

ANIMAS-LA PLATA PROJECT

*Rec'd
11/7/78*

REHAB. JACKSON CANAL FOR S.S. LAND 411 AC	ENLARGE JACKSON CANAL FOR S.S. & F.S. LAND 722 AC	SPRINKLER IRRIGATION FOR S.S. & F.S. LAND 722 AC
---	---	--

FACILITY

JACKSON CANAL	11 CFS \$ 420,000	20 CFS \$ 600,000	-
DIVERSION DAM	11 CFS 200,000	20 CFS 250,000	\$ 250,000
SPRINKLER LATERALS	-	-	620,000
PUMPING PLANT	-	-	480,000
PORTION OF PROJECT FACILITIES	<u>600,000</u>	<u>1,900,000</u>	<u>1,900,000</u>
	\$1,220,000	\$2,750,000	\$3,250,000

15 CFS

ANNUAL COSTS:
AMORTIZED INVESTMENT
OM&R POWER
TOTAL

\$ 44,000	\$ 100,000	\$ 117,000
<u>44,000</u>	<u>100,000</u>	<u>10,000</u>
\$ 44,000	\$ 100,000	\$ 127,000

ANNUAL TOTAL BENEFITS

\$ 37,000	\$ 72,000	\$ 72,000
-----------	-----------	-----------

TOTAL BENEFIT-COST RATIO

C.84:1.0	0.72:1.0	0.57:1.0
----------	----------	----------

INVESTMENT PER ACRE

\$ 5,930	\$ 5,420	\$ 6,600
----------	----------	----------

TABLE

POPULATION PROJECTIONS, WATER REQUIREMENTS, EXISTING SUPPLY, AND SUPPLY NEEDED

MUNICIPAL AND INDUSTRIAL USE

	1990			2010			2030					
	Popula- tion	Water require- ment AF 1/ AF 2/	Usable water right AF 2/ AF	Supply needed AF	Popula- tion	Water require- ment AF 1/ AF 2/	Usable water right AF 2/ AF	Supply needed AF	Popula- tion	Water require- ment AF 1/ AF 2/	Usable water right AF 2/ AF	Supply needed AF
Jan	41,296	710	710		61,370	1050	1050		91,190	1560	1560	
Feb		600	600			890	890			1320	1320	
Mar		830	830			1240	1240			1840	1840	
April		1120	1120			1650	1650			2450	2450	
May		1690	1690			2520	2520			3740	3630	110
June		1890	1890			2800	2800			4170		4170
July		1820	1820			2700	1390	1310		4010	1200	2810
Aug		1800	1800			2680	1200	1480		3180	1200	2780
Sept		1290	1290			1920	1200	720		2850	1200	1650
Oct		760	760			1130	1130			1690	1200	490
Nov		650	650			970	970			1440	1200	240
Dec		720	720			1070	1070			1590	1200	390
Total	41,296	13,880	13,880		61,370	20,620	17,110	3510	91,190	30,640	18,000	12,640
						@ 300 gpcd				@ 300 gpcd		

POPULATION PROJECTIONS, WATER REQUIREMENTS, EXISTING SUPPLY, AND SUPPLY NEEDED

MUNICIPAL AND INDUSTRIAL USE

AZTEC

	1990				2010				2030			
	Popula- tion	Water require- ment AF 1/	Usable water right AF 2/	Supply needed AF	Popula- tion	Water require- ment AF 1/	Usable water right AF 2/	Supply needed AF	Popula- tion	Water require- ment AF 1/	Usable water right AF 2/	Supply needed AF
Jan	6,400	90	90		9,510	130	130		14,130	190	190	
Feb		70	70			110	110			160	160	
Mar		100	100			150	150			230	230	
Apr		140	140			200	200			300	250	50
May		210	210			310	240	70		460		460
Jun		230	220	10		340		350		520		520
Jul		230	230	230		340		340		500		500
Aug		220	220	220		330		330		490		490
Sep		160	160	160		240		240		350		350
Oct		90	90	90		140		140		210		210
Nov		80	80	80		120		120		180		180
Dec		90	90	90		130		130		200		200
Total	6,400	1720	830	880	9,510	2,550	830	1,720	14,130	3,800	830	2,960
		@240/gpd				@240/gpd				@240/gpd		

BLOOMFIELD

POPULATION PROJECTIONS, WATER REQUIREMENTS, EXISTING SUPPLY, AND SUPPLY NEEDED MUNICIPAL AND INDUSTRIAL USE

	1990				2010				2030			
	Population	Water requirement AF 1/	Usable water right AF 2/	Supply needed AF	Population	Water requirement AF 1/	Usable water right AF 2/	Supply needed AF	Population	Water requirement AF 1/	Usable water right AF 2/	Supply needed AF
Jan	7070											
Feb					10,500				15,600			
Mar												
Apr												
May												
Jun												
Jul												
Aug												
Sep												
Oct												
Nov												
Dec												
Total	7070	1,190	0	1,190	10,500	1,760	0	1,760	15,600	2,620	0	2,620
		1,190 @ 150 gpcd										

BY	DATE	PROJECT	SHEET _____ OF _____
CHKD BY	DATE	FEATURE	
DETAILS			

(2) Aztec

(a) Population projections -
based on an identical growth rate as
projected for Farmington in "Water System
Master Plan", Gordon Herkenhoff and Assoc.

1970 pop = 3,354

Year Pop	1980	1990	2000	2010	2020	2030
	5,250	6,400	7,800	9,510	11,590	14,130

(b) Present per capita use
treated water - 195 gpcd (From County Profile,
San Juan County...)

raw water use - assume 10% increase in
per capita ~~use~~ use
(assume backwash is reusable)

~215 gpcd

(c) Future per capita demand (increase 10%)

~ 240 gpcd

(d) monthly distribution
assume same as Farmington

(e) Usable Existing Supply

according to Mike Holder, City Manager,
the town owns 830 AF/year of adjudicated
water rights.

around 1/9 used 1600
entire

COMPUTATION SHEET

BY	DATE	PROJECT	SHEET ____ OF ____
CHKD BY	DATE	FEATURE	
DETAILS			

(3) Bloomfield (has requested an allocation of 10,000 AF)

(a) Population projections (1970 pop = 1,574)
(1976 " = 5,000) \Downarrow

based on an identical growth rate as projected for Farmington in "Water System Master Plan" prepared by London Herkenhoff and Assoc.

Year	1980	1990	2000	2010	2020	2030
Pop	5,800	7,070	8,600	10,500	12,800	15,600

(b) present per capita use
treated water - 101 gpcd according to "County Profile, San Juan County, Water Resources Assessment for Planning Purposes" and Fred Denney who reported that present use is about 500,000 gallons per day

raw water - increase per capita use by 10% to account for lawn and green area watering w/ raw water

110 gpcd

(c) future per capita use

\approx 150 gpcd

city has been afflicted w/ some water shortages due to lack of treatment plant capacity

(d) assume monthly distribution of Farmington is applicable to Bloomfield

(e) Usable Existing Supply

- the city has no adjudicated water rights

\Downarrow According to Fred Denney of Fred Denney & Assoc, Consulting Engineers for the City of Bloomfield.

COMPUTATION SHEET

7-1854 (7-73)
Bureau of Reclamation

BY	DATE	PROJECT	SHEET ____ OF ____
CHKD BY	DATE	FEATURE	
DETAILS			

Total present gpcd = 282

(c) Future per capita use -

will increase due to increases in park and recreation areas w/ greater population

assume to be 300 gpcd

(d) Monthly distribution of Demand (based on 1974 figures)

Jan	5.1%	May	12.2%	Sept	9.3%
Feb	4.3%	June	13.6%	Oct	5.5%
Mar	6.0%	July	13.1%	Nov	4.7%
April	8.0%	Aug	13.0%	Dec	5.2%

(e) Usable Existing Supply

Assumptions:

- (1) the Municipal Reservoir is used for aesthetics only - overflow is returned to Animas River; rights in Independent Ditch not used for M & S purposes, although the possibility does exist.
- (2) Farmers Ditch and Farmington Lake - no water is diverted into the Lake during the irrigation season, used to supply winter demands and summer base demand - assume 7,200 AF available each year
- (3) 10,000 gpm pumping plant on Animas available during periods when the river is clear.
- (4) present raw water irrigation is used on park lands only (assume 50 acres of park @ 4.7 AF/ac), assume project would supply this water

usable existing supply

COMPUTATION SHEET

BY	DATE	PROJECT	SHEET ____ OF ____
CHKD BY	DATE	FEATURE	
DETAILS			

Lower Valley

(4) Kirtland, Fruitland, and waterflow (Kirtland Diversion of 1970 Census

(a) Population Projections (1970 pop = 3,021)

<u>Year</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>	<u>2010</u>	<u>2020</u>	<u>2030</u>
<u>Pop</u>	4,730	5,760	7,030	8,570	10,400	12,730

based on estimated Farmington growth rate

(b) present per capita use
treated water - 165 gpcd (as reported in "County Profile, San Juan County, ...")

raw water usage - none known

present use = 165 gpcd

(c) future per capita use -

≈ 185 gpcd

(d) Monthly distribution

assume same as Farmington

(e) Usable Existing Supply

- none

- obtains its water from the City of Farmington

BY	DATE	PROJECT	SHEET ____ OF ____
CHKD BY	DATE	FEATURE	
DETAILS			

(5) Blanco and Flora Vista

(a) Population Projections:
1973 pop of BLANCO = 325 according to "The Water and Sewer Element for San Juan County" prepared by San Juan Council of Governments, March 1974

1970 pop of Flora Vista (including Round Valley and Spencerville)
= 800 (same source as above)

w/ a growth rate of 2% annual increase

Years	1980	1990	2000	2010	2020	2030
Pop (combined)	1,322	1,610	1,960	2,390	2,900	3,550

(b) per capita use rate

estimated at 100 gpcd

(c) future per capita use rate

≈ 150 gpcd

(d) —

(e) Usable existing supply

Flora Vista has no adjudicated water right
Blanco has a well on the bank of the San Juan River - assume to abandon this supply for project water (they would receive project water by exchange)

Preliminary Population Projections - San Juan County, New Mexico
Summary

	1970	1980	1990	2000	2010	2020	2030
Farmington	21,979 ¹	33,880 ⁴	41,295	50,340	61,370	74,810	91,190
Aylee	3,354 ¹	5,250	6,400	7,800	9,510	11,590	14,130
Bloomfield	1,574 ¹	5,800 ⁴	7,070	8,600	10,500	12,800	15,600
Lower Valley (Kirtland, Flandrau, Waterflow)	3,021 ¹	4,730	5,760	7,030	8,570	10,400	12,730
Blanco	325 ²	440	530	650	795	970	1,180
Flores Vista (includes Round Valley & Spencerville)	800 ²	880	1080	1,310	1,595	1,930	2,370
Subtotal - Animas - La Plata Service Area	30,871 ³	50,980	62,135	75,730	92,340	112,500	137,200
Remainder of County	21,646	25,450	38,205	48,530	55,830	59,590	58,800
Total - San Juan County	52,517 ¹	76,430	100,340	124,260	148,170	172,090	196,000

¹ 1970 Bureau of Census data
² The water and Sewer Element for San Juan County "prepared by San Juan Council of Governments, March, 1974.
³ The service area was 59% of the total county population in 1970. This percent is assumed to increase to 70% by 2030 due to an increased urban population.
⁴ All growth rates are assumed to be equal to that projected for Farmington in "Water System Master Plan, City of Farmington", prepared by Gordon Herkenhoff & Assoc, 1974. The 2% growth rate was extrapolated to 2030. 1976 pop. of Bloomfield = 5,000 (Fred Demery & Assoc.)

OSE-0968

BY	DATE	PROJECT	SHEET
CHD BY	DATE	FEATURE	OF
DETAILS			

COMPUTATION SHEET

BY	DATE	PROJECT	SHEET ____ OF ____
CHKD BY	DATE	FEATURE	
DETAILS			

Summary - preliminary estimate of Anenas-La Plata Project water requirements for New Mexico
ME & L

Community	Water Requirement in the Year 2030 (AF)	Usable Existing Supply (AF)	Project Water Req't in 2030 (AF)
Farmington	30,640	18,000	12,640
Aztec	3,800	830	2,960
Bloomfield	2,620	—	2,620
Lower Valley	2,640	—	2,640
Blanco and Flora Vista (Combined)	600	—	600
Totals			21,460 AF

|| No figures or projections herein are final.

Hill King

Approved by the Board 3/15/00

Farm Irrigation

1) For Dolores Project, Bureau estimated a cost of farm sprinklers and associated works @ 150 acre. Farm budget allows replacement of sprinklers every 12 years to 15 years.

Presently irrigated farms - 5 year development cycle if major change in current farm practice since no production is expected.

New irrigated lands - 7-10 year development period.

Budgets for Animas La Plata and Kola farms are less at Dolores

2) Payment capacity will be determined for farmers then under standard Bureau farm budget numbers allowing replacement of sprinklers.

3) If sprinklers were to be included in project cost there would be no principal effect on revenue requirement because farmers' repayment ability would be increased.

4) Bureau has problems with project providing the sprinklers; a) Individual farmers may not like the type provided. b) who does DEM and sprinklers; Bureau requires all project farmers to have be kept up in accord Bureau standards.

5) U.S.B.R. report on NIP, all sprinkler, estimated side-roll sprinklers and on-farm make @ 185/acre hand made sprinklers

\$85/acre; low line sprinklers @ 120/acre and solid set @ 500/acre.

Solid set would be used for vegetables; probably very few, if any; solid set would be required on A. 1000 - 1200 ft²

Weighted average price cost for NIP exclusive of solid set is \$163/acre, 1973 prices.

6) F.F. Montoya says that he plans to call a meeting of N. Mex farmers to see how they feel about buying sprinklers.

3/24

Phil.

Steve wants to undertake study for Farmers la Plata to determine what position we should take on including sprinklers as a project cost or leaving to farmers the cost of installing their own sprinklers with their own funds. He suggests three items.

1. Find out what costs of sprinklers would be.
2. Find out if the cost of financing own sprinklers will be a problem to farmers after they know what cost will be if they finance.
3. Have Ted Lewis review Bureau budgets to determine how repayment capacity was determined, what development periods were used for presently irrigated lands and how pay out on sprinklers would affect power revenues - OMB would object to subsidizing farmers at expense of power revenues. If sprinklers were included in project cost how would this affect power revenue requirements if no development period; if 10 year development period. Would there be a varying repayment capacity over time if farmers finance their own sprinklers?