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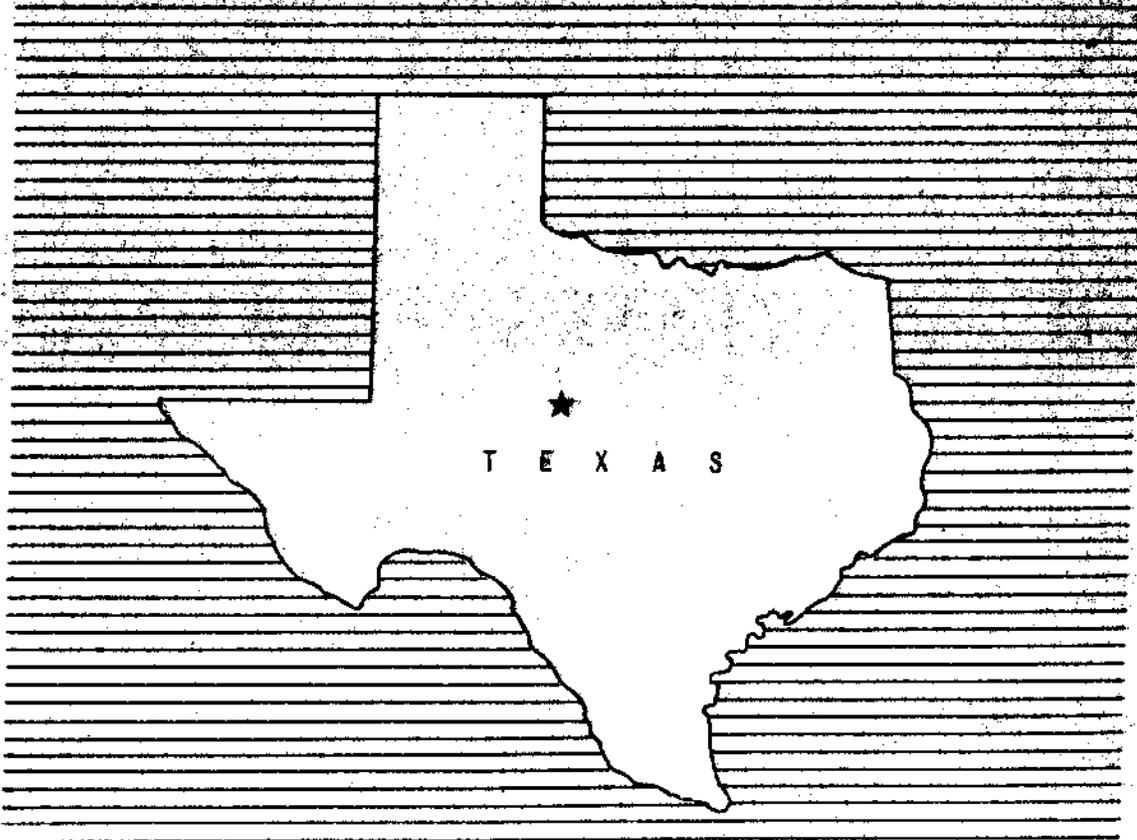
**MANUALLY SIGNED COPY**

SUPPLEMENTAL  
**WORK PLAN NO. II**  
FOR WATERSHED PROTECTION, FLOOD PREVENTION AND  
NONAGRICULTURAL WATER MANAGEMENT

*26-5*  
WB(FP) 0-5 Middle Colorado

# **JIM NED CREEK WATERSHED**

of the Middle Colorado River Watershed  
Brown, Coleman, Callahan, Taylor and Runnels Counties, Texas



August 1974

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Supplemental Watershed Work Plan Agreement Number II

Between the

Brown-Mills Soil and Water Conservation District  
Local Organization

Central Colorado Soil and Water Conservation District  
Local Organization

Runnels Soil and Water Conservation District  
Local Organization

Middle Clear Fork Soil and Water Conservation District  
Local Organization

Taylor County Commissioners Court  
Local Organization

Coleman County Commissioners Court  
Local Organization

Taylor County Water Control and Improvement District No. I  
Local Organization

City of Coleman  
Local Organization

(hereinafter referred to as the Sponsoring Local Organization)

State of Texas

And the

Soil Conservation Service  
United States Department of Agriculture  
(hereinafter referred to as the Service)

Whereas, the Watershed Work Plan Agreement for the Jim Ned Creek Watershed, State of Texas, executed by the Sponsoring Local Organization named therein, and the Service, became effective on the 5th day of October 1960; and

Whereas, the Supplemental Watershed Work Plan Agreement for the Jim Ned Creek Watershed, State of Texas, executed by the Sponsoring Local Organization named therein and the Service, became effective on the 23rd day of April 1973; and

Whereas, in order to carry out the Watershed Work Plan for said watershed, it has become necessary to modify said Watershed Work Plan Agreement, as supplemented; and

Whereas, a Supplemental Watershed Work Plan which modifies the Watershed Work Plan of April 1960, as supplemented, for said watershed has been developed through the cooperative efforts of the Sponsoring Local Organization and the Service, which plan is annexed to and made a part of this Agreement;

Now, therefore, the Sponsoring Local Organization and the Service hereby agree upon the following terms, conditions, and stipulations of said Watershed Work Plan Agreement:

1. Floodwater retarding structures No. 12B, 14, 15A, 17A and 18 are hereby deleted from the work plan.
2. Multiple purpose structure No. 38-A is hereby added to the work plan as a structural measure.
3. The City of Coleman, Texas hereby agrees to become one of the local organizations sponsoring said watershed project and to bear all local costs required for the installation, operation and maintenance of structure No. 38-A.
4. The City of Coleman, Texas will furnish with other than Public Law 78-534 funds all land, easements and rights-of-way as will be needed for structure No. 38-A. (Estimated cost \$11,500).
5. The percentage of construction costs to be borne by the Sponsoring Local Organization and by the Service are as follows:

<u>Works of Improvement</u>	<u>Sponsoring Local Organization (percent)</u>	<u>Service (percent)</u>	<u>Estimated Construction Cost (dollars)</u>
Multi-Purpose Structure No. 38-A	26.26	73.74	90,100
All other structural measures	0.0	100	2,935,710

6. The percentage of engineering costs to be borne by the Sponsoring Local Organization and the Service are as follows:

<u>Works of Improvement</u>	<u>Sponsoring Local Organization</u> (percent)	<u>Service</u> (percent)	<u>Estimated Engineering Service Cost</u> (dollars)
Multi-Purpose Structure No. 38-A	26.26	73.74	11,640
All other structural measures	0.0	100.0	192,290

7. The Sponsoring Local Organization and the Service will each bear the cost of Project Administration which it incurs, estimated to be \$18,550 and \$548,150 respectively.
8. The City of Coleman, Texas will install sanitary facilities and all other recreational facilities at no cost to the Federal Government.

The Sponsoring Local Organization and the Service further agree to all other terms, conditions and stipulations of said Watershed Work Plan, as supplemented, not modified herein.

BROWN-MILLS SOIL AND WATER  
CONSERVATION DISTRICT,  
Local Organization  
Box 562, Brownwood, Texas 76801

By Kenneth L. Boyd  
Title Chairman  
Date 9/19/74

The signing of this agreement was authorized by a Resolution of the govern-  
ing body of the BROWN-MILLS SOIL AND WATER CONSERVATION DISTRICT, Local  
Organization, adopted at a meeting held on 9/19/74.

W. G. Bishop  
Secretary, Local Organization  
Date 9/19/74

Beddthwaite Dewar 76844  
Address Zip Code

CENTRAL COLORADO SOIL AND WATER  
CONSERVATION DISTRICT,  
Local Organization  
P. O. Box 867,  
Coleman, Texas 76834

By Ben Wilson Jr  
Title Chairman  
Date 9/5/74

The signing of this agreement was authorized by a Resolution of the govern-  
ing body of the CENTRAL COLORADO SOIL AND WATER CONSERVATION DISTRICT,  
Local Organization, adopted at a meeting held on 9/5/74.

E. Dale Herring  
E. Dale Herring, Secretary  
Local Organization  
Date 9/5/74

Dale Dewar 76882  
Address Zip Code

RUNNELS SOIL AND WATER  
CONSERVATION DISTRICT,  
Local Organization  
Box 377, Norton, Texas 76865

By Arthur Eggeneyer  
Title Vice-Chairman  
Date 9-13-74

The signing of this agreement was authorized by a Resolution of the govern-  
ing body of the RUNNELS SOIL AND WATER CONSERVATION DISTRICT, Local  
Organization, adopted at a meeting held on 9/13/74.

Cone Robinson  
Cone Robinson, Secretary  
Date 9/13/74

Box 377, Norton, Texas 76865  
Address Zip Code

MIDDLE CLEAR FORK SOIL AND  
WATER CONSERVATION DISTRICT,  
Local Organization, Route 3,  
Merkel, Texas 79536

By J. Ricky Muller  
Title President  
Date 9-3-74

The signing of this agreement was authorized by a Resolution of the govern-  
ing body of the MIDDLE CLEAR FORK SOIL AND WATER CONSERVATION DISTRICT,  
Local Organization, adopted at a meeting held on 9-3-74.

Floyd Gilmore  
Floyd Gilmore, Secretary  
Date 9-3-74

Rt 3 Merkel, Texas 79536  
Address Zip Code

TAYLOR COUNTY COMMISSIONERS COURT  
Local Organization  
Taylor County Commissioners Court  
House, Abilene, Texas 79604

By *Soy Stapp*  
Title *County Judge*  
Date *8/26/74*

The signing of this agreement was authorized by a Resolution of the governing body of the TAYLOR COUNTY COMMISSIONERS COURT, Local Organization, adopted at a meeting held on *August 26, 1974*

*Mr. Chester Hutcherson* *Abilene, Texas* *79602*  
County Clerk Address Zip Code  
Date *8-26-74*

COLEMAN COUNTY COMMISSIONERS COURT  
County Court House  
Coleman, Texas 76834

By *Frank W. Lewis*  
Title *County Judge*  
Date *8/20/74*

The signing of this agreement was authorized by a Resolution of the governing body of the COLEMAN COUNTY COMMISSIONERS COURT, Local Organization, adopted at a meeting held on *8/20/74*

*Glen Thomas* *Coleman Texas* *76834*  
County Clerk Address zip Code  
Date *8/20/74*

TAYLOR COUNTY WATER CONTROL AND  
IMPROVEMENT DISTRICT NO. 1  
Local Organization  
Lawn, Texas 79530

By Lark May  
Title President  
Date 8/26/74

The signing of this agreement was authorized by a Resolution of the govern-  
ing body of the TAYLOR COUNTY WATER CONTROL AND IMPROVEMENT DISTRICT NO. 1,  
Local Organization, adopted at a meeting held on 8/26/74.

Wayne Allen  
Wayne Allen, Secretary  
Date 8/29/74

Lawn, Texas 79530  
Address Zip Code

CITY OF COLEMAN  
Local Organization  
City Hall, Coleman, Texas  
76834

By J. L. Lester  
Title Mayor  
Date 10/2/74

The signing of this agreement was authorized by a Resolution of the govern-  
ing body of the CITY OF COLEMAN, Texas, Local Organization, adopted at a  
meeting held on 10/2/74.

Roy McCorkle  
Roy McCorkle, City Manager  
Date 10/2/74

Coleman Texas 76834  
Address Zip Code

SOIL CONSERVATION SERVICE  
UNITED STATES DEPARTMENT OF  
AGRICULTURE

Approved by:

  
State Conservationist

Date 10-22-74

SUPPLEMENTAL WATERSHED WORK PLAN NO. II  
FOR  
WATERSHED PROTECTION, FLOOD PREVENTION AND NONAGRICULTURAL  
WATER MANAGEMENT

JIM NED CREEK WATERSHED  
of the Middle Colorado River Watershed  
Brown, Coleman, Callahan, Taylor  
and Runnels Counties, Texas

Plan Prepared and Works of Improvement  
to be Installed Under the Authority  
of the Flood Control Act of 1944  
as Amended and Supplemented

Prepared By

Brown-Mills Soil and Water Conservation District  
Local Organization

Central Colorado Soil and Water Conservation District  
Local Organization

Runnels Soil and Water Conservation District  
Local Organization

Middle Clear Fork Soil and Water Conservation District  
Local Organization

Taylor County Commissioners Court  
Local Organization

Coleman County Commissioners Court  
Local Organization

Taylor County Water Control and Improvement District No. I  
Local Organization

City of Coleman  
Local Organization

With Assistance of

U. S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE

August 1974

## SUPPLEMENTAL

### WATERSHED WORK PLAN NO. II

JIM NED CREEK WATERSHED  
of the Middle Colorado River Watershed  
Brown, Coleman, Callahan, Taylor and Runnels Counties, Texas

August 1974

#### PURPOSE OF THE SUPPLEMENTAL WORK PLAN

The purpose of this supplemental watershed work plan for the Jim Ned Creek Watershed is to modify the Watershed Work Plan, as supplemented to add Multiple-Purpose Structure No. 38-A to replace the Old City Lake above Coleman and to delete planned Floodwater Retarding Structure Nos. 12B, 14, 15A, 17A and 18.

The addition of Multiple-Purpose Structure No. 38-A will provide flood protection for a portion of the urban area of the City of Coleman, Texas. This structure will also provide recreational opportunities.

Subsequent to the development of the original watershed work plan, Lake Coleman has been constructed on Jim Ned Creek to provide municipal and industrial water supply for the City of Coleman, Texas. This reservoir inundates the flood plain area designated as Evaluation Reach No. 3 in the original watershed work plan. Studies made with Lake Coleman in place show that the reservoir provides significant flood damage reduction to portions of the downstream flood plain along Jim Ned Creek. Evaluations made of the total effects of Lake Coleman further show that it is not feasible to install planned Floodwater Retarding Structures Nos. 12B, 14, 15A, 17A and 18.

It was also necessary to modify the watershed work plan, as supplemented, to reflect current policy and terminology relative to engineering and project administration costs.

All damages and benefits are updated from long-term prices as projected by USDA, ARS-AMA, September 1957, to adjusted normalized prices, Water Resources Council, April 1966, for agricultural and current prices for non-agricultural.

The following are changes made in appropriate parts of the Watershed Work Plan, as supplemented.

#### WATERSHED PROBLEMS

##### Floodwater Damage

The Old City Lake is located approximately 0.7 miles upstream and west of Coleman on an unnamed tributary. See Figure No. 2 for location. The lake was created by constructing an earthen dam across a water course in 1904. Since that time the dam has provided flood protection to and for a period served as a source of water for the city. In recent years several natural

physical changes to the dam have occurred. These changes have had a cumulative adverse effect, making the present dam a hazard to the people and properties downstream. Dense willow and mesquite trees up to 8 inches in diameter now grow on the dam. A large crack has formed through the dam and the existing emergency spillway is inadequate to safely pass flood events up to and including the one percent chance storm. Seepage is occurring downstream from the dam. On one occasion, the city feared the dam would be overtopped and under emergency conditions had to breach the emergency spillway. All of these factors were evaluated and as the dam continues to deteriorate, the future hazards will multiply.

Under existing conditions the largest storm in the 20-year series, 1923-1942, inundated 25,878 acres of flood plain. With a 100-year storm event, there would be flooding of approximately 43 residences, commercial and other buildings within the urban area of the City of Coleman.

The total direct agricultural and non-agricultural floodwater damage without project is estimated to average \$438,645 annually. The agricultural damage includes \$178,824 for crop and pasture and \$149,948 of other agricultural. The non-agricultural damages consist of \$102,463 to roads and bridges and \$7,410 to the urban area. Indirect damages are estimated to average \$45,940. The average annual monetary flood damages are summarized in Table 5.

#### Erosion Damage

Damage from flood plain scour occurs on an average of 1,045 acres annually. This damage ranges from 10 - 80 percent of the productive capacity of the soils. The average annual amount of this damage is estimated to be \$5,765.

#### Sediment Damage

The estimated average annual sediment deposition to lakes and reservoir is 231.74 acre feet with damages of \$14,987.

#### Problems Relating to Water Management

The Old City Lake has provided water-based recreation to Coleman since 1904. This resource has diminished in recent years due to sediment depositions and a reduction in surface acres since the lowering of the spillway crest. Since the development of the work plan, there have been two public housing projects established in and administered by the City of Coleman. These are convalescent homes and residences for elderly people. This has resulted in an increased demand for near-by recreational facilities.

#### EXISTING OR PROPOSED WORKS OF IMPROVEMENT

Lake Coleman has been constructed by the City of Coleman since the development of the 1960 Watershed Work Plan. The effects of Lake Coleman's detention storage are considered in this evaluation and benefits are shown in this supplement. (These benefits were not used for project justification).

## WORKS OF IMPROVEMENT TO BE INSTALLED

### Structural Measures

This Supplemental Watershed Work Plan provides for the deletion of five planned Floodwater Retarding Structure Nos. 12B, 14, 15A, 17A and 18 and the addition of Multiple-Purpose Structure No. 38-A, to replace the Old City Lake. Recreation facilities will be installed as needed by the City of Coleman. Adequate sanitary facilities meeting all local and state requirements will be provided before the area is opened to the general public.

The total drainage area controlled by the 37 floodwater retarding structures constructed and the multiple-purpose structure included in this Supplemental Watershed Work Plan is 290.12 square miles. This is equivalent to 44.85 percent of the entire watershed.

The City of Coleman, Texas, has installed a water supply structure, Lake Coleman, on Jim Ned Creek, near Valley Section No. 29, with a total drainage area of 292 square miles. The reservoir provides for a capacity of 6,800 acre-feet of sediment storage and 20,115 acre-feet of detention storage. This is equivalent to 0.86 inches of sediment storage and 2.55 inches of detention storage for the 148.01 square miles of uncontrolled drainage area above Lake Coleman. There are fifteen floodwater retarding structures constructed above Lake Coleman with a combined drainage area of 143.99 square miles controlled.

The 37 floodwater retarding structures and one multiple-purpose structure have an aggregate capacity of 68,752 acre-feet. This total includes 63,451 acre-feet of floodwater detention, 161 acre-feet for recreation and 5,140 acre-feet for expected 50-year sediment accumulation. There are 27 acre-feet of sediment capacity in the multiple-purpose structure, a 50-year accumulation. The recreation pool of Multiple-Purpose Structure No. 38A will inundate 22 acres. Floodwater detention capacity, expressed in inches of runoff from the controlled area above the structures, ranges from 2.53 to 8.50 watershed inches.

Under present conditions, the acquisition of land rights needed for the installation of Multiple-Purpose Structure No. 38A will not result in the displacement of persons, businesses, or farms. However, if relocation or displacement becomes necessary, relocation payments will be cost shared in accordance with percentages shown in the Supplemental Work Plan Agreement dated April 23, 1973.

### EXPLANATION OF INSTALLATION COSTS

The total installation cost of Multiple-Purpose Structure No. 38A, excluding project administration, is estimated to be \$113,290 of which \$75,020 will be borne by Federal funds and \$38,270 will be borne by other funds.

The City of Coleman will bear all costs for basic recreational facilities and that share of the construction and engineering services costs allocated to recreation. All lands required for the installation of the structure are owned by the City and will be furnished at no cost to the Federal Government.

Allocation of joint costs for construction and engineering services were determined by the use of Facility Methods as follows:

Joint construction costs for the Multiple-Purpose Structure No. 38A are as follows:

<u>Purpose</u>	<u>Acre-Feet</u>	<u>Percentages</u>
Flood Prevention	452 <u>1/</u>	73.74
Recreation	<u>161</u>	<u>26.26</u>
Total	613	100.00

The Federal costs, excluding project administration, consist of \$66,440 for construction and \$8,580 for engineering services.

The costs to be borne by other than Federal funds include \$23,660 for construction, \$3,060 for engineering services, \$11,050 for the value of land rights, and \$500 for water rights.

Federal costs for project administration consist of construction inspection, maintenance of records and accounts, and contract administration. Other than Federal costs for project administration, include sponsors' costs relative to contract administration, overhead and organizational costs, and whatever construction they desire to make at their own expense.

Engineering services costs consist of, but are not limited, to, detailed surveys, geologic investigations, laboratory analyses, reports, designs, and cartographic services.

Updated total project costs are shown on Table 1. Updated costs for all structural measures are shown on Table 2.

#### BENEFITS FROM WORKS OF IMPROVEMENT

After installation of the combined program of land treatment and structural measures, including Lake Coleman, the average annual flooding will be reduced from 42,876 acres to 18,602 acres, a 57 percent reduction. The total average annual direct floodwater damage will be reduced from \$438,645 to \$128,734, a reduction of 71 percent. The effect of the combined program is shown by evaluation reaches in Table A.

The crop and pasture damages will be reduced from \$178,824 to \$73,470, 59 percent. Other agricultural damages will be reduced from \$149,948 to \$34,257, 77 percent. Road and Bridge damages will be reduced from \$102,463 to \$20,232, 80 percent. Urban damages will be reduced from \$7,410 to \$775, 90 percent. Flood plain scour damages will be reduced from \$5,765 to \$1,584, 73 percent. Sediment damages to reservoirs and lakes will be reduced from \$14,987 to

---

1/ Includes 27 acre-feet of sediment storage.

\$8,053, 46 percent. The effect of the combined program of land treatment and structural measures on sediment being delivered to lakes and reservoirs is shown as follows:

	: Without Project		: Land Treatment		: With Structures and Land Treatment	
	(Ac.Ft.)	(Dollars)	(Ac.Ft.)	(Dollars)	(Ac.Ft.)	(Dollars)
Hords Creek Reservoir	16.00	1,806	13.00	1,467	12.00	1,354
Lake Scarborough	4.74	1,304	4.04	1,111	2.79	767
Lake Coleman	94.00	2,070	76.00	1,674	41.00	903
Lake Brownwood	<u>117.00</u>	<u>9,807</u>	<u>100.00</u>	<u>8,382</u>	<u>60.00</u>	<u>5,029</u>
Total	231.74	14,987	193.04	12,634	115.79	8,053

Owners and operators of flood plain lands indicate that if adequate flood protection is provided, they will restore approximately 370 acres of land now idle or in poor pasture to cultivation. It is estimated that average net income from restoration will amount to \$9,038 annually. Loss from original production has been considered a crop and pasture damage, and its restoration a benefit.

The total damages, including indirect damages are reduced from \$505,337 to \$152,208, 70 percent, a reduction of \$353,129 (Table 5). Of this amount, \$65,687 is provided by land treatment measures, \$41,963 by Lake Coleman and \$245,479 by floodwater retarding structures.

It is expected that land owners will convert approximately 230 acres of pastureland to cropland. This changed land use will result in an additional \$2,765 increase in net average income. Of this amount, \$737 is attributed to Lake Coleman and \$2,028 to floodwater retarding structures.

More intensive use of 5,640 acres will produce average annual benefits in the amount of \$8,823; of this amount \$2,529 is attributed to Lake Coleman and \$6,294 to floodwater retarding structures.

Average annual benefits of \$43,260 will accrue to planned structural measures in the watershed from reduction of damages on the main stem of Pecan Bayou below Lake Brownwood. In addition \$22,600 of annual benefits are attributable to Lake Coleman.

The City of Coleman plans to install recreational facilities as needed at Multiple-Purpose Structure No. 38A. Adequate sanitary facilities meeting all local and state standards will be provided before the area is open to the public. The city health officer has certified that the water quality is suitable for contact recreation. Swimming, picnicking and fishing are expected to be the primary recreational uses. Peak use will occur between May and October, but some use will be made of these facilities throughout

Table A - General Location of Benefits -

	Evaluation Reach					
	1	2	4	5	6	
Average Annual Acre Flooded						
Without Project - Acres	19,363 1/	2,948	6,065	8,487	346	
With Project - Acres	11,964	1,577	142	1,353	61	
Percent Reduction	38	47	98	84	82	
Area Flooded by Largest Storm						
Without Project - Acres	9,441 2/	1,730	4,000	5,500	530	
With Project - Acres	6,525	1,247	362	2,995	195	
Percent Reduction	31	28	91	46	63	
Average Annual Floodwater Damage						
Without Project - Dollars	164,529	24,400	59,436	114,402	9,857	
With Project - Dollars	82,550	9,875	300 3/	9,869 3/	1,449	
Percent Reduction	50	60	99	91	85	
Number of Major Floods in Evaluation Series						
Without Project	32	31	33	32	6	
With Project	0	6	1	1	1	

Footnotes on second page of table.

Supplement No. II  
August 1974

Table A - General Location of Benefits - (Continued)

	Evaluation Reach							TOTAL
	7	8	9	10	11	47		
Average Annual Acre Flooded								
Without Project - Acres	815	800	2,343	542	1,167		42,876 <sup>1/</sup>	
With Project - Acres	397	312	1,800	40	956		18,602	
Percent Reduction	51	61	23	93	18		57	
Area Flooded by Largest Storm								
Without Project - Acres	610	1,950	1,415	252	450		25,878 <sup>2/</sup>	
With Project - Acres	490	1,065	1,245	200	445		15,085	
Percent Reduction	20	45	12	21	1		42	
Average Annual Floodwater Damage								
Without Project - Dollars	7,681	26,226	16,303	4,981	10,830		438,645	
With Project - Dollars	2,823	2,023	10,710	115	9,020		128,734 <sup>3/</sup>	
Percent Reduction	63	92	34	98	17		77	
Number of Major Floods in Evaluation Series								
Without Project	19	3	32	41	58			
With Project	5	1	3	1	41			

<sup>1/</sup> Does not include 2,509 acres flooded by overland flow, 925 of which will flood after the project is installed.

<sup>2/</sup> Does not include 5,591 acres flooded by overland flow, 3,800 of which will flood with the project.

<sup>3/</sup> \$18,050 in Reach 4 and \$23,913 in Reach 5 of this damage reduction is due to Lake Coleman.

<sup>4/</sup> No structural measures to be installed.

the balance of the year. It is estimated that these facilities will provide 12,000 visitor-days of recreation annually and will produce \$8,400 in net recreational benefits.

Secondary benefits from a national viewpoint were not considered pertinent to the economic evaluation. The project will, however, provide a higher level of income to farmers and ranchers and stimulate business in towns and marketing centers adjacent to the watershed. The average annual secondary benefits, excluding indirect benefits, are estimated to be \$29,082.

#### COMPARISON OF BENEFITS AND COSTS

The average annual cost of structural measures, (amortized total installation cost and project administration, plus operation and maintenance), is \$155,835. These measures are expected to produce average annual primary benefits of \$305,461. The benefit-cost ratio without secondary benefits is 2.0 to 1.0. The ratio of total average annual project benefits accruing to structural measures, \$334,543, to the average annual cost of structural measures, \$155,835, is 2.1 to 1.0 (Table 6).

#### Financing Project Installation

Funds for the local share of the cost of installing Multiple-Purpose Structure No. 38A will be provided by the City of Coleman.

Multiple-Purpose Structure No. 38A will be constructed pursuant to the following conditions:

1. All land rights have been obtained.
2. Water rights have been obtained.
3. Reimbursable agreements between the Service and the City of Coleman have been executed relative to the share of construction and engineering services costs to be borne by local interests.
4. Federal funds are available.

#### PROVISIONS FOR OPERATION AND MAINTENANCE

##### Structural Measures

The Central Colorado Soil and Water Conservation District, the Taylor County Commissioners Court and Taylor County Water Control and Improvement District No. 1, were jointly responsible for the operation and maintenance of the five floodwater retarding structures being deleted by this supplement. Their operation and maintenance responsibilities for these five structures will be terminated with the approval of this Supplemental Watershed Work Plan.

Specific operation and maintenance agreement to be entered into will be executed by the City of Coleman and the Service prior to the issuance of an invitation to bid on construction of Multiple-Purpose Structure No. 38-A.

The City of Coleman will be responsible for operation and maintenance of the multiple-purpose structure and basic recreational facilities in accordance with the provisions specified in the operation and maintenance agreements. Financing will come from the general funds of the City of Coleman.

The City of Coleman, without cost to the Service, will be responsible for the prompt performance of all items of maintenance for Multiple-Purpose Structure No. 38-A as determined to be needed by either the City or the Service. The estimated cost of operation and maintenance for recreational facilities is considered as an associated cost and was deducted from the gross value of recreational benefits.

The Service and the City will make a joint inspection of the multiple-purpose structure at least annually for three years following installation. Additional inspections will be made following periods of heavy use or following periods of unusual conditions that may adversely affect the structure. Inspection after the third year will be made by the City at least annually. The Service may participate in inspections after the third year as may be necessary to assure proper operation and maintenance.

Provisions will be made for free access of representatives of the Sponsoring Local Organization and the Service to inspect and provide maintenance for structural measures and their appurtenances at any time. The estimated average annual cost for operation and maintenance for Multiple-Purpose Structure No. 38-A is \$300 at current prices.

**REVISED TABLE 1 - ESTIMATED PROJECT INSTALLATION COST**  
 Jim Ned Creek Watershed, Texas  
 (Middle Colorado River Watershed)

Installation Cost Item	Unit	Number	Estimated Cost (Dollars) 1/			Total
			Federal	Funds	Other	
		Land	Land	Land		
<b>LAND TREATMENT</b>						
Land Areas 2/						
Cropland	Acre	108,830	---	643,820		643,820
Pastureland	Acre	13,255	---	312,490		312,490
Rangeland	Acre	294,750	---	4,805,440		4,805,440
Other land 3/	Acre	1,502	---	7,510		7,510
Technical Assistance		---	396,480	---		396,480
<b>TOTAL LAND TREATMENT</b>			<b>396,480</b>	<b>5,769,260</b>		<b>6,165,740</b>
<b>STRUCTURAL MEASURES</b>						
<b>Construction</b>						
Floodwater Retarding Structures	No.	37	2,935,710	---		2,935,710
Multiple-Purpose Structures	No.	1	66,440	23,660		90,100
<b>Subtotal - Construction</b>	--	---	<b>3,002,150</b>	<b>23,660</b>		<b>3,025,810</b>
Engineering Services	--	---	200,870	3,060		203,930
<b>Project Administration</b>						
Construction Inspection	--	---	281,420	3,700		285,120
Other	--	---	266,730	14,850		281,580
<b>Subtotal - Administration</b>	--	---	<b>548,150</b>	<b>18,550</b>		<b>566,700</b>
<b>Other Costs</b>						
Land Rights	--	---	---	369,410		369,410
Water Rights	--	---	---	500		500
<b>Subtotal - Other</b>	--	---	---	<b>369,910</b>		<b>369,910</b>
<b>TOTAL STRUCTURAL MEASURES</b>	--	---	<b>3,751,170</b>	<b>415,180</b>		<b>4,166,350</b>
<b>TOTAL PROJECT</b>	--	---	<b>4,147,650</b>	<b>6,184,440</b>		<b>10,332,090</b>

- 1/ Price base: 1972. All floodwater retarding structures constructed or under construction.
- 2/ Include only areas estimated to be adequately treated during the project installation period. Treatment will be accelerated throughout the watershed and dollar amounts apply to total land areas, not just to adequately treated areas.
- 3/ Includes 1,482 acres of Wildlife Upland Habitat Management and 20 acres of Wildlife Wetland Habitat Management.

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REVISED TABLE 2 - ESTIMATED STRUCTURAL COST DISTRIBUTION

JIM NEED CREEK WATERSHED, TEXAS  
(Middle Colorado River Watershed)  
(Dollars) 1/

Item	Installation Cost-Flood		Installation Cost-Other		Total		
	Prevention	Flood	Funds	Funds		Installation	
	Engl- : tion	Prevention: : tion	Engl- : tion	Water: : Rights	Land: : Rights	Total : Other	Cost
Floodwater Retarding Structure Nos. 2/ 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 12A, 12C, 12E-1, 12E, 15, 16, 17, 17B-1, 19, 20, 21, 22, 23, 24, 25, 25A, 25B, 26A, 27, 28, 31, 32, 33, 34A, 35, 36, and 37	2,935,710	192,290	3,128,000	---	358,360	358,360	3,486,360
Multiple-Purpose Structure 38A	66,440	8,580	75,020	23,660	3,060	11,050	38,270
Subtotal Structural Measures	3,002,150	200,870	3,203,020	23,660	3,060	500	369,410
Project Administration	---	---	548,150	---	---	---	18,550
GRAND TOTAL	3,002,150	200,870	3,751,170	23,660	3,060	500	369,410
							415,180
							4,166,350

1/ Price base: 1972 for Multiple-Purpose Structure No. 38-A. Actual construction cost for all Floodwater Retarding Structure

2/ All floodwater retarding structures constructed or under construction.

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August 1974

REVISED TABLE 2A - COST ALLOCATION AND COST SHARING SUMMARY

Jim Ned Creek Watershed, Texas  
(Middle Colorado River Watershed)  
(Dollars) 1/

Item	C O S T A L L O C A T I O N :		C O S T S H A R I N G			
	P U R P O S E		F L O O D P R E V E N T I O N		O T H E R	
	Flood : Prevention :	Recre- ation :	Flood Prevention :	Recre- ation :	Flood Prevention :	Recre- ation :
Floodwater Retarding Structures 2/	3,486,360	---	3,486,360	3,128,000	---	358,360
Multiple-Purpose Structure 38-A	81,570	31,720	113,290	75,020	---	38,270
<b>GRAND TOTAL</b>	<b>3,567,930</b>	<b>31,720</b>	<b>3,599,650</b>	<b>3,203,020</b>	<b>---</b>	<b>396,630</b>

1/ Price Base: 1972 for Multiple-Purpose Structure No. 38-A. Actual construction cost for all Floodwater Retarding Structures.

2/ All floodwater retarding structures constructed or under construction.

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REVISED TABLE 3 - STRUCTURAL DATA  
 STRUCTURES WITH PLANNED STORAGE CAPACITY  
 Jim Ned Creek Watershed, Texas  
 (Middle Colorado River Watershed)

ITEM	UNIT	:Structure :Number :38-A	:Total for 37 :Structures :Constructed	: TOTAL
Class of Structure		C		
Drainage Area	Sq. Mi.	0.93	289.19	290.12
Curve No. (1-day) (AMC II)		87	-----	-----
Tc	Hrs.	0.34	-----	-----
Elevation Top of Dam	Ft.	1784.4	-----	-----
Elevation Crest Emergency Spillway	Ft.	1777.0	-----	-----
Elevation Crest Low Stage Inlet	Ft.	1764.0	-----	-----
Maximum Height of Dam	Ft.	36	-----	-----
Volume of fill	Cu. Yds.	106,991	5,902,000	6,008,991
Total Capacity	Ac. Ft.	613	68,139	68,752
Sediment Pool (Lowest Ungated Outlet) <u>1/</u>	Ac. Ft.	23	3,797	3,820
Sediment Submerged <u>2/</u>	Ac. Ft.	23	4,400	4,423
Sediment Aerated	Ac. Ft.	4	713	717
Recreation	Ac. Ft.	161	0	161
Retarding	Ac. Ft.	425	63,026	63,451
Surface Area				
Sediment Pool (Lowest Ungated Outlet)	Acres	---	790	790
Sediment Pool (Principal Spillway Crest)	Acres	---	904	904
Recreation Pool	Acres	22	0	22
Retarding Pool	Acres	44	5,241	5,285
Principal Spillway Design				
Rainfall Volume (areal) (1-day)	In.	10.70	-----	-----
Rainfall Volume (areal) (10-day)	In.	16.95	-----	-----
Runoff Volume (10-day)	In.	13.67	-----	-----
Capacity (Max.)	cfs	110	-----	-----
Frequency Operation - Emer. Spillway	% Chance	0.27	-----	-----
Dimensions of Conduit	Dim.	30	-----	-----
Emergency Spillway Design				
Rainfall Volume (ESH) (areal)	In.	12.50	-----	-----
Runoff Volume (ESH)	In.	10.87	-----	-----
Storm Duration	Hrs.	6	-----	-----
Type	Veg.	-----	-----	-----
Bottom Width	Ft.	50	-----	-----
Velocity of Flow (Ve)	Ft./Sec.	7.95	-----	-----
Slope of Exit Channel	Ft./Ft.	0.06	-----	-----
Max. Reservoir Water Surface Elev.	Ft.	177888	-----	-----
Freeboard Design				
Rainfall Volume (FH)	In.	30.30	-----	-----
Runoff Volume (FH)	In.	28.58	-----	-----
Storm Duration	Hrs.	-----	-----	-----
Max. Reservoir Water Surface Elev.	Ft.	1784.4	-----	-----
Capacity Equivalents				
Sediment Volume	In.	0.53	-----	-----
Retarding Volume	In.	8.50	-----	-----
Recreation Volume	In.	3.22	-----	-----

1/ Volume Included in Submerged Sediment.

2/ 50 year sediment accumulation

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REVISED TABLE 4 - ANNUAL COST  
 Jim Ned Creek Watershed, Texas  
 (Middle Colorado River Watershed)  
 (Dollars) 1/

<u>Evaluation Unit</u>	<u>: Amortization of</u>	<u>: Operation and</u>	<u>:</u>
<u>:</u>	<u>Installation Cost</u>	<u>2/</u>	<u>Maintenance Cost</u>
<u>:</u>	<u>:</u>	<u>:</u>	<u>Total</u>
Floodwater Retard- ing Structures 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 12A, 12C, 12E-1, 12F, 15, 16, 17, 17B-1, 19, 20, 21, 22, 23, 24, 25, 25A, 25B, 26A, 27, 28, 31, 32, 33, 34A, 35, 36, 37 and Multi-Purpose Structure 38-A	128,565	7,070	135,635
Project Administration	20,200	---	20,200
<b>GRAND TOTAL</b>	<b>148,765</b>	<b>7,070</b>	<b>155,835</b>

1/ Price Base: Installation 1972 for Multiple-Purpose Structure No. 38-A. Actual construction cost for all Floodwater Retarding Structures. O&M current prices.

2/ 50 Year at 2.50 percent for all structures except for Floodwater Retarding Structure No. 37 and Multiple-Purpose Structure No. 38-A which are 50 years at 3.25 percent.

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REVISED TABLE 5  
ESTIMATED AVERAGE ANNUAL FLOOD DAMAGE REDUCTION BENEFITS  
 Jim Ned Creek Watershed, Texas  
 (Middle Colorado River Watershed)  
 (Dollars) 1/

Item	Estimated Average Annual Damage		Damage Reduction Benefit
	Without Project	With Project	
<b>Floodwater</b>			
Crop and Pasture	178,824	73,470	105,354
Other Agricultural	149,948	34,257	115,691
Nonagricultural			
Road and Bridge	102,463	20,232	82,231
Urban	7,410	775	6,635
Subtotal	<u>438,645</u>	<u>128,734</u>	<u>309,911</u>
<b>Sediment</b>			
Reservoirs	14,987	8,053	6,934
<b>Erosion</b>			
Flood Plain Scour	5,765	1,584	4,181
<b>Indirect</b>	45,940	13,837	32,103
<b>Total</b>	505,337	152,208	353,129 <u>2/</u>

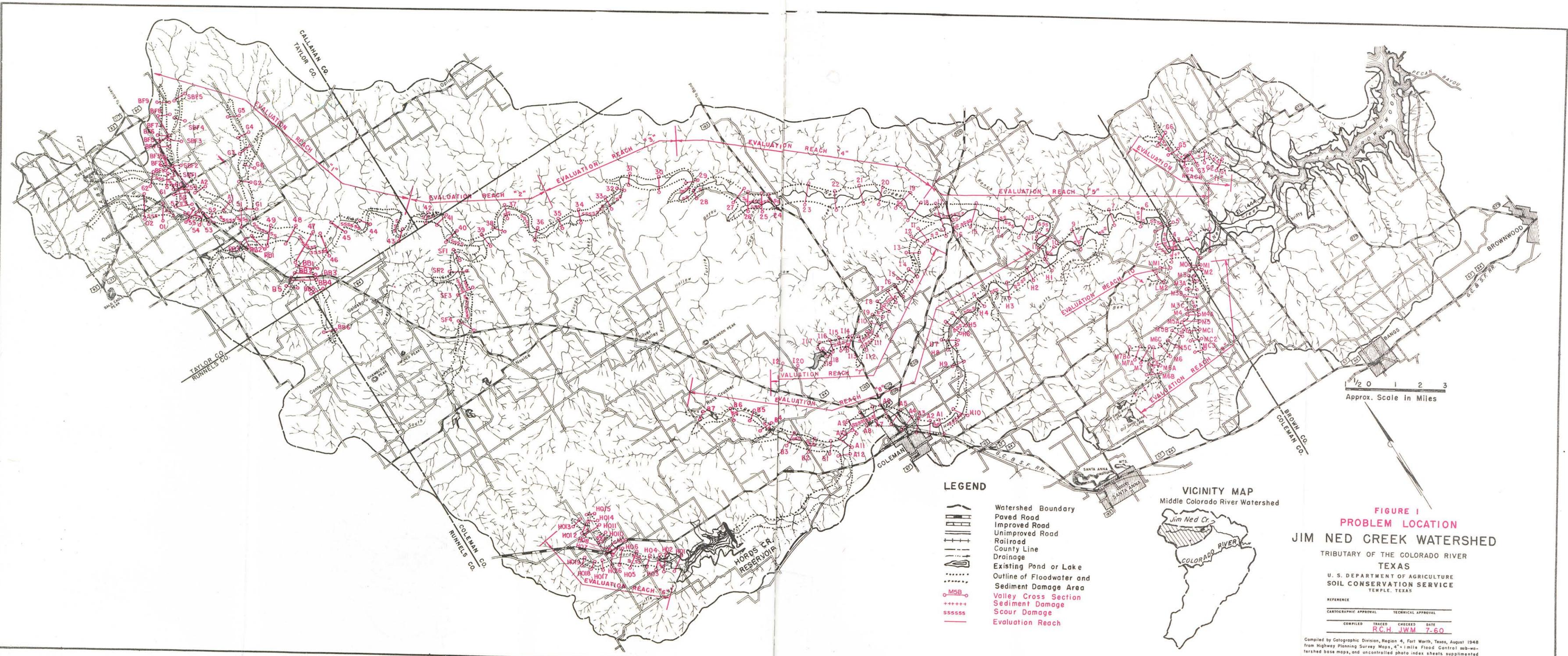
1/ Price Base: Adjusted normalized prices for agricultural. Current prices for nonagricultural.

2/ Includes \$41,963 attributable to Lake Coleman. (Not used for project justification).

REVISED TABLE 6 - COMPARISON OF BENEFITS AND COSTS FOR STRUCTURAL MEASURES  
 Jim Ned Creek Watershed, Texas  
 (Middle Colorado River Watershed)  
 (Dollars)

Evaluation Unit	AVERAGE ANNUAL BENEFITS 1/									
	Damage Reduction 2/	Land Use 3/	Land Use 4/	Other	Rec-reaction	Secondary	Total	Average Annual Cost	Benefit Cost Ratio	
Floodwater Retarding Structures										
2, 3, 5, 6, 7, 8, 9,										
10, 11, 12, 12A, 12C,										
12E-1, 12F, 15, 16,										
17, 17B-1, 19, 20,										
21, 22, 23, 24, 25,										
25A, 25B, 26A, 27,										
28, 31, 32, 33, 34A,										
35, 36, 37 and Multi-Purpose										
Structure 38-A	245,479	2,028	6,294	43,260	8,400	29,082	334,543	135,635	2.5:1	
Project Administration										20,200
<b>GRAND TOTAL</b>	<b>245,479</b>	<b>2,028</b>	<b>6,294</b>	<b>43,260</b>	<b>8,400</b>	<b>29,082</b>	<b>334,543</b>	<b>155,835</b>	<b>2.1:1</b>	

1/ Price Base: Adjusted normalized prices for agricultural and current prices for non-agricultural.  
 2/ In addition, it is estimated that land treatment measures will provide flood damage reduction benefits of \$65,687 annually, plus \$41,963 attributable to Lake Coleman.  
 3/ In addition, changed land use benefits prorated to Lake Coleman are \$737 annually.  
 4/ In addition, more intensive land use benefits of \$2,529 annually are credited to Lake Coleman.  
 5/ Benefits outside of Watershed (Below Lake Brownwood) in Brownwood Laterals Watershed. In addition, \$22,600 benefits annually are attributable to Lake Coleman.  
 6/ From Table 4.



**LEGEND**

- Watershed Boundary
- Paved Road
- Improved Road
- Unimproved Road
- Railroad
- County Line
- Drainage
- Existing Pond or Lake
- Outline of Floodwater and Sediment Damage Area
- Valley Cross Section
- Sediment Damage
- Scour Damage
- Evaluation Reach

**VICINITY MAP**



**FIGURE 1  
PROBLEM LOCATION  
JIM NED CREEK WATERSHED**

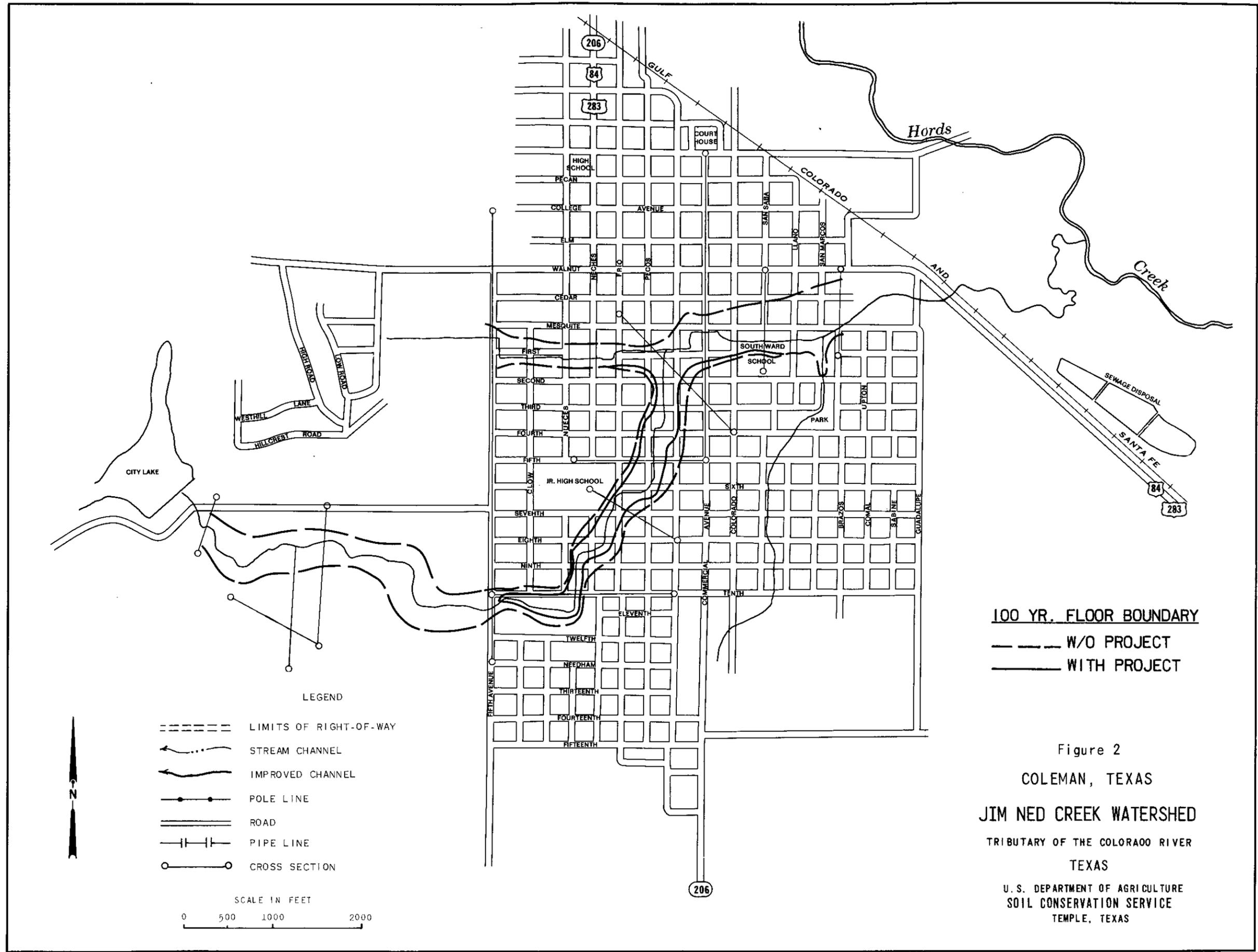
TRIBUTARY OF THE COLORADO RIVER  
TEXAS

U. S. DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
TEMPLE, TEXAS

REFERENCE

CARTOGRAPHIC APPROVAL	TECHNICAL APPROVAL
COMPILED	TRACED
DATE	DATE
	R.C.H. J.W.M.
	7-60

Compiled by Cartographic Division, Region 4, Fort Worth, Texas, August 1948 from Highway Planning Survey Maps, 4" x 1 mile Flood Control sub-watershed base maps, and uncontrolled photo index sheets supplemented by some stereoscopic examination of individual aerial photographs.



**100 YR. FLOOD BOUNDARY**  
 - - - - - W/O PROJECT  
 \_\_\_\_\_ WITH PROJECT

Figure 2  
 COLEMAN, TEXAS  
 JIM NED CREEK WATERSHED  
 TRIBUTARY OF THE COLORAAO RIVER  
 TEXAS  
 U. S. DEPARTMENT OF AGRICULTURE  
 SOIL CONSERVATION SERVICE  
 TEMPLE, TEXAS

- LEGEND
- LIMITS OF RIGHT-OF-WAY
  - ~...~ STREAM CHANNEL
  - ~ IMPROVED CHANNEL
  - POLE LINE
  - == ROAD
  - |-| PIPE LINE
  - CROSS SECTION

SCALE IN FEET  
 0 500 1000 2000

