINEERING INSPECTION	CAPITAL ITEMS	OM&R	ASSOCIATED COSTS	GROSS COSTS	TOTAL VALUE OF PROJECT (GROSS BENEFITS)	INCREMENTAL BENEFITS	ACCUMULATIVE BENEFITS
2006	0								
2007	1								
2008	2								
2009	3								
2010	4								
2011	5								
2012	6								
2013	7								
2014	8								
2015	9								
2016	10								
2017	11								
2018	12								
2019	13								
2020	14								
2021	15								
2022	16								
2023	17								
2024	18								
2025	19								
2026	20								
2027	21								
2028	22								
2029	23								
2030	24								
2031	25-50								
	TOTAL:								

YEAR – Should cover the life of the project or 50 years, whichever is less (can cover groups of years where the cash flow is identical).

FEASIBILITY STUDY – Should cover the cost of preparation and should be entered in year 0.

ENGINEERING & INSPECTION – Should reflect such costs and be entered in year of occurrence.

CAPITAL ITEMS – Should cover all construction costs, land rights costs, and costs of auxiliary facilities.

OPERATION, MAINTENANCE & REPLACEMENT COSTS – Should cover all O, M & R for the life of the project.

ASSOCIATED COSTS – Should cover all extra costs incurred individually by beneficiaries to realize their benefits in full, such as costs incurred by a farmer in distributing water from an irrigation project or costs incurred by a farmer to convert to a new cropping system or change in land use resulting from a flood control project. In cases where the benefit measurement takes into account added cost to a primary beneficiary in realizing his benefits, the associated costs will not be computed separately.

GROSS COSTS – Is a summation of the listed project costs

TOTAL VALUE OF PROJECT (GROSS BENEFITS) – Should cover only the primary tangible benefits accruing because of the project or program.

INCREMENTAL BENEFIT (CASH FLOW) – Is the difference between the gross costs and gross benefits.

ACCUMULATIVE BENEFIT (CASH FLOW) – Is the difference between the accumulative gross costs and the accumulative gross benefits.

ATTACHMENT NO. 2 (Continued)

CASH FLOW STREAM – EXAMPLE
RATE OF RETURN = 9.695%

YEAR	PROJECT YEAR	FEASIBILITY ENGINEERING INSPECTION	CAPITAL ITEMS	OM&R	ASSOCIATED COSTS	GROSS COSTS	TOTAL VALUE OF PROJECT (GROSS BENEFITS)	INCREMENTAL BENEFITS	ACCUMULATIVE BENEFITS
2006	0	$ 6,500	$ 2,000	$ 0	$ 0	$ 8,500	$ 0	($8,500)	($8,500)
2007	1	3,000	190,500	0	0	193,500	0	(193,500)	(202,000)
2008	2	12,500	405,000	0	0	417,500	0	(417,000)	(619,500)
2009	3	12,500	185,000	27,000	0	224,500	18,000	(206,500)	(826,000)
2010	4	0	185,000	27,000	0	212,000	132,800	(79,500)	(905,200)
2011	5	0	0	27,000	0	27,000	132,800	105,800	(799,400)
2012	6	0	0	27,000	0	27,000	132,800	105,800	(693,600)
2013	7	0	0	27,000	0	27,000	132,800	105,800	(587,800)
2014	8	0	0	27,000	0	27,000	132,800	105,800	(482,000)
2015	9	0	0	27,000	0	27,000	132,800	105,800	(376,200)
2016	10	0	0	27,000	0	27,000	132,800	105,800	(270,400)
2017	11	0	0	27,000	0	27,000	132,800	105,800	(164,600)
2018	12	0	0	27,000	0	27,000	132,800	105,800	(58,800)
2019	13	0	0	27,000	0	27,000	132,800	105,800	47,000
2020	14	0	0	27,000	0	27,000	132,800	105,800	152,800
2021	15	0	0	27,000	0	27,000	132,800	105,800	258,600
2022	16	0	0	27,000	0	27,000	132,800	105,800	364,400
2023	17	0	0	27,000	0	27,000	132,800	105,800	470,200
2024	18	0	0	27,000	0	27,000	132,800	105,800	576,000
2025	19	0	0	27,000	0	27,000	132,800	105,800	681,800
2026	20	0	0	27,000	0	27,000	132,800	105,800	787,600
2027	21	0	0	27,000	0	27,000	132,800	105,800	893,400
2028	22	0	0	27,000	0	27,000	132,800	105,800	999,200
2029	23	0	0	27,000	0	27,000	132,800	105,800	1,105,000
2030	24	0	0	27,000	0	27,000	132,800	105,800	1,210,800
2031	25	0	0	27,000	0	27,000	132,800	105,800	1,316,600
2032	26	0	0	27,000	0	27,000	132,800	105,800	1,422,400
2033	27	0	0	27,000	0	27,000	132,800	105,800	1,528,200
2034	28	0	0	27,000	0	27,000	132,800	105,800	1,634,000
2035	29	0	0	27,000	0	27,000	132,800	105,800	1,739,800
2036	30	0	0	27,000	0	27,000	132,800	105,800	1,845,600
2037	31	0	0	27,000	0	27,000	132,800	105,800	1,951,400
2038	32	0	0	27,000	0	27,000	132,800	105,800	2,057,200
2039	33	0	0	27,000	0	27,000	132,800	105,800	2,163,000
2040	34	0	0	27,000	0	27,000	132,800	105,800	2,268,800
2041	35	0	0	27,000	0	27,000	132,800	105,800	2,374,600
2042	36	0	0	27,000	0	27,000	132,800	105,800	2,480,400
2043	37	0	0	27,000	0	27,000	132,800	105,800	2,586,200
2044	38	0	0	27,000	0	27,000	132,800	105,800	2,692,000
2045	39	0	0	27,000	0	27,000	132,800	105,800	2,797,800
2046	40	0	0	27,000	0	27,000	132,800	105,800	2,903,600
2047	41	0	0	27,000	0	27,000	132,800	105,800	3,009,400
2048	42	0	0	27,000	0	27,000	132,800	105,800	3,115,200
2049	43	0	0	27,000	0	27,000	132,800	105,800	3,221,000
2050	44	0	0	27,000	0	27,000	132,800	105,800	3,326,800
2051	45	0	0	27,000	0	27,000	132,800	105,800	3,432,600
2052	46	0	0	27,000	0	27,000	132,800	105,800	3,538,400
2053	47	0	0	27,000	0	27,000	132,800	105,800	3,644,200
2054	48	0	0	27,000	0	27,000	132,800	105,800	3,750,000
2055	49	0	0	27,000	0	27,000	132,800	105,800	3,855,800
2056	50	0	0	27,000	0	27,000	132,800	105,800	3,961,600
	TOTAL:	$34,500	$967,500	$1,296,000	$ 0	$2,298,000	$6,259,600	$3,961,600	– – – – – –

A SAMPLE CASH FLOW SHEET WITH ACCOMPANYING CASH FLOW STREAM DATA

Cash Flow Stream Data Showing Progression of Work by Year of Project Work:

Year			
#0	**2006**		
	Feasibility Study, Engineering and Inspection	$6,000	
	Engineering & Feasibility Study	500	
	Aerial Photos	$6,500	
	Capital Items		
	Land R-O-W	$1,000	
	Land Appraisal	500	
	Legal Fees	450	
	Legal Notices	50	
		$2,000	**$8,500 –** C
#1	**2007**		
	Engineering and Inspection, Soil Analysis		
	Capital Items	$3,000	
	Land R-O-W		
	Abstracts	$188,000	
	Court Appraisal	2,000	
		500	
		$190,500	**$193,500 –** C
#2	**2008**		
	Engineering and Inspection		
	Engineering	$ 12,500	
	Capital Item		
	Construction Costs	405,000	**$417,500 –** C
#3	**2009**		
	Engineering and Inspection		
	Engineering	$12,500	
	Capital Item		
	One-half Recreation Development	185,000	
	Operation, Maintenance & Replacement Costs		
	(This is based on the number of Recreation Days at a cost, i.e.: $1.35/day for O, M & R or $27,000 annual cost)	27,000	
		$224,500	**$224,500 –** C
	Total Value of Project		
	The structure should be completed or near completion so flood damage benefits can be counted; annually.	$18,000	**$18,000 –** B
#4	**2010**		
	Capital Items		
	One-half Recreation Development	$185,000	
	O, M & R Costs (as in year#3)	27,000	
		$212,000	**$212,000 –** C
	Total Value of Project		
	Flood Damage Benefits	18,000	
	Recreation Benefits		
	(# of days *X* $5.74)	114,800	
		$132,800	**$132,800 –** B

ATTACHMENT NO. 2 (Continued)

A SAMPLE CASH FLOW SHEET
WITH ACCOMPANYING CASH FLOW STREAM DATA

Cash Flow Stream Data Showing Progression of Work by Year of Project Work:

Year			
#5	**2011**		
	O, M & R Costs	$27,000	**$27,000 –** C
	Total Value of Project	18,000	
	Flood Damage Benefits	114,800	
	Recreation Benefits	$132,800	**$132,800 –** B
#6-50	**2012-2056**		
	O, M & R ($27,000 multiplied by 45)	$1,215,000	**$1,215,000 –** C
	Total Value of Project		
	Flood and Recreation Benefits		
	($132,800 *X* 45)	$5,976.600	**$5,976,000 –** B

ATTACHMENT NO. 3

DEPTH DAMAGE FACTORS FOR RESIDENTIAL STRUCTURES

Damage Begins at Six (6) Feet Below the First Floor

	CODE NO.							
	01	03	05	60	15	20	25	10
Dept in Feet	Damage in % of Total Value							
8.0								
7.0								
6.0				.0	.0	.0	.0	
5.0				25.	2.	2.	2.	
4.0				35.	3.	2.	2.	
3.0				40.	3.	2.	3.	
2.0				42.	3.	3.	3.	
1.0	.0	.0	.0	45.	6.	5.	5.	.0
.0 (0.1)	8.0	4.	3.	50.	10.	7.	6.	8.
1.0	22.	10.	11.		24.	14.	16.	50.
2.0	30.	16.	20.		31.	21.	22.	71.
3.0	35.	20.	25.		37.	26.	26.	82.
4.0	39.	24.	29.		41.	30.	30.	87.
5.0	41.	27.	31.		44.	33.	32.	89.
6.0	44.	30.	33.		46.	35.	35.	90.
7.0	46.	32.	34.		48.	38.	36.	90.
8.0	48.	34.	41.		49.	40.	44.	
9.0	50.	39.	46.		50.	44.	48.	
10.0		42.	50.		50.	46.	52.	
11.0		45.	53.			47.	55.	
12.0		47.	55.			48.	57.	
13.0		49.	58.			49.	59.	
14.0		50.	59.			50.	59.	
15.0			60.			50.	60.	
16.0						50.	60.	

Classification	**Code**
One story, no basement	01
Two or more stories, no basement	03
Split level, no basement	05
All in basement	60
One story, w/basement	15
Two or more stories, w/basement	20
Split level, w/basement	25
Mobile home, on foundation	10

Indicates first floor

Source: Reprinted from the Federal Insurance Administration, December, 1970.

ATTACHMENT NO. 4

DEPTH DAMAGE FACTORS FOR RESIDENTIAL CONTENTS

NOTE: To enter this table, use 50% of the Structure Value, i.e.: If a structure is worth $40,000, use $20,000; and if Code 43 was used at 4 ft. depth, 68% or $13,000 could be claimed.

	CODE NO.								
	27	29	31	33	43	48	53	58	38
Dept in Feet	Damage in % of Total Value								
8.0									
7.0									
6.0					.0	.0	.0		
5.0					60.	4.	3.	.0	
4.0					68.	5.	3.	8.	
3.0					74.	8.	4.	10.	
2.0					78.	8.	5.	10.	
1.0	.0	.0	.0	.0	82.	8.	5.	15.	.0
.0 (0.1)	5.	5.	1.	2.	85.	21.	10.	18.	3.
1.0	35.	16.	3.	19.		40.	22.	31.	50.
2.0	50.	28.	4.	32.		58.	34.	44.	56.
3.0	60.	37.	5.	41.		70.	43.	52.	72.
4.0	68	43.	6.	47.		76.	48.	58.	79.
5.0	74.	47.	6.	51.		80.	51.	61.	84.
6.0	78.	49.	6.	53.		82.	52.	63.	87.
7.0	81.	50.	6.	55.		83.	53.	64.	88.
8.0	83.	51.	6.	56.		85.	56.	66.	90.
9.0	85.	55.	10.	62.		85.	59.	69.	90.
10.0		58.	23.	69.		85.	64.	73.	
11.0		65.	47.	75.			71.	76.	
12.0		72.	64.	78.			76.	79.	
13.0		78.	74.	80.			78.	80.	
14.0		79.	81.	81.			80.	82.	
15.0		80.	83.	83.			82.	84.	
16.0		85.	85.	85.			85.	85.	

Classification	**Code**
All on first floor	27
All on first two or more floors	29
In split level, no basement	33
All in basement	43
All on first floor and basement	48
All on first two or more floors and basement	53
All above first floor	31
In split level w/basement	58
Mobile home, on foundation	38

Indicates first floor

Source: Reprinted from the Federal Insurance Administration, December, 1970.

ATTACHMENT NO. 5

DEPTH DAMAGE FACTORS FOR SMALL BUSINESS STRUCTURES

Depth in Feet	Damage in % of Total Value Type Structure Brick	Metal	Frame	Concrete Block
1.0	4.	4.	7.	4.
2.0	5.	6.	9.	5.
3.0	6.	7.5	17.	6.
4.0	7.	9.	19.	7.
6.0	10.	12.	27.	10.
8.0	13.	16.	29.	13.
10.0	16.	20.	31.	16.
12.0	20.	25.	32.	20.

Note: For large businesses, damage estimates must be arrived at by interview with the owner.

ATTACHMENT NO. 6

DEPTH DAMAGE FACTORS FOR SMALL BUSINESS CONTENTS

All on First Floor and Above

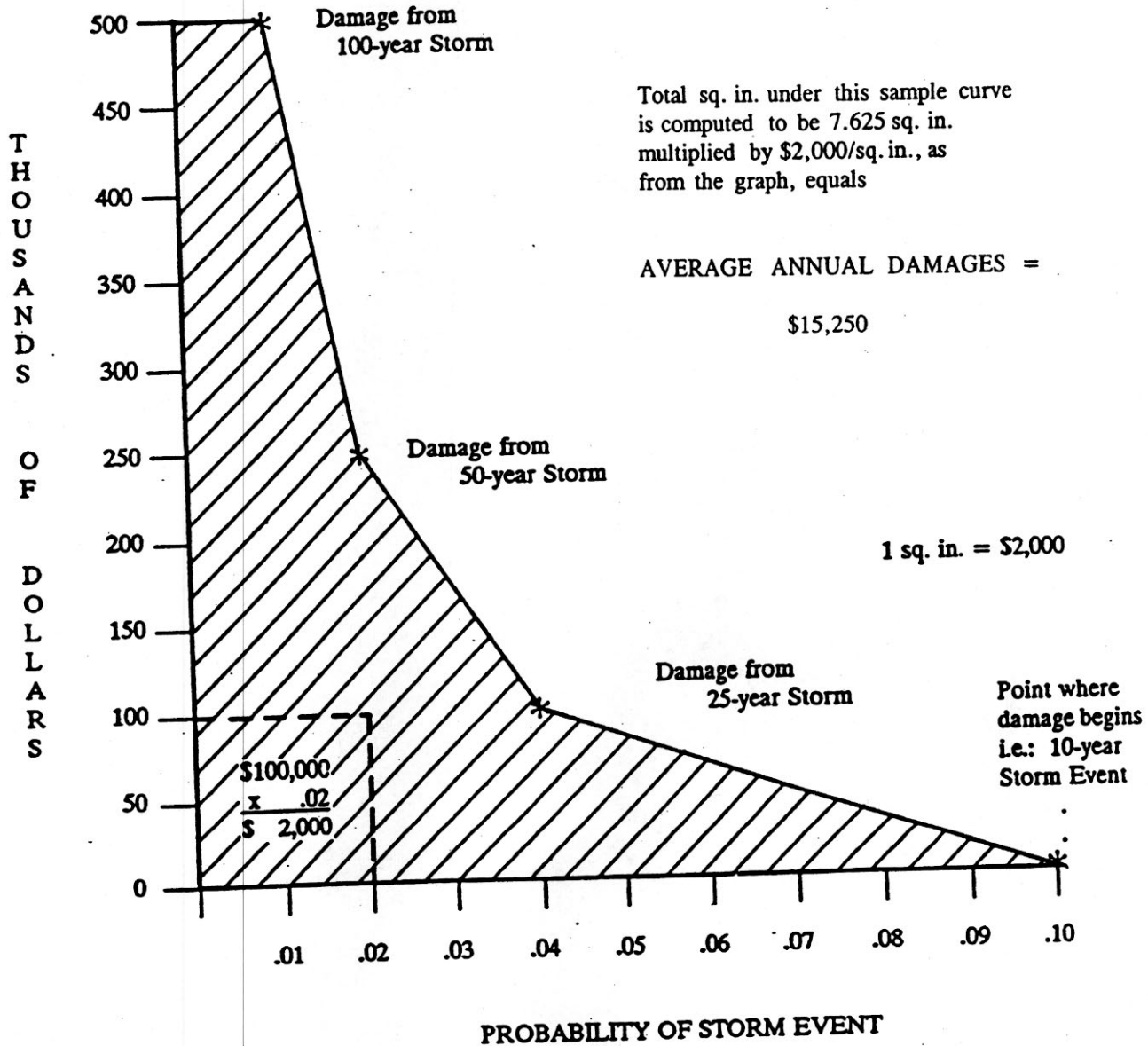
Depth in Feet	Damage in % of Total Value
First 0.0 Floor	.0
0.1	1.2
0.2	2.4
0.3	4.0
0.4	4.8
0.5	7.2
0.6	8.8
0.7	11.6
0.8	13.2
0.9	15.2
1.0	17.6
1.1	19.6
1.2	22.0
1.3	24.4
1.4	27.2
1.5	29.6
1.6	32.8
1.7	36.8
1.8	40.0
1.9	43.6
2.0	47.2
2.1	50.4
2.2	54.0
2.3	57.6
2.4	61.2
2.5	64.8
2.6	68.0
2.7	71.1
2.8	74.0
2.9	77.2
3.0	80.0
3.1	82.1
3.2	85.3
3.3	87.8
3.4	90.2
3.5	92.5
3.6	94.7
3.7	96.8
3.8	98.8
3.9	100.0
4.0	100.0

Source: Reprinted from the Federal Insurance Administration, December, 1970.

ATTACHMENT NO. 7

DAMAGE CURVE - EXAMPLE

FLOOD DAMAGES UNDER PRESENT CONDITIONS



Total sq. in. under this sample curve is computed to be 7.625 sq. in. multiplied by $2,000/sq. in., as from the graph, equals

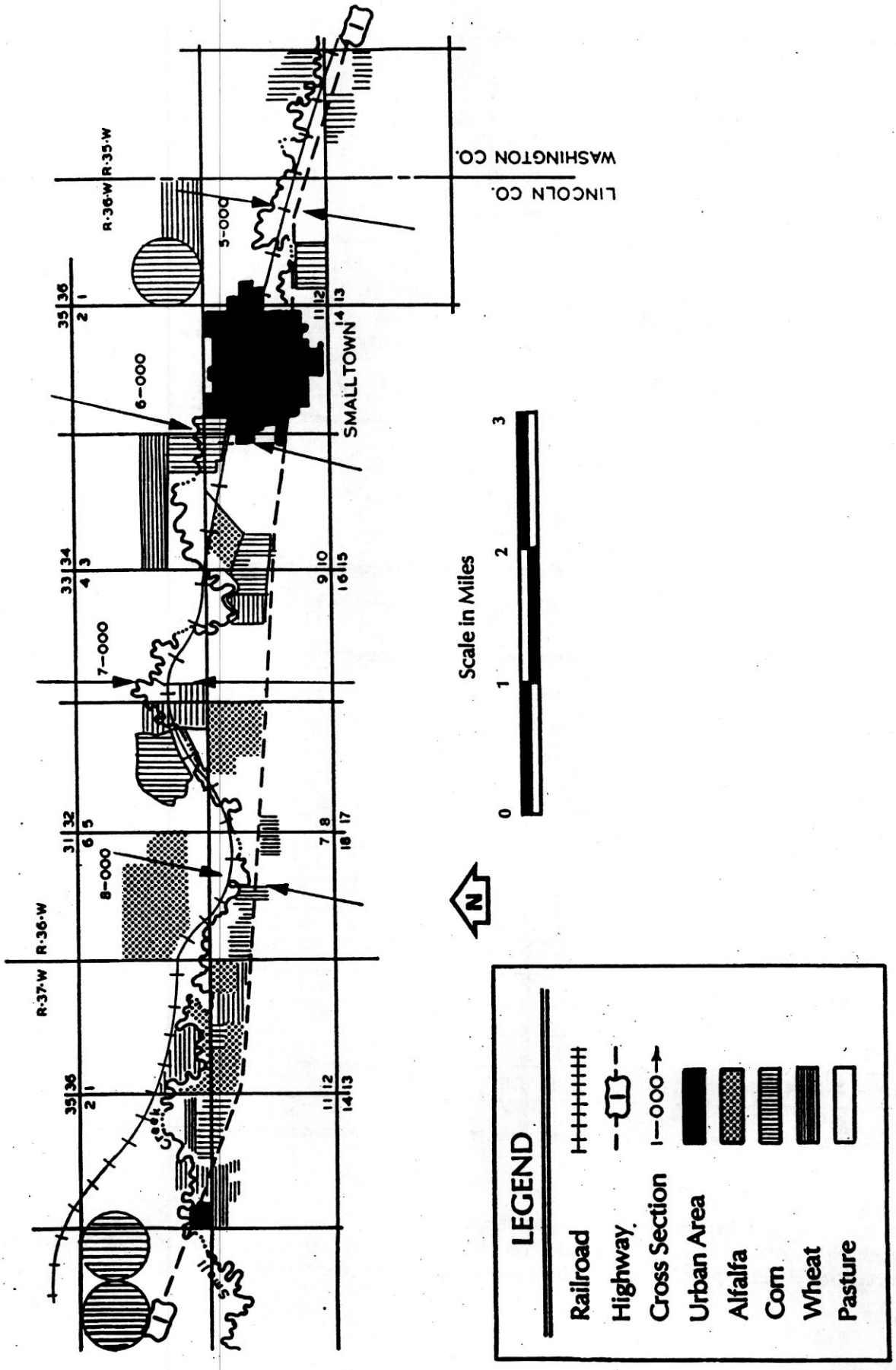
AVERAGE ANNUAL DAMAGES =

$15,250

1 sq. in. = $2,000

ATTACHMENT NO. 8

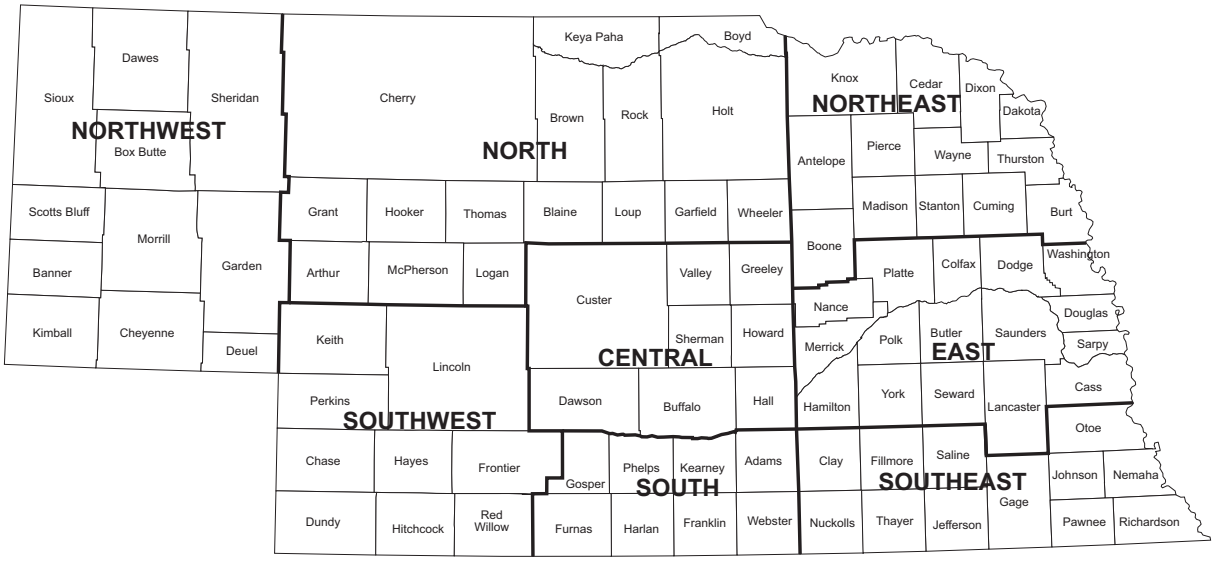
STRIP MAP - EXAMPLE



ATTACHMENT NO. 9[1/]

CROP YIELDS

FIVE -YEAR AVERAGE YIELDS
FOR CALENDAR YEARS 2000-2004



		REGIONS							
		NORTH-WEST	NORTH	NORTH-EAST	CENTRAL	EAST	SOUTH-WEST	SOUTH	SOUTH-EAST
WHEAT, WINTER	– BU/ACRE	34.7	39.8	43.8	42.4	46.9	36.4	43.9	46.0
CORN, IRRIGATED	– BU/ACRE	148.7	167.3	172.7	172.7	173.7	176.6	183.0	176.4
CORN	– BU/ACRE	36.8	52.9	113.8	53.5	107.2	51.2	69.0	98.4
OATS	– BU/ACRE	38.0	51.2	72.7	48.3	62.0	42.6	50.2	59.3
GRAIN SORGHUM, IRRIGATED	– BU/ACRE	96.3	97.9	97.9	102.7	110.5	93.4	106.7	105.4
GRAIN SORGHUM	– BU/ACRE	31.8	54.3	62.3	48.6	77.2	48.3	61.9	74.1
ALFALFA HAY, IRRIGATED	– TON/ACRE	4.43	4.20	4.97	4.67	4.86	4.89	5.33	4.89
ALFALFA HAY	– TON/ACRE	1.39	1.72	3.48	2.70	3.17	2.84	3.06	2.82
BEANS, DRY EDIBLE	– CWT/ACRE	20.3	22.9	23.1	20.9	0.0	24.0	12.4	0.0
SUGAR BEETS, IRRIGATED	– TON/ACRE	19.83	N/A	N/A	N/A	N/A	22.66	N/A	N/A
SOYBEANS, IRRIGATED	– BU/ACRE	35.7	50.8	49.5	51.1	52.6	50.9	55.8	52.7
SOYBEANS	– BU/ACRE	11.2	19.8	35.6	19.8	35.5	15.0	25.2	32.6
NATIVE HAY	– TON/ACRE	1.05	1.06	1.47	1.30	1.45	1.48	1.46	1.38
PASTURELAND (PLANTED GRASS)	– AUM/ACRE	2/	2/	2/	2/	2/	2/	2/	2/
RANGELAND	– AUM/ACRE	2/	2/	2/	2/	2	2/	2/	2/

1/ This attachment is revised annually by Department of Natural Resources staff.

2/ Sponsors should contact their district NRCS office to obtain localized estimates of pasture and range production.

SOURCE: Crop yields from Nebraska Agricultural Statistics averaged using Sum of Squares Method.

N/A Not Available

ATTACHMENT NO. 10[1/]

COMMODITY PRICES
FOR CALENDAR YEAR 2004

Average Price Received by Nebraska Farmers
For Major Agricultural Commodities
(Dollars)

COMMODITIES	2000	2001	2002	2003	2004	2004 5-Year Average[2/]
CROP AND PASTURE						
Wheat, Bu.	2.45	2.81	3.40	3.30	3.42	3.10
Corn for Grain, Bu.	1.85	1.89	2.13	2.25	2.44	2.12
Oats, Bu.	1.41	1.62	2.03	1.83	1.56	1.70
Grain Sorghum, Bu.	1.70	1.85	2.11	2.20	2.24	2.03
All Baled Hay, Ton	53.00	75.75	75.67	67.83	50.50	65.46
Beans (Dry Edible), Cwt.	15.48	16.25	19.63	17.38	18.98	17.61
Potatoes, Cwt.	4.85	6.60	9.62	5.34	9.76	7.53
Soybeans, Bu.	4.65	4.31	4.83	6.02	7.48	5.58
Sugar Beets, Ton	33.20	29.20	Not Available	Not Available	42.30	35.33
Pasture & Range, AUM	22.42	23.32	24.08	23.81	25.40	23.83
LIVESTOCK & PRODUCTS						
Hogs, Cwt.	44.94	46.55	36.61	40.05	52.74	44.52
Beef Cattle, Cwt.	70.17	73.78	67.00	84.18	84.53	76.27
Calves, Cwt.	105.58	107.92	105.56	116.30	136.57	114.99
Sheep, Cwt.	35.36	33.71	28.19	33.69	38.29	34.01
Lambs, Cwt.	77.24	62.72	72.88	91.74	99.58	81.91
Milk Cows, Head	1,290.00	1,470.00	1,605.00	1,370.00	1,600.00	1,472.27
Milk, Cwt.	11.70	14.60	12.12	12.51	16.03	13.49
Wool, Lb.	0.18	0.20	1.56	1.98	1.93	1.42

1/ This attachment is revised annually by Department of Natural Resources staff.

2/ Sum of Squares Method.

Sources: CROP AND LIVESTOCK PRICES FOR NEBRASKA PRODUCERS 1960-2005
By Darrell Mark, Dillon Feuz, Brad Heinrichs.
2005 NEBRASKA FARM REAL ESTATE MARKET DEVELOPMENTS SURVEY
Department of Agricultural Economics, University of Nebraska-Lincoln.
http://agecon.unl/mark/Agprices/2005Prices.paf

COMPOSITE DAMAGEABLE VALUE PER ACRE OF FLOODPLAIN – EXAMPLE

FLOOD PLAIN CROPS	PERCENT OF FLOOD PLAIN	YIELD PER ACRE OF CROP[1/]	ADJUSTE YIELDS[2/]	PRODUCTION PER FLOOD PLAIN ACRE	VALUE[3/] PER UNIT	DAMAGEABLE VALUE ($/ACRE)
					($)	($/Acre)
Corn (Irr.)	46	122.90 bu.	131.50	60.49 bu.	2.72	164.54
Alfalfa (Irr.)	21	4.36 tons	4.67	0.98 tons	59.71	58.50
Wheat	17	35.30 bu.	42.36	7.20 bu.	3.82	27.51
Pasture	12	1.00 A.U.M. [4/]	1.20	.14 A.U.M.	21.01	3.03
Misc.	4	0.00	0.00	0.00	0.00	0.00
	100					253.57

1/ 1997 Yields from Attachment No. 9 – 7% for Irr. Yields; 20% for Dryland Yields.

2/ Adjusted to Reflect Productivity of Floodplain Soils.

3/ 1997 Yields from Attachment No. 10.

4/ Animal Unit Month

ATTACHMENT NO. 12

CROP DAMAGE FACTORS BY FLOOD DEPTH

CROP	0-1 FEET	1-3 FEET	3 + FEET
Corn	24.6	50.5	63.3
Grain Sorghum	30.5	47.9	57.7
Wheat	19.5	34.3	41.4
Forage Sorghum	15.6	40.1	51.0
Soybeans	21.2	43.0	52.7
Alfalfa	18.9	31.9	38.8
Pasture	13.3	21.5	26.5

SOURCE: The factors are from NRCS guidelines and they include the plus or minus due to farming operations.

ATTACHMENT NO. 13

COMPOSITE CROP AND PASTURE DAMAGE RATE – EXAMPLE

CROP	DAMAGEABLE VALUE[1/]	NET DAMAGE AT DEPTH (in feet)					
		0 – 1.0		1.1 – 3.0		3.0 & Over	
	($/Acre)	(%)	($/Acre)	(%)	($/Acre)	(%)	($/Acre)
Corn	$180.21	24.6%	$44.33	50.5%	$91.00	63.3%	$114.07
Alfalfa	68.69	18.9%	12.98	31.9%	21.91	38.8%	26.65
Wheat	26.81	19.5%	5.23	34.3%	91.97	41.4%	11.10
Pasture	6.86	13.3%	0.91	21.5%	1.48	26.5%	1.82
Miscellaneous	0.00	0.00%	0.00	0.0%	0.00	0.0%	0.00
TOTAL:	$282.57		$63.45		$206.36		$153.64

1/ **From ATTACHMENT NO. 11.**

ATTACHMENT NO. 14

CROP CONDITIONS
WITH AND WITHOUT THE PROJECT FOR
IRRIGATION BENEFITS

Conditions With Project

	A	B	C = A *x* B	D	E = C – D	F	G = E *x* F
CROP	PER ACRE YIELD	PER UNIT VALUE	PER ACRE RETURN	PER ACRE PRODUCTION COSTS EXC. LAND COSTS	NET RETURN BY CROP	CROPPING PATTERN %	WEIGHTED AVERAGE RETURN
						Total = Average Per Acre Return With Project	

Conditions Without Project

	A	B	C = A *x* B	D	E = C – D	F	G = E *x* F
CROP	PER ACRE YIELD	PER UNIT VALUE	PER ACRE RETURN	PER ACRE PRODUCTION COSTS EXC. LAND COSTS	NET RETURN BY CROP	CROPPING PATTERN %	WEIGHTED AVERAGE RETURN
						Total = Average Per Acre Return Without Project	

Benefits or Value of Irrigation Water = Total Average Per Acre Return With Project - Total Average Per Acre Return Without Project

ATTACHMENT NO. 15

RECREATION PARTICIPATION RATES AND PROPORTION PARTICIPATING

NASIS DATA ACTIVITY	PARTICIPATING RATE (AVERAGE NUMBER OF DAYS PARTICIPATED)	PROPORTION OF NEBRASKA POPULATION PARTICIPATING
Tent Camping	6.3	.180
Recreational Vehicle Camping	10.0	.163
Hiking	15.6	.365
Stream and River Fishing	11.3	.187
Lake and Reservoir Fishing	13.1	.364
Power Boating	10.2	.226
Canoeing	5.9	.106
Bicycling	81.1	.496
Picnicking	8.5	.836
Outdoor Pool Swimming	25.2	.454
Beach Swimming	13.5	.391
Water Skiing	8.3	.170
Golf	22.5	.163
Tennis	20.8	.152
Horseback Riding	28.1	.175
Baseball	32.9	.237
Visiting Historic Areas	5.3	.568
Sailing	5.5	.036
Rafting and Other Boating	3.5	.037
Downhill Snow Skiing	4.0	.097
Cross-Country Snow Skiing	5.2	.023
Snowmobiling	9.0	.073
Ice Fishing	4.5	.011
Target Shooting	14.9	.123
Upland Game Hunting	10.1	.171
Waterfowl Hunting	8.2	.055
Big Fame Hunting	6.3	.040
Non-Game Hunting	9.4	.050

SOURCE: Assessment and Policy Plan 1991-1995, State Comprehensive Outdoor Recreation Plan

ATTACHMENT NO. 16

RECREATION STANDARDS BY ACTIVITY

ACTIVITY	NUMBER OF PEAK DAYS	% ACTIVITY ON PEAK DAYS	TURNOVER RATE PER DAY	AVERAGE PARTY SIZE	OTHER
Beach Swimming	12	40%	2.5	2.5	174 parties per acre of beach; 30% of parties in water; 250 sq. ft.
Picnicking	17	60%	2.0	4.0	10 tables per acre urban; 7 tables per acre non-urban; 1 party per table.
Camping	31	50%	1.0	4.0	6 camping units per acre
Fishing	27	30%	1.5	2.5	10 acres per fishing party; 10 anglers per mile of stream.
Power Boating	28	65%	2.0	3.0	10 acres per power boat.
Hiking	26	60%	2.0	2.5	12 parties per mile. Minimum trail length – 3 miles.
Water Skiing	28	65%	2.0	3.0	20 acres per boat and skier.

SOURCE: Assessment and Policy Plan 1991-1995, State Comprehensive Outdoor Recreation Plan

ATTACHMENT NO. 17

POPULATION AND POPULATION DENSITIES FOR NEBRASKA COUNTIES

2005

County	July 1, 2005 Population Est.	Land Area	Population Per Square Mile	County	July 1, 1999 Population Est.	Land Area	Population Per Square Mile
Adams	33,070	562	58.84	Jefferson	8,288	577	14.36
Antelope	7,004	853	8.21	Johnson	4,695	377	12.45
Arthur	378	704	0.54	Kearney	6,774	512	13.23
Banner	733	738	0.99	Keith	8,330	1,032	8.07
Blaine	484	711	0.68	Keya Paha	902	768	1.17
Boone	5,772	683	8.45	Kimball	3,782	953	3.97
Box Butte	11,374	1,065	10.68	Knox	8,916	1,107	8.05
Boyd	2,261	538	4.20	Lancaster	264,814	845	313.39
Brown	3,328	1,216	2.74	Lincoln	35,636	2,522	14.13
Buffalo	43,572	949	45.91	Logan	740	570	1.30
Burt	7,455	483	15.43	Loup	686	574	1.20
Butler	8,720	582	14.98	McPherson	507	856	0.59
Cass	24,734	555	46.37	Madison	35,488	572	62.04
Cedar	9,066	742	12.22	Merrick	8,066	480	16.80
Chase	3,866	890	4.34	Morrill	5,165	1,402	3.68
Cherry	6,098	5,966	1.02	Nance	3,666	439	8.35
Cheyenne	9,993	1,186	8.43	Nemaha	6,965	400	17.41
Clay	6,733	570	11.81	Nuckolls	4,739	579	8.18
Colfax	10,433	406	25.70	Otoe	15,509	619	25.05
Cuming	9,688	571	16.97	Pawnee	2,878	433	6.65
Custer	11,410	2,558	4.46	Perkins	3,057	885	3.45
Dakota	20,349	255	79.80	Phelps	9,449	544	17.37
Dawes	8,636	1,386	6.23	Pierce	7,600	573	13.26
Dawson	24,617	975	25.25	Platte	31,262	667	46.87
Deuel	2,004	436	4.60	Polk	5,421	432	12.55
Dixon	6,155	475	12.96	Red Willow	8,732	686	15.88
Dodge	36,078	528	68.33	Richardson	9,330	550	16.96
Douglas	486,929	335	1,453.52	Rock	1,567	1,009	1.55
Dundy	2,133	921	2.32	Saline	14,195	575	24.69
Fillmore	6,385	577	11.07	Sarpy	139,371	239	583.14
Franklin	3,421	578	5.92	Saunders	20,458	759	26.95
Frontier	2,795	962	2.91	Scotts Bluff	36,752	726	50.62
Furnas	5019	722	6.95	Seward	16,739	571	29.32
Gage	23,306	858	27.16	Sheridan	5,668	2,462	2.30
Garden	1,997	1,678	1.19	Sherman	3,112	567	5.49
Garfield	1,816	569	3.19	Sioux	1,458	2,063	0.71
Gosper	2,020	464	4.35	Stanton	6,534	431	15.16
Grant	670	764	0.88	Thayer	5,436	577	9.42
Greeley	2,512	570	4.41	Thomas	623	716	0.87
Hall	55,104	537	102.61	Thurston	7,365	388	18.98
Hamilton	9,568	537	17.82	Valley	4,402	569	7.74
Harlan	3,462	556	6.23	Washington	19,772	386	51.22
Hayes	1,027	711	1.44	Wayne	9,211	443	20.79
Hitchcock	2,970	712	4.17	Webster	3,762	575	6.54
Holt	10,784	2,405	4.48	Wheeler	820	576	1.42
Hooker	689	722	0.95	York	14,397	577	24.95
Howard	6,540	564	13.73				

Source: DNR Data Bank

ATTACHMENT NO. 18

RECREATION DEMAND CALCULATIONS

Example Recreation Site

Step 1 ESTIMATE POPULATION IN RECREATION MARKET AREA

Population = 60,000 for Picnicking
120,000 for Tent Camping

Step 2 ESTIMATE TOTAL DEMAND

Recreation Activity	Units	Population A (Step 1)	% Pop Participating B (Att. 15)	Participation Activity Rate C (Att. 15)	Day Demand in RMA D=A*B*C	% Activity on Peak Days E (Att. 16)	Activity Day Demand of Peak Days F=D*E	# Peak Days G (Att. 16)	Average # per Party H (Att. 16)	Turnover Rate I (Att. 16)	Peak Day Use Factor J=G*H*I	# Parties on Peak Days at One Time K=F/J	Carrying Capacity (Parties/Units) L (Att. 16)	Units Needed M=K/L
Picnicking	Tables	60,000	0.346	8	166,080	0.6	99,648	17	4	2	136	733	1	733
Tent Camping	Sites	120,000	0.181	8	173,760	0.5	86,880	31	4	1	124	701	1	701

Step 3 CALCULATE UNMET DEMAND

Recreation Activity	Units	Total Demand A Step 2, Column M	Total Supply B	Unmet Demand C=A-B	Provided By Project D	Remaining Unmet Demand E=C-D
Picnicking	Tables	733	450	283	70	213
Tent Camping	Sites	701	300	401	20	381

Step 4 CAPACITY OF PROPOSED PROJECT

Recreation Activity	Units in Project A (< or= Step 3, Column C)	Parties per Unit B (Att. 15)	Peak Day Use Factor C (Step 2, Column J)	Activity Days Peak Days E	% Activity on Peak Days E (Att. 16)	Total Activity Days F=D/E
Picnicking	70	1	136	9,520	0.6	15,867
Tent Camping	20	1	124	2,480	0.5	4,960
Totals:						20,827

Step 5 VALUE OF RECREATION BENEFITS OF PROJECT

Recreation Activity	Total Activity Day A (Step 4, Column F)	Recreation Day B=A/2	Value per Recreation Day C	Recreation Benefits D=B*C
Picnicking	15,867	7,933	7.03	$55,771.33
Tent Camping	4,960	2,480	7.03	$17,434.40
Totals:				$73,205.37

ATTACHMENT NO. 19

INVENTORY OF FACILITIES IN RECREATION MARKET AREA – EXAMPLE

	BEACH SWIMMING		PICNICKING	TENT CAMPING			
	Acres Water	**Acres Land**	**Tables**	**Sites**			
Comunities:							
Norfolk			244				
Clarkson			28				
Leigh			30				
Madison			50				
Battle Creek			20				
Beemer			12				
Carroll			5				
Howells			12				
Stanton			21				
Wayne			35				
Wisner			44				
Columbus			40				
Schuyler			13				
West Point			30				
Recreation Areas:							
Wood Duck				7			
Yellow Banks				6			
Pilger Reservoir	.14	.46	20	5			
TOTALS:	.14	.46	604	18			
Planned for Project:	.17	.57	70	20			

ATTACHMENT NO. 20[1/]

2004

FARMLAND VALUES

Average Reported Value Per Acre of Nebraska Farmland for Different Types and Grade of Land in Nebraska by Agricultural Statistics District, February 1, 2005.

Type of Land & Grade	Agricultural Statistics District (See Map on Attachment No. 9)							
	NORTH-WEST	NORTH	NORTH-EAST	CENTRAL	EAST	SOUTH-WEST	SOUTH	SOUTH-EAST
	Dollars Per Acre							
Dryland Cropland (No Irrigation Potential)								
Average	330	447	1,382	847	2,024	495	864	1,396
High Grade	375	565	1,805	1,095	2,400	575	1,025	1,770
Low Grade	250	360	1,085	635	1,615	385	645	1,070
Dryland Cropland (Irrigation Potential)								
Average	450	579	1,696	1,286	2,395	606	1,330	1,642
High Grade	550	800	2,035	1,555	2,740	740	1,580	2,020
Low Grade	350	500	1,390	865	1,875	495	995	1,230
Grazing Land (Tillable)								
Average	225	330	919	658	1,075	316	640	830
High Grade	250	500	1,145	875	1,350	405	700	925
Low Grade	180	315	765	550	825	270	470	640
Grazing Land (Nontillable)								
Average	191	269	706	543	784	273	482	629
High Grade	225	355	820	630	950	330	550	725
Low Grade	155	215	550	440	600	215	380	495
Hayland								
Average	383	438	780	600	928	416	600	669
High Grade	460	535	910	715	1,305	615	670	845
Low Grade	310	335	650	450	810	340	430	560
Gravity Irrigated Cropland								
Average	975	1,183	1,980	2,153	2,691	1,365	2,021	2,173
High Grade	1,210	1,440	2,150	2,580	3,120	1,670	2,165	2,390
Low Grade	620	925	1,585	1,500	2,265	925	1,455	1,690
Center Pivot Irrigated Cropland[2/1]								
Average	924	1,342	2,234	2,140	3,042	1,279	2,144	2,414
High Grade	1,165	1,575	2,510	2,500	3,390	1,590	2,290	2,560
Low Grade	680	895	1,820	1,500	2,410	985	1,470	1,875

[1/] This attachment is revised annually by Department of Natural Resources staff.

[2/] Value of pivot not included in per-acre value.

SOURCE: ***2005*** NEBRASKA FARM REAL ESTATE MARKET DEVELOPMENTS SURVEY. Department of Agricultural Economics, University of Nebraska-Lincoln

ATTACHMENT NO. 21

OPERATION AND MAINTENANCE COSTS

SUGGESTED RATE FOR AVERAGE ANNUAL COSTS

Control Measure	Percentage of Engineers Estimates Of Construction Costs (Excluding Land Prices)
Waterflow Control Measures	
a. Floodwater retarding structures	.75
b. Concrete and asphalt lined channels, reinforced concrete chutes	1.25
c. Levees and dikes, major desilting basins	1.25
d. Channel improvements – floodways	1.50
e. Other	1.75
Drainage Measures	
a. Covered drains and appurtenances	.75
b. Open drains and appurtenances	1.25
Irrigation measures	
a. Water supply reservoirs	.75
b. Canal laterals	1.25
c. Diversion dams and canal headworks	1.75
Non-Agricultural Water Management Measures	
a. Water supply reservoirs	.75

Operation and maintenance costs required on special items such as pumping plants, pipelines, etc. will vary so greatly no attempt is made to provide a rate. Applicants should work closely with persons who are familiar with these special items in developing suitable rates for such facilities.

Recreation Projects

For recreation projects, use $1.45 per recreation day (from Nebraska Game and Parks Commission).

ATTACHMENT NO. 22[1/]

LOAN INTEREST RATE

FISCAL YEAR 2006*

Data Used to Calculate Rate:

FY 2003			FY 2004			FY 2005		
2003	JULY	4.74	2004	JULY	4.87	2005	JULY	4.31
	AUG.	5.10		AUG.	4.70		AUG.	4.32
	SEPT.	4.92		SEPT.	4.56		SEPT.	4.29
	OCT.	4.89		OCT.	4.49		OCT.	4.48
	NOV.	4.73		NOV.	4.52		NOV.	4.57
	DEC.	4.65		DEC.	4.48		DEC.	4.46
2004	JAN.	4.61	2005	JAN.	4.41	2006	JAN.	4.37
	FEBR.	4.55		FEBR.	4.35		FEBR.	4.41
	MARCH	4.41		MARCH	4.57		MARCH	4.44
	APRIL	4.82		APRIL	4.46		APRIL	4.58
	MAY	5.07		MAY	4.31		MAY	4.59
	JUNE	5.05		JUNE	4.23		JUNE	4.60
		4.80			4.50			4.45

FY 2005 RATE = 36–MONTH AVERAGE = 4.58% Rounded to nearest ⅛% = 4 ⅝%

[1/] This attachment is revised annually by Department of Natural Resources staff.
SOURCE: Website: www.federalreserve.gov

* In effect for the period September 1, 2006, through August 31, 2007.

SECTION THREE **APPENDIX A**

TECHNICAL FEASIBILITY

I. GENERAL

The basis for the requirements regarding technical feasibility are contained in the Statutes and the NRDF Rules and Regulations. They also provide the basis for exceptions to the requirements for a complete technical section of the feasibility report.

A. OBJECTIVE:

The authority and responsibility for requiring that technical feasibility be proven is contained in Sections 2-1592 and 2-1594 of the Statutes, on page 115-116, Chapter 2 of the NRDF Rules and Regulations, pages 98-104, states that a project can be considered technically feasible when it can be designed, constructed, or otherwise implemented to accomplish the purpose(s) for which it was planned, utilizing accepted engineering and other technical principles and concepts.

B. PROJECT SPONSORS:

If the project is small (total cost of $150,000 or less), with simple technical measures, and the project proposal is found to be adequate, the Director may advise the Commission of such finding, and waive the requirement for a detailed technical section of the feasibility report. The Director may appoint a staff member, and/or a consultant, experienced in the design and/or construction of similar projects and familiar with local material and construction costs, to determine the technical feasibility and estimated cost. The Director's representative(s) will confer with the applicant and any persons the applicant needs for assistance, such as contractors, and visit the proposed site as often as necessary to produce a professional opinion on feasibility and reach mutual agreement with the applicant on the project cost.

II. TECHNICAL SECTION OF FEASIBILITY REPORT:

Proof of the technical feasibility requires clear demonstration of compliance with applicable laws and codes and that accepted resource management, engineering, and other technical principles and concepts have been utilized. Basic to this proof are competent studies of all complex technical aspects of the project, such as hydrologic, geologic, and water quality studies. These studies should be commensurate in detail with the size and complexity of the project and the degree of potential impact on public health and safety.

Projects may be single-purpose or multi-purpose (see Chapter 1-004, NRDF Rules and Regulations) and both types could consist of one or more measures, increasing the complexity of the project. The complexity of the project should be an important determinant in the length of the technical section and the degree of detail in it. One of the controlling factors in the amount of information and the degree of detail required in every part of the technical section should be the need to show

The estimated cost of the project for proof of economic feasibility. In most cases, a project can be designed to work and be safe; making it meet economic feasibility requirements as well can be difficult.

The Technical Section could have as many as three parts: (1) the project description, which must be in the report, (2) maps and plans appended to the report if they can't be bound in it; and, (3) an appendix presenting documentation of factors influencing design of the plan and all features of it. If all maps and plans are small enough to be bound in the report, the only appendix required will be the design documentation.

A. TEXT OF THE TECHNICAL SECTION:

The text must be detailed and complete enough to provide a description that will produce a good understanding of all the features of the project. The tables that supplement, and are keyed to, the plans must be detailed and complete enough to show the quantities of all materials that contribute significantly to the cost of the project. One of the most important factors in determining the type and amount of information that must be presented, and the degree of detail in it, is the ability to show the amount of all types of materials and the work required to construct or implement the project.

The type of information required will depend largely on the types of measures or structures, but the following sections will provide a guide to the requirements:

.

1. Administrative and Legal Factors

Describe the sponsor's criteria and decisions relating to the purposes and objectives of the project, for example:

Selection of a level of flood protection by a levee different from 100-year protection and the criteria and reasons for that decision.

A sponsor's decision to exclude recreation as a purpose in a project and the factors leading to that decision

List the criteria or regulations followed in planning, including:

Controlling laws or codes, e.g.:

the Department of Water Resources' Rules for Surface Water,

the Natural Resources Commission's Minimum Standards for Floodplain Management Programs

the Board of Public Roads Classification and Standards

Local regulations and building codes

References, e.g.:

NRCS Handbooks, Technical Releases, and Design Notes,

Bureau of Reclamation's "*Design of Small Dams,*"

engineering and design manuals published by the Corps of Engineers

Joint use design considerations, e.g., road structures

2. General Physical Factors

Describe the physical characteristics of the project area and the structures or erosion control measures, including:

Topographic features such as rivers or bluffs, or existing structures or infrastructure, that influence project location or measures selected.

Features of the project area that determine the hazard classification of a dam under the Department of Water Resources' rules

Location, type, and size of planned measures, with:

Table 1 for dams and other storage structures,

Table 2 for channels and canals

Construction material (type and quality)

The effect of the proposal on the development and/or operation of existing or envisioned projects, if the proposal is to purchase land rights to preserve future development opportunities

3. General Physical Factors

Describe the geotechnical characteristics of the project area and the structures, for example:

Foundation conditions

Borrow areas and materials for embankments

Erosion characteristics

Describe any geotechnical investigations made to support planning and the results of those investigations, including:

Geologic drilling, with logs of borings

Soil mechanics report based on a soils investigation

4. Hydrologic and Hydraulic Factors

Describe the hydrologic and hydraulic characteristics of the watershed and project area, including the following where appropriate:

Water budget, including:

average annual runoff in the drainage area,

base flow in streams,

evaporation loss,

seepage loss,

other water contributions and losses

Flood discharge/frequency, including:

routing through a dam,

peak discharge from a structure

freeboard requirements

Floodplains impacted, including:

the extent of jurisdiction of any governmental entity participating in the National Flood Insurance Program,

all data needed to support floodplain map revision if the base flood elevation or floodway delineation is affected,

information needed by any affected community to ensure that local floodplain development permit programs are followed (See Appendix E – Legal Data)

Groundwater data, including for example:

permeability and water holding characteristics,

current levels and predicted change,

effect on surface flow

Water quality

Describe any hydrologic and hydraulic investigations and their results, including the following where appropriate:

Collection of supplemental precipitation data

Flood plain and channel cross-section surveys

5. Quantity and Cost Estimates

Describe the factors used in estimating project cost, including:

The type and quantity of materials to be used in construction, and/or the type and time of machinery and labor required

The unit costs[1]

The total costs for all significant parts of the project

The sources of costs used, if appropriate

The type and quantity of land rights required and the costs

Other significant costs of the project, e.g.:

operation, maintenance and replacement costs,

construction inspection costs,

contingency costs

Summarize all quantities and costs in Tables 3 and 4

B. MAPS AND PLANS

The content of maps and plans needed to demonstrate technical feasibility will depend on the types of measures used in the project. One of the most important factors in determining the type and amount of information that must be presented, and the degree of detail in it, is the ability to show the amount of all types of materials and the work required to construct or implement the project. Maps and plans that are too large to be bound into the report should be appended to it.

The following sections provide only a guide to the information that should be included; judgment will be required to determine all that is needed in each case.

1. All Types of Projects

Map of project location, showing:

Project name,

Drainage area,

Location of lands affected by the project,

---

[1] If needed, unit costs are available from the Nebraska Department of Roads or the NRC. The Department of Roads publishes an annual summary entitled, "*Awarded Bids Average Unit Prices*" which can be obtained from that department. The NRC does not have data of its own, and the data is not included in the NRD's economic data, but copies of Roads' publication can be made available.

Location of planned measures,

Legend, with symbols used

Land rights map, if rights are affected

2. Dams, Grade Control Structures, and Other Instream Structures

Plan of the project, showing:

Topography of the existing ground, and final configuration if earthwork is required

Location and dimensions of all structures

Location and dimensions of all components of the structures, including embankments, spillways, gates, cutoffs, drains, slope protection, energy dissipators, outlets, and others, in sufficient detail to allow determination of quantities of materials for estimating costs

Sections of structures detailing materials and dimensions, adequate for estimating quantities

Slope protection detail

Profile along centerline of principal spillway

Profile along centerline of emergency spillway

Profile along centerline of structure

Map of flooded areas, showing:

FEMA flood plain delineations, if applicable

Area flooded before and after construction at design flows

Location of any human developments flooded and/or benefited, with key to benefits tables

3. Levees, Channels and Canals

Plan and profile sheets, showing:

Topography of the existing ground and final configuration if earthwork is required

Location, alignment and elevations of the structure to be built or natural channel to be protected

Reaches with uniform characteristics, or points of change in characteristics

Location and dimensions of all components of the structure and/or measures, including embankments, spillways, gates, drains, slope protection, erosion control, etc.

Location and dimensions of appurtenant structures, such as bridges, culverts, gated inlets, etc.

Sections and details of appurtenant structures showing materials and dimensions adequate to support estimation of quantities

Location and details of any relocations, such as roads, residences, etc.

Water surface profiles

Cross-sections of channels and levees, with:

Dimensions and slopes for each reach

Construction material (type and quality)

Tables of flow capacity for reaches

Map of flooded areas, showing:

FEMA flood plain delineations

Area flooded before and after construction at design flows

Location of any human developments flooded and/or benefited, with key to benefits tables

4. Water Supply and Distribution Systems

Plan of the project source (except dams), with:

Topography of the existing ground, and final configuration if earthwork is required

Location and cross-sections of wells, pumps, and appurtenant structures, showing details and dimensions adequate to support estimation of quantities

Location and profile of inlet and outlet facilities, such as pipes or channels

Legend, with symbols

Plan of distribution system, with:

Location and profile of pipes, canals, channels, irrigation turnouts, or seepage facilities

Location, sections and details of appurtenant structures, including storage tanks, showing materials and dimensions adequate to support estimation of quantities

Legend, with symbols

Water table map (if recharging)

Map of area benefitted by recharge

5. Floodproofing and Relocation

Map of flooded areas, showing:

FEMA flood plain delineations or area flooded at design flows

Location of any structures or other human developments flooded, with an identification code keyed to descriptive tables

Land rights/parcels

Legend, with symbols

Water surface profiles at design flows

Typical plans and architectural elevations, with:

Details of floodproofing measures for various categories of structures

Configuration of the ground and landscaping details after a structure is removed

Map of relocation area, showing:

Existing structures and infrastructure

Sites for relocated structures

Land rights/parcels

6. Purchase of Land or Water Rights

Preliminary plan of the future project, showing:

Topography of the existing ground

Preliminary location and dimensions of all project structures

Location of lands and structures affected by the future project

Land rights map

C. DOCUMENTATION OF DESIGN CONSIDERATIONS

Important factors in the planning and design of significant features of the proposed project should be documented to facilitate review and approval. Decisions with significant impact on the plans, including decisions regarding specific objectives or constraints, should be explained. For example, if the objective in designing a dam is to provide 100-year sediment storage capacity in a project with a 50-year life to protect water quality in a downstream lake, the effect on size and capacity of the structure and materials and costs should be documented. Similarly, if buildings on the opposite side of a flood plain and the need to minimize the rise in future flood levels constitute a constraint on the location of a planned levee, that constraint and the decisions affecting the design should be documented. This documentation should be included in an appendix to the report.

1. Social and Legal Factors

Describe the effects on the design, including the decisions made in designing the project, of the sponsor's criteria and decisions related to the purposes and objectives of the project, for example:

The effect on design decisions on factors such as freeboard of the sponsor's selection of 2000-year flood protection by a levee instead of 100-year protection

The effect on the size and location of a dam resulting from the sponsor's decision to eliminate recreation as a purpose in a project

The effect on design of decisions of the sponsoring entity, due to public concerns or limits of support, e.g.,:

Public concerns about use of eminent domain to acquire land restricting location of facilities

Existence of a cultural site that the public believes must be protected and the impact on design

Document the impact of legal and social objectives and constraints on decisions made in the design of the project, e.g.:

Lack of cooperation by a neighboring governmental entity to which the project might extend

Projections of population growth and impact on demand for water

2. General Physical Factors

Document the impact of general physical constraints in the project area on decisions made in the design of the project, e.g.:

The existence of topographical features that affect the location of a structure or the type of structure chosen and the extent of the impact on design decisions

Uncertainty about the location of existing infrastructure, such as water mains or communications cables, leading to a decision to increase the contingency for relocation costs

The rationale for selecting the hazard classification of a dam and the factors that dictated how conservative the classification was

3. Geotechnical Factors

Document the impact of geotechnical objectives and constraints on decisions made in the design of the project, e.g.:

Data in boring logs that affects the type of foundation selected

Soils data, or lack thereof, that leads to a decision to use flatter-than-minimum slopes for embankments to be conservative in design, the degree of conservatism, and the impact on estimates of quantities and cost

4. Hydrologic and Hydraulic Factors

Document the impact of hydrologic and hydraulic objectives and constraints on decisions made in the design of the project, e.g.:

Uncertainty caused by the lack of stream gaging data, or precipitation data in the watershed, and its effect on selection of discharge at design frequencies

Lack of historical flood data for calibrating HEC-2 computations and the effect on decisions on roughness coefficients, and how conservative the selected coefficient was

Availability of only preliminary data on the specific yield and transmissivity of the aquifer in the project area, and the effect on selection of those parameters for estimating the amount of recharge and its impact on the estimate of benefits – a short period of record and incomplete data on the quality of water in a stream, and the resulting uncertainty about the potential quality of an impoundment, and impact on potential recreation activities and benefits

5. Quantity and Cost Estimates

Document the impact of decisions in the preceding sections, and other factors, on the estimates of quantities and cost of the project, including for example:

The level of confidence placed in the accuracy and level of detail of the available data and its impact on the degree of conservatism used in selecting unit prices, labor required, etc.

The rationale for selecting the percentage of project costs used for OM&R, construction inspection, and contingencies

SECTION THREE **APPENDIX B**

ECONOMIC FEASIBILITY

GENERAL

The primary purpose of the economic feasibility analysis is to determine if the proposed project is economically justified, that is,whether primary, tangible benefits exceed total project costs to the extent required by the Commission. Such an analysis should also demonstrate the need for the project, provide guidance for project development, and provide sufficient data to evaluate the economic desirability of alternatives.

The basic objective in the economic evaluation of a project is to compare the value of the items and services produced, protected, or conserved with the value of the costs incurred. To arrive at comparable results, it is necessary that uniform assessment techniques be utilized for pricing project goods and services; project effects be evaluated from a similar point of view; project effects of a project be determined on an appropriate base; and consistent assumptions regarding the general economic setting be used.

A project will be considered economically feasible if:

1) Primary tangible benefits exceed project costs to the extent required by the Commission; and
2) In the case of projects that have a NRDF cost over $100,000, each project purpose provides benefits equal to or greater than its separable or specific cost (ATTACHMENT NO. 1, page 40) as specified by the Director; and
3) There must be no known means of accomplishing the same purpose or purposes more economically.

Following submission by the applicant of all information and analysis used in deriving the “Cash Flow Stream” (ATTACHMENT NO. 2, page 41), benefits and costs will be analyzed by the Director to determine the “Rate-of-Return on Investment.” This analysis will treat project costs as an investment and utilizes benefits in determining return on the investment. In accordance with Chapter 2, Section 014.04 of the Rules and Regulations, the Commission requires a minimum rate-of-return of 3.0% for a project to be considered economically feasible at this time. This minimum rate-of-return is subject to change by the Commission.

The purpose of this section is to provide instructions which will guide applicants in the preparation of benefit and cost information which is needed to complete most applications. The kinds of projects covered include, but are not necessarily limited to, flood control, irrigation, outdoor recreation, groundwater recharge, and sediment and erosion control. Before beginning an economic evaluation, an applicant should contact the Administrative Coordinator of the NRDF Program for guidance on use of the Guidelines as applied to the particular project.

STANDARDS RELATING TO INFORMATION:

In preparing economic information about the project, applicants are reminded of the following:

1. All economic feasibility analysis is to be based on current conditions; for example, land use, population, level of development, crop prices, etc. unless otherwise authorized by the Director. All

monetary data is to be expressed in current dollars. Prices for farm commodities, livestock, and recreation which are to be used in preparing the application are provided by the Director (see attachments in this section).

2. All data must be documented as to source and method of derivation.

3. The life of a project, for economic purposes, may be no longer than 50 years. The life of a project begins when the sponsor begins receiving reimbursement through the NRDF.

ANALYSIS OF BENEFITS AND COSTS:

Only primary, tangible benefits as identified in the Definitions Section of these Guidelines may be used in determining economic justification. Secondary and intangible benefits should, however, be described in narrative form to assist the Director and Commission in making a comprehensive evaluation of the project. Likewise, any benefits based on future conditions that may relate to the project should be described and projected. Although these benefits cannot be counted, they are a factor that merits consideration in project evaluation.

The estimation of benefits should proceed from the basis that benefits are comprised of the increased net values (expressed in current dollars) of products and services and/or reduction in costs or damages which accrue to primary beneficiaries as a result of the project. The following descriptions of benefit calculations represent estimates which can be made for most projects. Alternative estimating methods may be utilized, if justified and approved by the Director prior to the submission of the project application and feasibility report.

FLOOD CONTROL:

Several methods are presently available for the evaluation of flood control costs and flood control benefits. The following items contain some of those detailed methods:

Residential:

An appraisal of the residential area within the 100-year flood plain should be made (after defining the 100-year flood plain) to determine locations, values, and elevations of houses. The area should also be evaluated as to the extent of public facilities which would or could be flooded. Coinciding with this should be a water depth determination and configuration of at least three (3) floods (i.e.: 100-year, 50-year, and 25-year) for the area and the associated depths of each. When this information has been assembled, damage per flood can be calculated by applying the depth damage factors in ATTACHMENTS NO. 3 and 4 (pages 45 and 46).

The total damages for floods should then be converted to average annual damages (see "*Average Annual Damages*").

Commercial:

Damages to businesses and commercial areas should also be estimated using steps in the residential section above. After an initial value estimating survey, it is suggested that some of the business owners be interviewed. These interviews would assist in arriving at more accurate damage figures for items on hand in the business. These damages would vary with depth of flood waters. Depth damage factors in ATTACHMENTS NO. 5 and 6 (pages 47 and 48) may be used as a guide for smaller business establishments.

Average Annual Damages:[1/]

Total damages to residential and commercial areas, either estimated or actual, for each flood event assessed, along with that point where damage begins, should be graphed according to the probability of the floods (Example shown in ATTACHMENT NO. 7, page 49). The area under the damage curve can then be measured with a planimeter or calculated mathematically to determine average annual damages for present conditions. A similar damage curve is then constructed for conditions "with" the project, and the difference (damage reduction) will be the project benefits.

Crop and Pasture:

A strip map (See ATTACHMENT NO. 8, page 51) showing the location of the cross-sections and crops by type should be developed for each segment or segments to be analyzed. Farm Service Agency (FSA) aerial photography, recent land use maps, or on-site inspection may be used in locating crops in the project area.

Using crop distribution data, from that data established on the strip map, recommended crop yields (ATTACHMENT NO. 9, page 53), and recommended five-year average prices (ATTACHMENT NO 10, page 52), a "composite damageable value per acre of flood plain" table can be constructed (ATTACHMENT NO. 11, page 53).

The damage rate per acre flooded at different depths is then calculated multiplying the damageable value per acre flooded by a depth damage factor (ATTACHMENT NO. 12, page 54). Results are to be put in table form (ATTACHMENT NO. 13, page 55), which demonstrates the damages for depths 0-3 feet.

Following this, the acres flooded for depths 0-3 feet, should be determined for at least three (3) flood events (100-, 50-, and 25-year). The acres flooded at each stage depth (0 to 1 foot; 1.1 to 3 feet; and over 3 feet) per flood event is then multiplied by the damage rates developed in ATTACHMENT NO. 13 to arrive at the total damages attributable to each flood.

The total damages per flood event and the point where damage would begin may then be plotted on a graph against the probability of the flood (example shown on ATTACHMENT NO. 7). The area under the damage curve can then be measured with a planimeter or calculated mathematically to determine the average annual damage for present conditions. A similar damage curve should be constructed for conditions with the project and the differences between the two, or the damage reduction, will be the resulting project benefits.

The above procedure is to be followed for each cross-section and the cross-sections should not be more than two (2) miles apart, depending upon channel or watershed characteristics.

Other Rural:

Damages to farm equipment and fences, livestock losses, and other rural damages may also be included. Benefits from reducing these damages must be documented and related to specific events.

Road and Bridge:

Estimates of damages to roads, bridges, and railroads may be obtained from engineers, county commissioners, or other sources. The estimates should be related to specific events and depths of flooding.

[1/] The Commission has a computer program that will compute average annual flood damages, but it requires the same data input.

If the evaluation includes replacement of bridges, the maximum benefits will be the value of similar structures or the least cost alternative structure to provide the existing level of service.

Indirect:

Indirect benefits will not be allowed. Only primary, tangible benefits as defined in the Definitions Section of these Guidelines may be used in determining economic justification.

SEDIMENT AND EROSION:

It is normally assumed that benefits from sediment and erosion reduction are accounted for in the calculation of flood damage benefits. However, additional damages may occur due to overbank deposits, crop damage, disruption of irrigation or drainage facilities, channel filling, water turbidity, facility or equipment damage, reservoir deposition or land voiding. For such benefits to be claimed separately, it must be shown that sedimentation and erosion damages are clearly in excess of flood damages. The NRCS State Geologist can provide guidance regarding the determination of benefits associated with the reduction of flood plain scouring and sediment deposition. Benefits from reduction of sedimentation in existing reservoirs will be permitted only if the project will reduce the rate of sedimentation below the design rate.

Estimation of the project benefits relating to erosion and sedimentation control should be based upon the annual damages which are to be prevented or reduced by the project. Although land treatment by the landowner may accompany the project, the portion of benefits attributable to such land treatment may not be included in the calculation of total project benefits. Additionally, damages to buildings, fences, roads, irrigation ditches, etc., must be documented and estimated on the basis of cost to repair, cost to remove sediment, or reduction in facility value.

IRRIGATION:

Of primary concern in measuring irrigation benefits is the increase in annual net income resulting over the life of the project from the increased production of agricultural crops. In calculating the irrigation benefits, current costs and returns will be used. These benefits consist of the following:

1. The value of increased production of agricultural crops less any increase in variable production costs, cost of land treatment measures, and other on-farm capital expenditures associated with the increased production and/or improved water management;
2. Reduced cost in the operation and maintenance of the present irrigation facilities.

The information for conditions with and without the project can be recorded in ATTACHMENT NO. 14 (page 56). This includes acreages of each irrigated and non-irrigated crop, crop yields and values based on information from ATTACHMENTS NO. 9 and 10 (pages 51 and 52), and crop production costs. The most recent crop production costs from the Department of Agricultural Economics at the University of Nebraska-Lincoln can be used for calculating annual net income.

GROUNDWATER RECHARGE:

Benefits from groundwater recharge shall be limited to the existing level of development and they shall be from:

1) Savings in pumping costs associated with reduced lift.

2) Net income associated with extension of aquifer life.

These benefits will be limited to the area which can be demonstrated to be affected by the project.

Annual reduced pumping costs can be estimated by the following formula:

> Annual cost savings = (pumping costs per acre foot per foot of lift) (cumulative change in average lift) (acre feet of water pumped without recharge)

Pumping costs per acre foot per foot of lift can increase significantly with reduced well capacity as the aquifer approaches depletion.

Annual recharge benefits from extended aquifer life will be realized only after the aquifer level is reduced sufficiently to cause reduced well capacity. The annual benefits can be estimated from the following formula:

> Annual recharge benefits from aquifer extension = (value of an acre foot of irrigation water) (acre feet of water pumped with recharge - acre/feet of water pumped without recharge)

The value of an acre foot of irrigation water shall be determined in the same manner as for irrigation benefits in the preceding section.

FISH AND WILDLIFE:

Because of the difficulty of quantifying the economic benefits from fish and wildlife habitat, no generally accepted method has been developed and benefits claimed will not be allowed unless the method of analysis has been approved by the Director prior to the submission of the project application and feasibility report.

RECREATION:

Outdoor recreation projects must include adequate land acquired in fee title to allow for the planned activities, to provide for proper management of the project, and to avoid conflict with adjoining private lands. Outdoor recreation benefits related to the project will be stated in dollars and will be based on the number of anticipated annual recreation days at the project site. Project designs must have enough detail to determine the appropriateness of the benefits claimed. This section provides an example of procedures which may be utilized in estimating:

1. The demand for recreation;
2. The supply which exists to meet the demand; and,
3. The amount of unsatisfied demand which the project can be expected to meet.

Demand Estimates:

Demand estimates are based on population and recreation data.

The population of concern is that within the recreation market area. An estimate of this population is used with information contained in ATTACHMENTS NO. 15 and 16 (pages 57 and 58) to estimate the anticipated demand for each recreation activity planned for the project. The boundary for the recreation market area (RMA) is a circle enclosing the region from where 80 percent of the project's users originate. The circle's radius is measured in miles and is determined by applying the following RMA formula:

$$\text{Radius of Recreation Market Area (in Miles)} = 69.473 + (.125 \times X_1) - (209.616 \times X_2) - (.004 \times X_3)$$

Where X_1 = acres of water

X_2 = acres of water/total (land + water) acres of project

X_3 = (Population density per sq. mile within 25 miles)^2

Projects expected to have very good water quality may add an additional 24.4 miles to the results of the RMA formula. In order to claim these additional miles, the applicant must substantiate high water quality. The following should be addressed: The low-flow characteristics of the contributing stream, present land use and the degree of adequate land treatment in the watershed, the extent of irrigation and irrigation runoff above the planned project, the results of systematic water quality sampling in the contributing stream, the presence and status of treatment of any feed lots and wastewater facilities, along with factors that affect suspended sediment such as soil types, reservoir orientation and fetch.

In areas of very high population densities, the Recreation Market Area formula may markedly underestimate the radius of the market area circle. For projects where this occurs, a distance of 20 miles should be used for the radius of the market area circle.

To get the population density to construct the circle, use the density of the portions of counties involved, figuring even distribution of population over county. Population densities can be obtained from ATTACHMENT NO. 17 (page 59) or from the latest estimates available from the Natural Resources Commission, Data Bank.

Benefit Calculation:

The major task in computing recreational benefits is to calculate the number of recreation days attributable to a project for its various recreation activities. A step-by-step explanation of the computation of recreation benefits for two activities is provided in the text that begins on page 34.

A second example of the calculation of recreation benefits is given in ATTACHMENT NO. 18 (page 60). This tabular layout illustrates the calculations for five example recreational activities. The procedures used are the same as those illustrated in the example in the text.

Step One:

Step one is to determine the population within the recreation market area. This is calculated using the county population estimates shown in ATTACHMENT NO. 17 (page 59) or from the latest estimate of the Natural Resources Commission, Data Bank. The recreation market area will enclose whole county populations and/or parts of county populations, depending on its size and location.

For market area circles that include partial areas of counties, proceed as follows:

1. Obtain latest population estimates for the towns in the county from the Natural Resources Commission, Data Bank.
2. Subtract the total town population from total county, to get rural.
3. Calculate percent of county in the circle and use that percent for rural plus the towns in the circle for a total (assume even distribution for farms.

In the following example, the population within the recreation market area was estimated to be 64,800.

Step Two:

The second step is the estimation of demand of two recreation activities, Beach Swimming and Picnicking.

Beach Swimming

64,800	-	population as defined in Step One.
X .391 25,337	-	proportion of population participating (ATTACHMENT NO. 15)
X 13.5	-	participation rate (ATTACHMENT NO. 15)
342,050	-	activity days of demand in recreation market area
X .40	-	percent of activity on peak days (ATTACHMENT NO. 16)
136,820	-	activity days on peak use days

The following formula then comes into use:

$$\frac{\text{Activity days on peak use days}}{\text{(Number of Peak Days)(Average Number of Persons/Party)(Turnover Rate)}}$$

Which translates into the following set of figures:

$$\frac{136{,}820 \text{ (from above)}}{(12)(2.5)(2.5)} = 1824$$

----(from ATTACHMENT NO. 16)

1824---Number of parties (groups) within the recreation market area expected to use beach swimming facilities on peak use days at one time.

The number of parties within the recreation market area has to be divided by the parties per acre of beach (ATTACHMENT NO. 16) to get the number of acres of beach required in the recreation market area. In this case:

$$\frac{1824}{174} = 10.48$$

However, since 30 percent of the parties are in the water at any one time (ATTACHMENT NO 16), the number of acres of beach needed is reduced to (10.48)(.70), or 7.34 acres.

To find the number of acres of water required for swimming in association with the acres of beach area, the following computations are included:

1,824	-	Parties
X .30	-	Percent of parties in the water (ATTACHMENT NO. 16)
547	-	Parties in the water
X 250	-	Square feet of surface water/party (ATTACHMENT NO. 16)
136,800	-	Total square feet of surface water needed – which needs to be divided by square footage/acre (43,560)

$\frac{136{,}800}{43{,}560} = 3.14$ Total acres of surface water needed for beach swimming in the area of primary influence

Therefore: 7.34 acres are needed for beach area, and

3.14 surface acres of water are needed for swimming

Picnicking

64,800	-	Population as defined in Step One
X .836	-	Proportion of population participating (ATTACHMENT NO. 15)
54,173		
X 8.5	-	Participation rate (ATTACHMENT NO. 15)
460,470	-	Activity days of demand in area of primary influence
X .60		Percent of activity on peak days (ATTACHMENT NO. 16)
276,282	-	Activity days on peak use days
276,282	=	1,645 parties on peak days
(21)(4)(2)	-	(from ATTACHMENT NO. 16)

Therefore, 1,645 tables are needed.

Step Three.

The third step is to calculate the supply and unsatisfied demand of the two recreation aspects. The supply is the sum of existing facilities as listed in the *STATE COMPREHENSIVE OUTDOOR RECREATION PLAN* (SCORP) plus any other projects which have subsequently been authorized for funding by the Nebraska Game and Parks Commission, the Nebraska Natural Resources Commission, or a Natural Resources District at the time of Project Proposal approval. The project sponsor may contact the Nebraska Game and Parks Commission for all data necessary to complete the calculation of existing recreation supply. ATTACHMENT NO. 19 (page 63) allows recording of the location of the facilities and the amount at each location. For these calculations the following method is utilized:

Beach Swimming

3.14	-	Surface acres of water needed
- .14	-	Acres of supply (S.C.O.R.P.)
3.00	-	*Acres of water still needed*
7.34	-	Acres of beach needed
- .46	-	Acres of Supply
6.88	-	*Acres of beach still needed*

From the information in ATTACHMENT NO. 19, the present supply in the recreation market area is .14 acres of water for swimming and .46 acres of associated beach. Thus, even with the addition of the project's .17 acres of water for swimming and .57 acres for beach, demand will greatly exceed supply. Consequently, benefits can be claimed for all swimming activity days at the facility.

Picnicking

From the information in ATTACHMENT NO. 19, the present supply of tables is 604, and the number required is 1,645. Since the project proposes 70 tables, the supply of tables will still fall short of demand by 971 tables.

Step Four: Capacity of Proposed Project

Activity days are the capacity of a proposed project and are calculated in this step.

For Swimming:

174	-	Parties/acre of Beach (ATTACHMENT NO. 16)
X .57	-	Acres of Beach (ATTACHMENT NO. 19)
99	-	Parties
X 75	-	Peak day use factor (12 *x* 2.5 *x* 2.5)
7,425	-	Activity days on peak days

To determine total activity days for swimming, this figure must be divided by the percent activity on peak days (ATTACHMENT NO. 16).

$$\frac{7{,}425}{.40} = 18{,}563 \text{ total swimming activity days}$$

For Picnicking:

70	-	(Tables)
X 168	-	(Peak day use factor (21 *x* 4 *x* 2))
11,760	-	Activity days on peak days

To determine total activity days for picnicking, this figure must be divided by the percent activity on peak days (ATTACHMENT NO. 16).

$$\frac{11{,}760}{.60} = 19{,}600 \text{ Activity days for picnicking}$$

Add the activity days together -

18,563	– Beach Swimming
19,600	– Picnicking
38,163	Total

Step Five. Value of Recreation Benefits of Project:

Once the number of activity days for each activity has been estimated, it is divided by two to get recreation days. The figure for total recreation days is multiplied by $5.74 (or Contact the NNRC for the latest Recreation Day Value) to estimate total recreation benefits.

$\frac{38{,}163}{2}$	=	19,082	- Recreation days
		X $5.74	- Value per Recreation Day
		$109,531	- Total annual benefits attributed to recreation

These procedures are utilized for all recreation aspects of a project.

CONSTRUCTION AND LAND RIGHTS COSTS:

These costs are to be estimated in current dollars and are to include engineering, fees, and contingencies (refer to TABLES 3 and 4 on pages 26 and 27). They are to be described separately in the text and listed jointly on the Cash Flow Sheet (ATTACHMENT NO. 20, page 64) according to the year money is to be spent. ATTACHMENT NO. 21 (page 65) can be used as a guide when estimating land rights costs. In cases where land or easements are donated, the value of the donation is to be included as a cost for purposes of calculating the rate-of-return.

COST ALLOCATION AND ECONOMIC JUSTIFICATION:

Multi-Purpose Project:

For allocating costs on a multi-purpose project that has a NRDF cost over $100,000, the "*Separable Cost-Remaining Benefits Method*" as described in the Natural Resources Conservation Service ECONOMICS GUIDE should be used. This method is shown on ATTACHMENT NO. 1 (see page 40).

Single-Purpose Project:

For a project designed for a single-purpose, project benefits will be compared to project costs in the economic analysis.

OPERATION, MAINTENANCE, AND REPLACEMENT COSTS:

For a description of operation, maintenance, and replacement costs, see ATTACHMENT NO. 21 (page 65) and the Final Feasibility, Section Three, Appendix C (page 66). These costs must be included in the total project costs; however, no funds will be granted or loaned for expenditure of such costs.

CASH FLOW AND INTERNAL RATE-OF-RETURN ON INVESTMENT:

For Nebraska Resources Development Fund projects, all benefit and cost data are presented in a table to show the annual cash flow for the life of the project. The cash flow stream is then used for a computer program that calculates the rate-of-return on investment. The Commission has adopted a minimum rate-of-return of 3.0% for any project to be eligible for NRDF assistance.

The rate-of-return on investment is the discount rate at which the net present worth of the project incremental cash flow is zero. It is also the discount rate at which the benefit/cost ratio is one to one.

The rate-of-return identifies the earning power of the money invested in a project. It will be one of the factors considered by the Commission to determine the priority of funding for projects. A Cash Flow Table is shown on ATTACHMENT NO. 2 (page 41).

Project sponsors not having access to the computer facilities necessary to calculate the internal rate-of-return on investment can calculate the net present value of the stream of benefits and the net present value of the stream of costs using a 3% discount rate, and calculate the benefit/cost ratio for the project. A project whose benefit/cost ratio is greater than 1.0 using the 3% discount rate will exceed the required 3% minimum rate-of-return required by the Commission. Once the cash flow stream is developed for a project, assistance in calculating the internal rate-of-return may be requested from the NRC staff.

INTEREST RATE FOR LOANS:

The interest rate for applicants seeking loans from the Resources Development Fund is determined by a three-year average of Aaa State-local bond yields. The average is rounded to the nearest 1/8th percent. ATTACHMENT NO. 22 (page 66) shows this interest rate.

FINANCIAL FEASIBILITY

A project is financially feasible if sufficient funds can be made available to complete the project, and if sufficient annual revenues can be obtained to repay the reimbursable costs and operate the project. The law requires projects to be financially feasible, as provided for in the NRDF Rules and Regulations and these Guidelines. If a loan is involved, it requires assurance that adequate O, M, & R will be conducted during the repayment life of the project and that the loan can be repaid.

Financial analysis serves as a planning tool in testing proposed projects for financial feasibility by indicating an upper limit on capital investment. Unless a proposed project can produce sufficient revenue or other income to recover the investment within the specified payment period and at the prescribed payment interest rate, the project normally should be deferred or redesigned to effect necessary reductions in capital cost.

A. OPERATION AND MAINTENANCE COSTS:

These are costs that have a continuous or periodic recurrence and are incident to project operations and relate to costs for pumpage, materials and supplies used in maintenance and repair, general labor, and project administration. Total operation and maintenance costs include both fixed and variable costs. A distinction between the two is necessary to determine annual repayment charges to contracting agencies.

1. Fixed costs are those common to the project as an entirety such as administrative overhead expenses, and those that do not depend upon the extent to which project facilities are used.
2. Recurring costs that depend on, and vary with, the extent the project is used are termed variable costs.
3. Replacement costs are recurring costs of replacing facilities or major items of facilities that have an economic life which is shorter than the project repayment period. This cost may appear often within the project repayment period. Replacement costs amount to investment of capital in addition to the original capital cost of a project.

B. CAPITAL AVAILABILITY

Financial costs of a project should be given in constant dollars, including engineering and technical contingencies. The sources of the necessary capital costs which are cited need to be specified.

C. REVENUE AVAILABILITY

In the determination of sufficient available revenues needed to cover the reimbursable project costs, a demand study is desirable. The purpose of the demand study is to determine revenue derived from prices per unit of project services.

Evaluation of willingness to pay, determined by spot interviews, is limited to the current population of beneficiaries. Since repayments are generally predicated upon future demand for project service, analysis of future services should be made on the basis of historical, future expected economic growth, and the influence of service charges. In the case of urban water supply, this analysis emphasizes review of projections of population growth in relation to the local economic base.

An adequate cash flow must be shown, and revenues must be at least equal to yearly disbursements. In the event that revenues are deficient in this respect, then there must be a reserve fund available to fulfill the obligation.

D. REPAYMENT

The repayment scheduling is a year-by-year analysis of the agency's or political subdivision's income and expenses of its projects and programs. The analysis shows operation, maintenance and replacement expenditures, payments into a reserve fund, payments of interest, and payments towards the retirement of the debt. The analysis should carry through each year of the repayment period, showing the manner in which project works will be paid. If a development period or build-up period is necessary for quantification of financial feasibility, this aspects is to be accounted for in the repayment analysis. The analysis should be consistent with the estimates of payment capacity determined previously, and should also be consistent with the period of years in which bond are to be issued or other types of financing are to be arranged.

For repayment scheduling, NRC/NRDF Form 02F2 must be completed.

E. FORM 02F1

For all project Applications and Feasibility Reports, NNRC/NRDF Form 02F1 must be completed.

Completed Form 02F1 and its accompanying information is to be attached to Form 02.

On NRC/NRDF Form 02F1 include the project name and complete the following:

1. **APPLICANT'S MOST RECENT FINANCIAL STATEMENT:**
   This is the applicant's most recent financial statement, budget document, or other documentation necessary to illustrate financial solvency of the applicant(s) political subdivision. Only one copy of the application needs to contain this document.

2. **LEGAL LIMIT OF TAXATION BY APPLICANT:**
   The limit established by statute, rule and regulation, etc., up to which the political subdivision(s) may levy taxes. Any restriction on the annual rate of increase in taxation should also be noted.

3. **RATE OF TAXATION CURRENTLY BEING LEVIED:**
   That rate set and utilized at the current time by the applicant or applicants if more than one.

4. **THE VALUE OF PROPERTY THAT MAY BE LOCALLY TAXED BY THE APPLICANT(S):**
   The current valuation of property upon which the taxes are levied.

5. **ANNUAL TAX REVENUE:**
   The amount of tax revenue used to carry out the applicant(s) programs during the present year.

6. **TREND OF ACTUAL VALUATION:**
   Is it stable, increasing or decreasing? By what percentage?

7. **RATE OF LOCAL DELINQUENCY:**
   The annual amount or percentage that would not be expected to be paid or not to be available for utilization by the applicant(s).

8. **LEGAL LIMIT OF REVENUE BOND INDEBTEDNESS:**
   That limit of debt in revenue bonds prescribed by law which the applicant may enter into.

9. **PRESENT REVENUE BOND INDEBTEDNESS:**
   Self-explanatory.

10. **LEGAL LIMIT OF GENERAL OBLIGATION BOND INDEBTEDNESS:**
    That limit of debt in general obligation bonds prescribed by law which the applicant may enter into.

11. **PRESENT GENERAL OBLIGATION BOND INDEBTEDNES:**
    Self-explanatory.

12. **OTHER DEBTS OR FINANCIAL COMMITMENTS WHICH MAY AFFECT THIS PROJECT**
    Self-explanatory.

13. **OVERLYING BOND INDEBTEDNESS:**
    Describe the sponsor's area of responsibility and its share of debts incurred for other purposes.

14. **EVALUATION OF FINANCIAL STATUS OF AGENCY FROM A FINANCIAL CONSULTING FIRM:**
    The latest audit of the applicant. Only one copy of the application needs to contain this document.

15. **IF A LOAN IS REQUESTED, COMPLETE NRC/NRDF FORM 02F2:**
    Information required for NRC/NRDF Form 02F2 is as follows:

    A. Income:

    1. **Quantity of Project Services Sold:**
       That volume (etc.) of services expected to be sold to a potential consumer(s) or user(s).

    2. **Price per Unit:**
       The amount of charge for the unit of service or commodity to be provided.

    3. **Revenue Expected to be Generated:**
       The amount of revenue expected to be returned by the project (annually).

    4. **Revenue from Taxes, if any:**
       Self-explanatory.

    5. **Other Revenues**
       Those that may arise from some other aspect of the project

    B. Outgo:

    1. **Operation & Maintenance Expense:**
       Those expected funds required to operate and maintain the project (annual cost).

2. **Replacement Cost:**
   That amount offset to a replacement reserve for replacement (annual cost).

3. **Bond Service:**
   If any, include principal and interest.

4. **Loan Service:**
   If any, include principal and interest

5. **Capital Expenditures:**
   If any, offset to a reserve fund.

6. **Other Expenditures:**
   Self-explanatory.

C. Reserve Funds:

1. **Reserve for Replacement:**
   Funds that are required to maintain the system operable during the period of analysis. This does not include a capital depreciation fund.

2. **Reserve for Bond Service:**
   As required by prospectus.

3. **Contingency Fund for Operation & Maintenance Expense:**
   This limit is to be established based on records shown by profit and loss statement and balance sheet and/or the assessed valuation of the agency and overlying debts. Recognition should be given to the monthly cash flow and/or credit arrangements made for the operating fund. The minimum is two months' Operation and Maintenance expenses plus a Working Fund.

4. **Reserve for Future Construction:**
   To be used when staged construction is an integral part of the project.

5. **Other:**
   Self-explanatory.

ENVIRONMENTAL ACCEPTABILITY

A project is considered to be environmentally acceptable when the plan of development minimizes any adverse impacts on the natural environment, adequately addresses existing cultural resources and will not jeopardize the continued existence of any threatened or endangered species or destroy or modify its critical habitat. In addition to any proposed mitigation measures, if applicable, all aspects of the proposed project which can be anticipated to result in environmental enhancement or environmental degradation shall be considered in determining whether the plan of development minimizes adverse impacts. To assist the Director in determining environmental acceptance, the applicant will demonstrate the probable environmental and ecological consequences of the project by addressing all areas of study identified on the environmental acceptance NRC/NRDF Form 02Ev1.

NRC/NRDF FORM 02Ev1

COMPLETION INSTRUCTIONS

Additional sheets may be used to continue a particular section of this form.

1. **Description of the Proposed Action:** A general description of the project area and its land and water resources; project facilities; and potential future land use in the project area.

2. **Description of the Environment:**
   - **a. General Description:** Include site location, climatic information, site characteristics, zoning information, and general topographic setting of project area. A map of the area is to be included.
   - **b. Soils and Geology:** Information gained in the technical feasibility report may be used here. The section should include a description of the soil profile(s) and the characteristics of the soil(s) present. These characteristics should support subsequent statements relating to the environmental impact of the project.
   - **c. Vegetative Elements:** The major plant communities are to be identified and described. Dominant species should be identified along with any threatened or endangered species.
   - **d. Fish and Wildlife Elements:** Principal fish and wildlife species and their habitats should be identified and described. Threatened and endangered species and their habitats are to be addressed as well. This information can be obtained from the Game and Parks Commission along with species identified as part of Nebraska's Natural Heritage Program.
   - **e. Hydrology:** Drainage basin information, surface water characteristics, groundwater characteristics, wetlands, size of pool(s), and design size of structures are to be included.

3. **Environmental Impact of Proposed Action:**
   - **a. Acquisition Impacts:** The extent to which acquiring the said property may affect private and public ownership of land, relocation of families and farmsteads, and possible future developmental trends.

b. **Construction Impacts:** The impacts of construction activity as it affects soil and geological resources, vegetation, fish and wildlife habitat, water quality, and air quality.
c. **Recreational Development Impacts:** The extent to which recreation development will affect the site itself and the surrounding area. Impacts such as traffic, noise, dust, and conflicts with adjoining private lands should be discussed.
d. **Inundation Impacts:** Consequences of inundation, both favorable and unfavorable.

4. **Mitigation Measures:** Explain those measures proposed to replace features which may be lost or degraded due to construction of the project. Wildlife habitat plantings, grass seedings, fish habitat structures, acquisition/preservation of similar habitat, and cultural resources recovery are examples of mitigation measures.

5. **Adverse Effects Which Cannot Be Avoided:** Include any effects of the project which cannot be avoided such as: Increased noise during construction; removal of vegetation; loss of wildlife habitat; degradation of water quality and hydrological changes.

6. **Relationship between Short-term Use and Long-term Productivity:** Describe these aspects of the project as appropriate.

7. **Irreversible or Irretrievable Commitment of Resources:** Identify what natural resources will be committed and therefore not available for other uses, e.g. inundation of a stream reach or farm land.

8. **Alternatives to the Proposed Action:** Identify any feasible alternatives and provide a general description of the environmental impacts associated with those alternatives.

9. **Consistency with Other Planning:** The extent to which the project is consistent with or contributes to the fulfillment of comprehensive planning for the state or locality.

10. **Prime Farmland:** Identify any prime farmland that will be either adversely or beneficially affected. Prime farmland is that land so defined in the modern soil surveys of the Natural Resources Conservation Service. The identification is to include a description of the soils, and the size and location of the area involved. A map which shows the prime farmland should also be included.

11. **Provisions of the 1985 Food Security Act and Subsequent Farm Bills:** The Natural Resources Conservation Service is to be contacted regarding the possibility of any wetlands or other waters being affected by the proposed project. If it is determined that any wetlands may be affected by the project, the appropriate landowners are to be notified and further action is to be discussed with the NRCS and the Corps of Engineers.

12. **Unique Scenic, Archeological, and Historical Resources:** Clearance is to be included for those areas of archeological, historical significance and unique scenic resources. If a cultural resources survey of the area is required by the Director, it will be reimbursed at the same rate as other eligible project features. The following procedure will be used to determine the need for cultural resources surveys in NRDF projects:

I. Sponsor submits project proposal to NRC.
II. Project proposal sent to Environmental Committee for review.
III. Environmental Committee members review project proposal. Representative from State Historical Society (SHS) addresses need for cultural resources surveys and submits a letter to committee chairman stating whether a survey is needed or there is inadequate information to make a decision on the need for a survey.

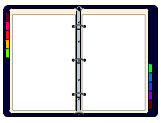
IV. The Environmental Committee considers the need for a cultural resources survey. If they determine that one should be conducted, they include that recommendation in the action they take on the project proposal.
V. The Director can require that a cultural resources survey be conducted by the project sponsor in his action on the project proposal.
VI. If required to conduct the survey, the project sponsor sees that it is done during the one-year period that the sponsor has to complete the application and feasibility report.
VII. Sponsor submits application, feasibility report, and cultural resources survey report to NRC.
VIII. Above documents sent to Environmental Committee for review.
IX. The environmental Committee includes any appropriate recommendations in the action it takes on the project application. If the committee feels the cultural resources aspect of the project application has not been properly addressed, it may recommend that the project is environmentally unacceptable.

13. Threatened or Endangered Species and the Critical Habitat of any Such Species: Particular attention should be directed to threatened and endangered species and their critical habitat. This pertains to plant as well as fish and wildlife species. Although consultation by the Natural Resources Commission with the Game and Parks Commission is required, the results of any additional communication or consultation between the applicant and the Game and Parks Commission are to be included. If the proposed project is federally assisted, the federal action agency is required to consult with the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act of 1973.

14. Necessary Permits or Authorization: Any federal, state or local permits or authorizations needed to carry out the project are to be identified. See Appendix E – Legal Data.

LEGAL DATA





Legal data submitted by the applicant in the feasibility report shall include the following:

a. Citation(s) to the legal authorities relied upon by theapplicant to undertake or participate in the proposed program or project.

b. An explanation, with appropriate documentation of legal authorities of the applicant's intention to finance that part of the project or program for which assistance from the Fund is not requested.

c. A showing that the applicant has or can acquire all necessary land rights and water rights.

d. Copies of any available proposed or executed contracts for construction or consultant services necessary for construction of the proposed program or project and included as part of the total cost of the project.

e. A listing of any permits, licenses, or other approvals required for the proposed project, their current status, and estimated schedule for compliance.

These permits may include, but are not restricted to the following:

1. U.S. Army Corps of Engineers Section 404 Permit for the placement of dredged or fill material in waters of the United States.
2. Nebraska Department of Environmental Quality NPDES permit for the discharge of stormwater from construction sites of 5 acres or more.
3. Nebraska Department of Water Resources water rights, storage rights, or storage use rights.
4. Necessary changes in county or local zoning for the project site.
5. Local floodplain development permits.
6. Any other local subdivision (NRD, township, county, municipal) permits relating to environmental issues or involving water, land, or air resources. County boards must agree with the closing of any county roads necessitated by a project.

f. An explanation of the sponsor's plan to require consultants, contractors, and sub-contractors to obtain liability insurance or bonding to ensure the proper design and construction of the project.

g. An analysis of the sponsor's potential liability for damages from the project, including dam failure, overflow, or seepage of water and an explanation of the sponsor's plan to protect itself from any such liability.

h. A certified copy of a resolution of the applicant requesting financial assistance from the Nebraska Resources Development Fund and containing the finding that the applicant cannot finance the project from other available state or federal sources.

i. Any other information, plans, and specifications requested by the DNR considered necessary for an adequate understanding of the project.

j. A notarized statement of the applicant executed by the applicant's official representative that the facts contained in the application are true and correct to his or her best knowledge and belief.