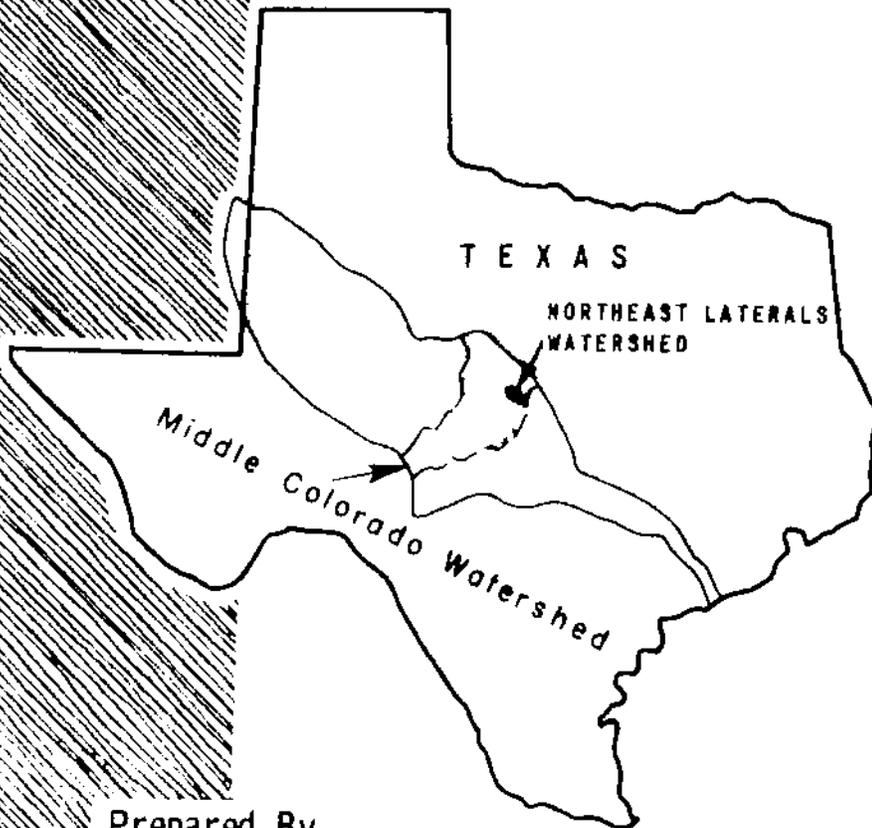


SUPPLEMENTAL
WORK PLAN II

**NORTHEAST LATERALS
WATERSHED**

OF THE MIDDLE COLORADO RIVER WATERSHED
BROWN AND MILLS COUNTIES, TEXAS



Prepared By
SOIL CONSERVATION SERVICE
U. S. DEPARTMENT OF AGRICULTURE
Temple, Texas
January 1972

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SUPPLEMENTAL WATERSHED WORK PLAN AGREEMENT NO. II

between the
Brown-Mills Soil and Water Conservation District
Local Organization

Brown County Commissioners Court
Local Organization

Mills County Commissioners Court
Local Organization

State of Texas

(hereinafter referred to as the Sponsoring Local Organization)

and the

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

Whereas, the Watershed Work Plan Agreement for the Northeast Laterals Watershed, State of Texas, executed by the Sponsoring Local Organization named therein and the Service, became effective on the 10th day of February 1970; and

Whereas, the Supplemental Watershed Work Plan Agreement for the North-east Laterals Watershed, State of Texas, executed by the Sponsoring Local Organization named therein and the Service, became effective on the 24th day of September 1971; and

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

Whereas, it has been found necessary to modify the work plan by deleting the planned 3.91 miles of stream channel improvement;

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

1. The 3.91 miles of channel improvement referred to in the Watershed Work Plan is hereby deleted from the Work Plan.

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

Brown-Mills Soil and Water Conservation District

Local Organization

By

Kenneth L. Boyd

Title

Chairman

Address

Brownwood, Texas 76801

Zip Code

Date

6-21-73

The signing of this agreement was authorized by a resolution of the governing body of the Brown-Mills Soil and Water Conservation District

Local Organization

adopted at a meeting held on

6-21-73

W. S. Bishop

(Secretary, Local Organization)

Address

Brownwood, Texas

Zip Code

Date

6-21-73

Brown County Commissioners Court

Local Organization

By

Amos J. Bunnell

Title

County Judge

Address

Brownwood, Texas

Zip Code

Date

June 25, 1973

The signing of this agreement was authorized by a resolution of the governing body of the Brown County Commissioners Court adopted at a

Local Organization

meeting held on

~~4/1/73~~ June 25, 1973

Mrs. Recie Bell

(Secretary, Local Organization)

Address

Brownwood, Texas

Zip Code

Date

6-25-73

Mills County Commissioners Court
Local Organization

By Cliff Egan
Title County Judge
Address Box 533 Sweetwater Zip Code 76843
Date July 9-1973

The signing of this agreement was authorized by a resolution of the governing body of the Mills County Commissioners Court adopted at a meeting held on July 9, 1973

Local Organization

Walter A. Bryant
(Secretary, Local Organization)
Address GOLDENWALFE, TX 76844 Zip Code
Date JULY 9, 1973

Soil Conservation Service
United States Department of Agriculture

By Edward E. Thomas
(State Conservationist)
Date 7-17-73

SUPPLEMENTAL
WATERSHED WORK PLAN NUMBER II
NORTHEAST LATERALS WATERSHED
Of the Middle Colorado River Watershed
Brown and Mills 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

Participating Agencies

Brown-Mills Soil and Water Conservation District

Brown County Commissioners Court

Mills County Commissioners Court

Prepared by:

Soil Conservation Service
U.S. Department of Agriculture

January 1972

SUPPLEMENTAL
WATERSHED WORK PLAN NO. II
NORTHEAST LATERALS WATERSHED
Of the Middle Colorado River Watershed
Brown and Mills Counties, Texas

January 1972

PURPOSE OF THE SUPPLEMENTAL WORK PLAN

It has become mutually desirable to modify the watershed work plan for Northeast Laterals Watershed to delete the planned 3.91 miles of stream channel improvement and to include costs for Project Administration.

Current findings reveal that over-bank flows along the existing stream channel (West Fork of Rough Branch) which was planned for improvement, are caused by runoff produced by storms which equal or exceed the 10-year frequency event. Flood and sediment damages along this stream channel are insufficient to require structural measures.

Changes and modifications which follow are made in appropriate parts of the watershed work plan as supplemented:

WORKS OF IMPROVEMENT TO BE INSTALLED

Structural Measures

The 3.91 miles of planned stream channel improvement is deleted. All other planned structural measures have been constructed.

EXPLANATION OF INSTALLATION COSTS

The estimated cost of planning and installing land treatment measures, exclusive of Federal funds, is \$260,580 based on current program criteria (Table 1). In addition, prior to work plan preparation landowners and operators have established land treatment measures at an estimated non-Federal cost of \$567,780 (Table 1a).

The cost of installing the six floodwater retarding structures is \$608,470. Of this amount, \$58,370 was borne by local interests, and \$550,100 by flood prevention funds. Of the flood prevention funds, \$453,830 was construction cost, \$27,230 was for engineering services, and \$69,040 was for Project Administration (see Table 2).

Land, easements, and rights-of-way, and relocation of roads, bridges, utilities, and other improvements for the floodwater retarding structures were provided by local interests at no cost to the Federal Government. The value of these rights is \$50,340, based on current market value as

estimated by local organizations. An additional \$8,030 of non-Federal funds has been provided for project administration and for legal and other services required in obtaining land, easements, and rights-of-way.

EFFECTS OF WORKS OF IMPROVEMENT

With the installation of the combined programs of land treatment and structural measures, average annual flooding is reduced from 2,618 to 1,584 acres. This project will benefit directly approximately 30 owners and operators of 2,886 acres of agricultural flood plain lands.

The 483 acres of flood plain land on Rough Creek, formerly planned for protection by land treatment and stream channel improvement, is now benefited only by land treatment measures.

PROJECT BENEFITS

The estimated average annual monetary damage (Table 5) for Buffalo and Indian Creeks is reduced from \$39,557 to \$13,573, a reduction of 66 percent.

Crop and pasture damage is reduced from \$17,991 to \$5,283, or 71 percent. Other agricultural damages, such as loss of fences, farm equipment, livestock, and other property, is reduced from \$10,830 to \$4,258, or 61 percent. Road and bridge damages are reduced from \$6,877 to \$2,708, or 61 percent.

Of the \$25,984 damage reduction benefits attributable to the project, \$25,114, or 97 percent, are the result of structural measures, with the remaining 3 percent reduction the result of land treatment.

Secondary benefits from a national viewpoint were not considered pertinent to the economic evaluation. The project provides a higher level of income to farmers and stimulates business in towns and marketing centers adjacent to the watershed. The monetary value of secondary benefits is estimated to be \$3,740 annually.

The total average annual benefits from structural works of improvement are estimated to be \$33,171.

COMPARISON OF BENEFITS AND COSTS

The total average annual cost of structural measures is \$29,040. These measures produce average annual benefits, excluding secondary benefits, of \$29,431, resulting in a benefit-cost ratio of 1.0:1.0.

The ratio of total average annual project benefits, including secondary benefits accruing to structural measures, is estimated to be \$33,171, giving a benefit-cost ratio of 1.1:1.0, (Table 6).

PROVISIONS FOR OPERATION AND MAINTENANCE

Structural Measures

There will be no changes in the provisions for operation and maintenance of the floodwater retarding structures.

The estimated average annual operation and maintenance cost is \$590, based on adjusted normalized prices.

TABLE 1 - ESTIMATED PROJECT INSTALLATION COST
 Northeast Laterals Watershed, Texas
 (Middle Colorado River Watershed)

	Unit	No.	Estimated Cost (Dollars) 1/				Total
			Federal Funds	Non-Fed. Land	Non-S.C.S.	Other	
	Fed. Land		Fed. Land	S.C.S.	Fed. Land	S.C.S.	
LAND TREATMENT							
Land Areas 2/							
Cropland	Acre	4,186	-	-	69,180	-	69,180
Pastureland	Acre	4,000	-	-	128,400	-	128,400
Rangeland	Acre	14,392	-	-	63,000	-	63,000
Technical Assistant			3,500	3,500	-	-	3,500
TOTAL LAND TREATMENT			3,500	3,500	260,580	260,580	264,080
STRUCTURAL MEASURES							
Construction							
Floodwater Retarding Structures	No.	6	453,830	453,830	-	-	453,830
Subtotal - Construction			453,830	453,830	-	-	453,830
Engineering Services			27,230	27,230	-	-	27,230
Project Administration							
Construction Inspection			37,040	37,040	600	600	37,640
Other			32,000	32,000	2,400	2,400	34,400
Subtotal - Administration			69,040	69,040	3,000	3,000	72,040
Other Costs							
Land Rights							
Subtotal - Other					55,370	55,370	55,370
TOTAL STRUCTURAL MEASURES			550,100	550,100	58,370	58,370	608,470
TOTAL PROJECT			553,600	553,600	318,950	318,950	872,550

1/ Price Base: As Built cost for all installed measures.

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/ Federal agency responsible for assisting in installation of works of improvement.

TABLE 1A - STATUS OF WATERSHED WORKS OF IMPROVEMENT 1/
 Northeast Laterals Watershed, Texas
 (Middle Colorado River Watershed)

Measures	Unit	Applied To Date	Total Cost <u>2/</u>
<u>LAND TREATMENT</u>			
Conservation Cropping System	Acre <u>3/</u>	9,765	194,160
Range Proper Use	Acre <u>3/</u>	34,628	91,890
Range Seeding	Acre	2,306	11,530
Brush Control	Acre	17,100	85,500
Terraces	Foot	1,146,600	57,330
Diversions	Foot	186,400	22,370
Farm Ponds	No.	350	105,000
TOTAL			567,780

1/ At time of work plan preparation. Price Base: 1971

2/ Excludes costs that were reimbursed from other Federal Funds.

3/ The level of application of the management and recurring-type practices reached at the time of work plan preparation and are not cumulative.

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TABLE 2 - ESTIMATED STRUCTURAL COST DISTRIBUTION
Northeast Laterals Watershed, Texas
 (Middle Colorado River Watershed)

(Dollars) 1/

Item	Federal Installation Cost		Installation Cost		Total Installation Costs
	Construction	Other	Other Funds		
			Land	Other	
	Federal	Other	Land	Other	
Floodwater Retarding Structures Numbers 1, 2, 3, 4, 5, and 6.	453,830	27,230	481,060	55,370	536,430
Project Administration			69,040	3,000	72,040
TOTAL	453,830	27,230	550,100	58,370	608,470

1/ Actual Construction Cost

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TABLE 4 - ANNUAL COST
 Northeast Laterals Watershed, Texas
 (Middle Colorado River Watershed)

(Dollars) 1/

Evaluation Unit	: Amortization of : Installation Cost <u>2/</u>	: Operation and : Maintenance Cost	: Total
Floodwater Retarding Structures Numbers 1, 2, 3, 4, 5, and 6.	25,080	590	25,670
Project Administration	3,370	-	3,370
GRAND TOTAL	28,450	590	29,040

1/ Price base: Actual Construction Cost, O&M Adjusted Normalized Prices.

2/ 100 years @ 4-5/8 percent interest.

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 September 1972

TABLE 5 - ESTIMATED AVERAGE ANNUAL FLOOD DAMAGE REDUCTION BENEFITS
Northeast Laterals Watershed, Texas
(Middle Colorado River Watershed)

(Dollars) 1/

Item	: Estimated Average Annual Damage :		Damage
	: Without	: With	: Reduction
	: Project	: Project	: Benefits
Floodwater			
Crop and Pasture	17,991	5,283	12,708
Other Agricultural	10,830	4,258	6,572
Non-agricultural (Road and Bridge)	6,877	2,708	4,169
Subtotal	35,698	12,249	23,449
Erosion			
Flood Plain Scour	263	90	173
Indirect	3,596	1,234	2,362
Total	39,557	13,573	25,984

1/ Price Base: Adjusted Normalized Prices 1966.

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January 1972

TABLE 6 - COMPARISON OF BENEFITS AND COSTS FOR STRUCTURAL MEASURES
 Northeast Laterals Watershed, Texas
 (Middle Colorado River Watershed)

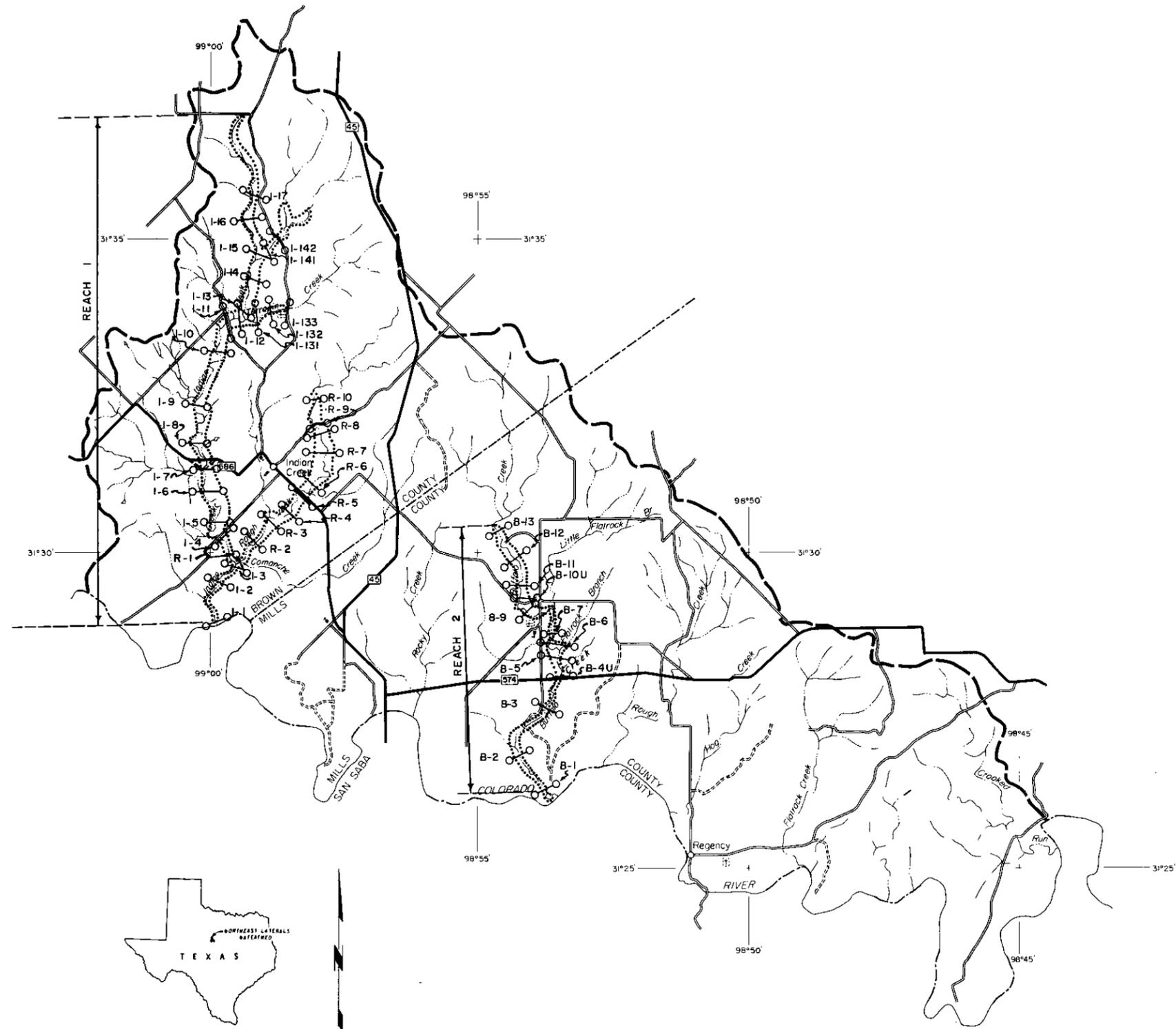
(Dollars)

Evaluation Unit	AVERAGE ANNUAL BENEFITS 1/				Average			
	Damage Reduction	Incidental	Outside Watershed	Secondary	Annual Cost	Benefit Cost Ratio		
Floodwater Retarding Structures Numbers 1, 2, 3, 4, 5, and 6	25,114	2,293	1,356	668	3,740	33,171	25,670	1.3:1.0
Project Administration	-	-	-	-	-	-	3,370	-
GRAND TOTAL	25,114	2,293	1,356	668	3,740	33,171	29,040	1.1:1.0

1/ Price Base: Adjusted Normalized Prices 1966.

2/ From Table 4.

3/ In addition, it is estimated that land treatment measures will provide flood damage reduction benefits of \$870 annually.



- LEGEND**
- Paved Road
 - Dirt Road
 - Private Road
 - County Line
 - Drainage
 - Town or Community
 - Watershed Boundary
 - Outline of Flood and Sediment Damage
 - Valley Cross Section
 - Evaluation Reach



FIGURE 2
PROBLEM LOCATION MAP
NORTHEAST LATERALS WATERSHED
 BROWN AND MILLS COUNTIES
 TEXAS
 U. S. DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 TEMPLE, TEXAS
 APPROPRIATE SCALE
 1:40,000
 Base compiled from USGS Quads and County Highway Maps

