Thousand Springs Reach Water Management Projects

Brian W. Patton

Idaho Department of

Water Resources

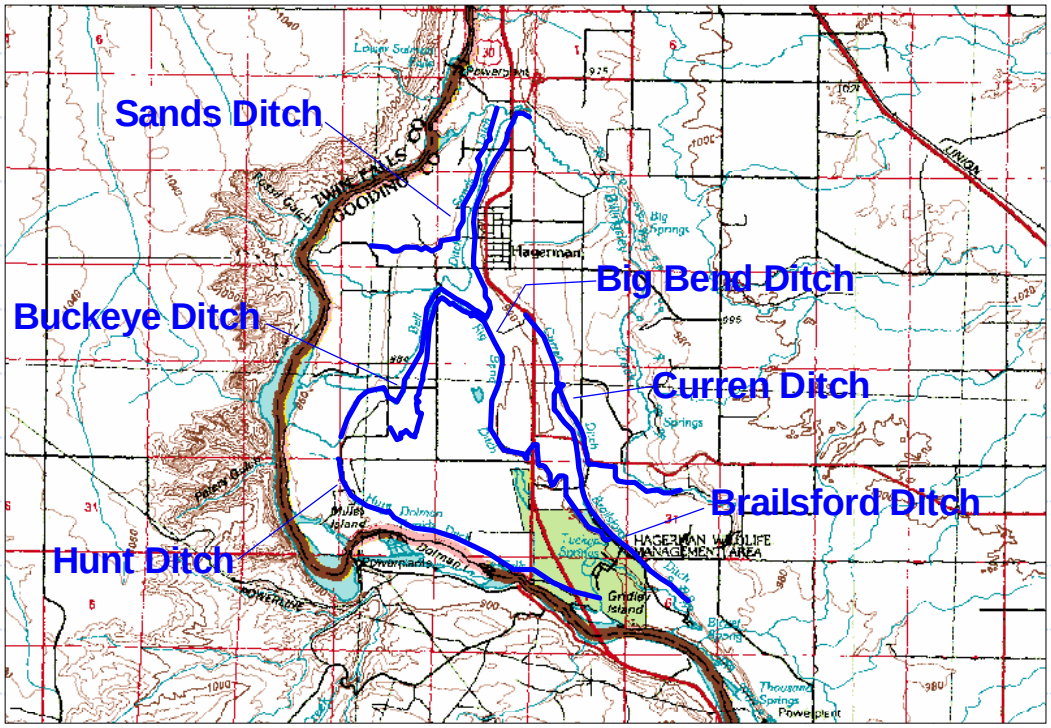
Water Management Projects Summary Table

	AMOUNT OF WATER (ACRE-FEET)	PRELIMINARY ESTIMATED CONSTRUCTION COST	PRELIMINARY ESTIMATED O&M COST
Line Selected Hagerman Valley Canals	18,500	$5,000,000	$10,000
Brailsford Pipeline-Seapac Pump Project	4,000	$115,000	$25,000
Hunt Ditch – Curren South Pipeline Pump	1,400	$107,000	$14,000
Padgett/Bell Ditch Spill Pump Back	1,200	$127,000	$10,000
Niagara Pump Back to Irrigation	4,300	$57,000	$24,000
Briggs Springs Irrigation Pump	2,400	$141,000	$25,000
North Hagerman Pump Project	11,000	$900,000	$400,000
Billingsley Creek Ranch Fish Farm Pump	6,500	$66,000	$18,000
Clear Lake Pump Back	36,200	$616,000	$85,000
Other Hatchery Pump Backs	72,400	$2,000,000	$300,000
TOTALS	**157,900**	**$9,129,000**	**$911,000**

Hagerman Valley Canals Proposed for Lining

Canal	Estimated Construction Cost	Estimate of saved water*
Big Bend Ditch	$1,335,000	5,790 AF
Buckeye Ditch	$1,422,000	5,490 AF
Brailsford Ditch	$580,000	2,000 AF
Curren Ditch	$509,000	1,200 AF
Hunt Ditch	$480,000	1,670 AF
Sands Ditch	$599,000	2,310 AF
TOTALS	**$4,945,000**	**18,460 AF**

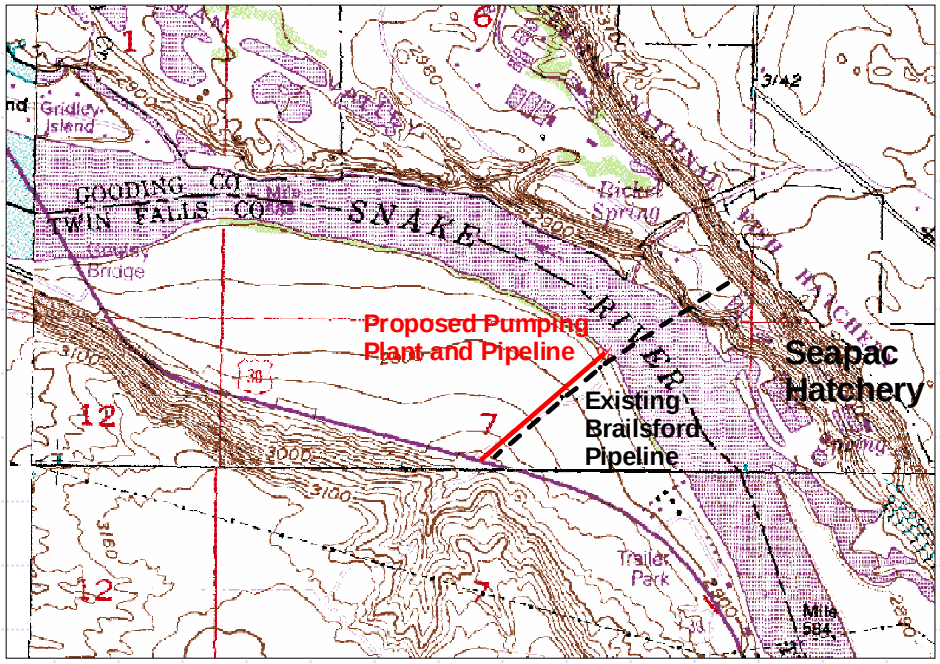
*Based on conveyance loss numbers developed for the SRBA Court



- Reduce conveyance losses for canals that utilize springs or spring-fed streams for water supply.
- Firm up water supply for water users on these canals.

Brailsford-Seapac Pump Project

- Replace spring flows piped across Snake River for irrigation through the Brailsford pipeline with Snake River pumping plant.
- Allows the Brailsford water to pass through Seapac's Magic Springs Hatchery.
- After passing through hatchery, the Brailsford water would then be pumped from the Snake River.
- Estimated water supply increase for Seapac: 4,000 AF/yr



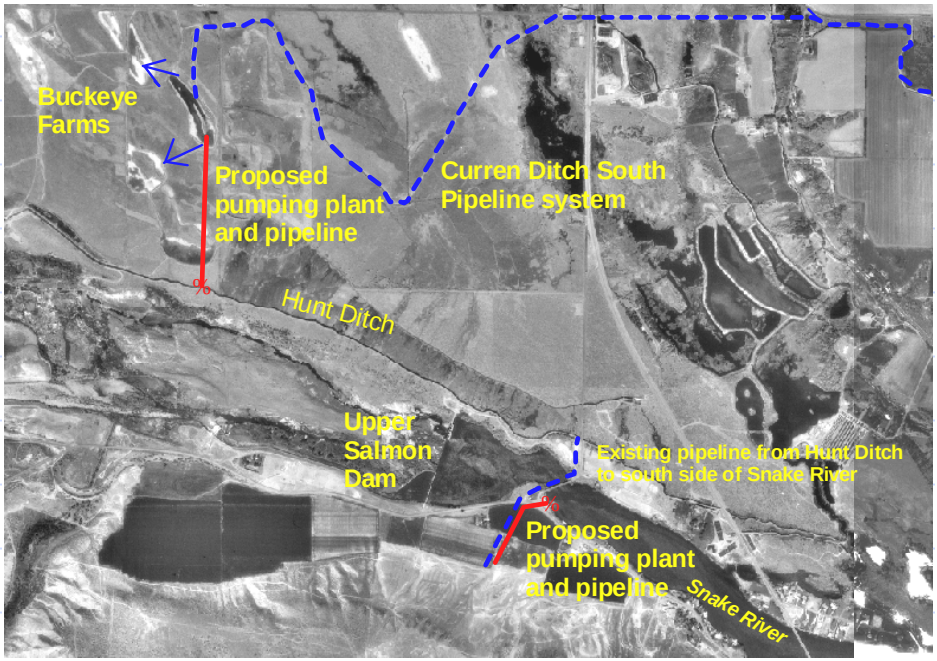
<u>Preliminary Estimated Costs</u>

Construction: $115,000

Annual O&M: $25,000

Hunt Ditch – Curren South Pipeline Pump Project

- ❑Replace spring flows piped across the Snake River for irrigation with Snake River pumping plant.
- ❑Pump saved spring flows into Buckeye Farms system to offset their use of spring flows delivered through the Curren Ditch system.
- ❑Estimated water supply increase to Billingsley Creek system: 1,400 AF/yr
- ❑Companion to similar project proposed by Buckeye Farms through the ESPA Mitigation Grant program.



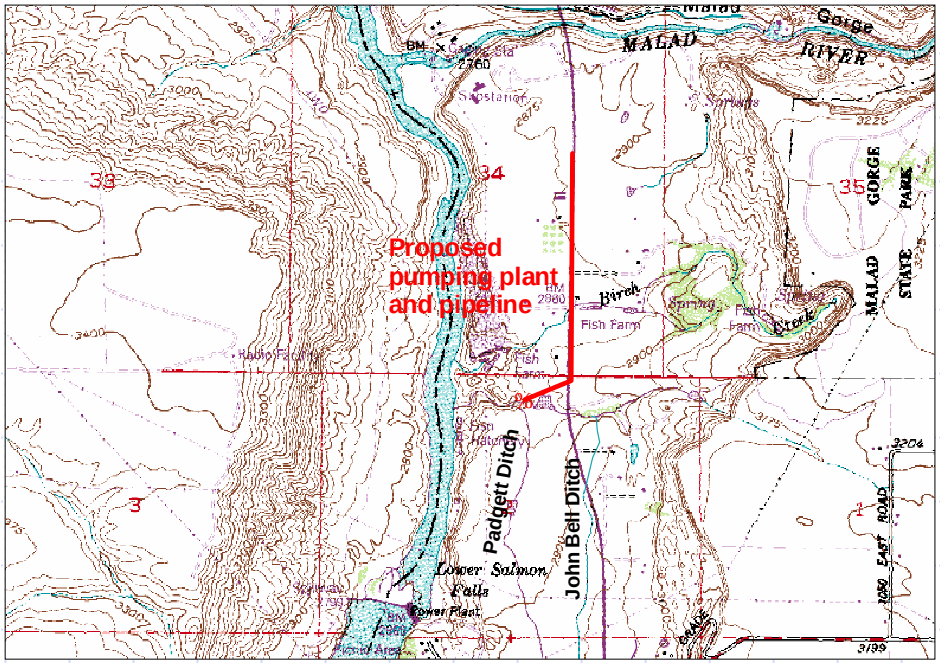
<u>Preliminary Estimated Costs</u>

Construction: $107,000

Annual O&M: $14,000

Padgett-John Bell Ditch Spill Pump Project

- Capture spills from Padgett Ditch and John Bell Ditch and deliver for irrigation use in the Birch Creek area.
- Offset/replace use of Birch Creek springs and other springs for irrigation use.
- Estimated water supply increase: 1,200 AF/yr.



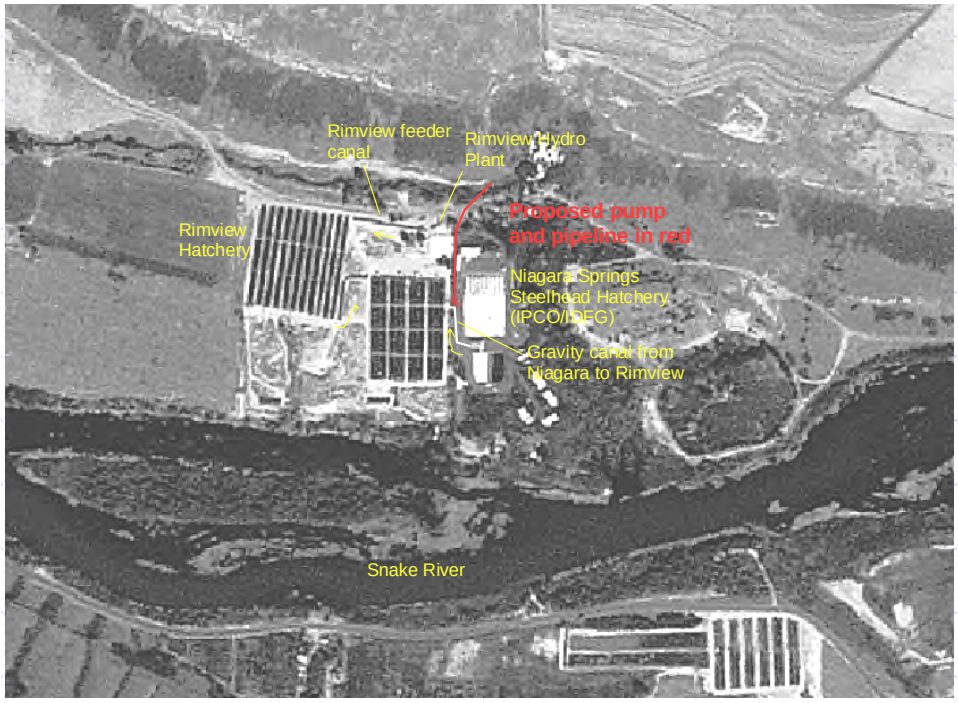
<u>Preliminary Estimated Costs</u>

Construction: $127,000

Annual O&M: $10,000

Niagara Spring Pump Back to Irrigation Project

- Pump hatchery outflow up to the state Wildlife Management Area diversion to offset the use of spring flows for irrigation.
- Allows flows currently diverted for irrigation to pass through the hatcheries.
- Estimated water supply increase to hatcheries: 4,300 AF/yr



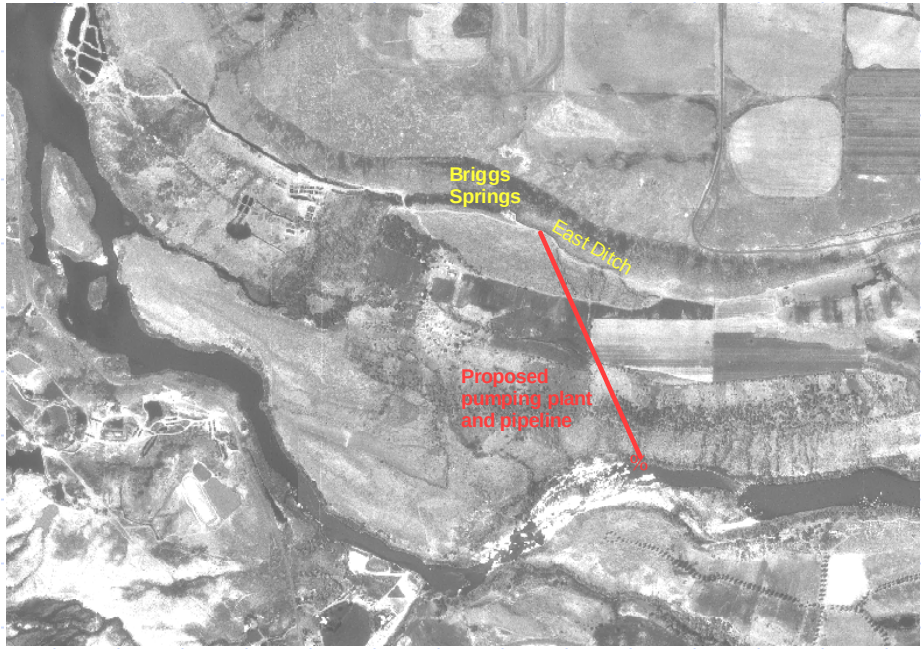
Preliminary Estimated Costs

Construction: $57,000

Annual O&M: $24,000

Briggs Spring Pump to Irrigation Project

- Pump from Snake River to replace use of Briggs Springs flows for irrigation.
- Allows the offset irrigation flows to pass through the hatcheries.
- Estimated water supply increase to Briggs Spring users: 2,400 AF/yr.



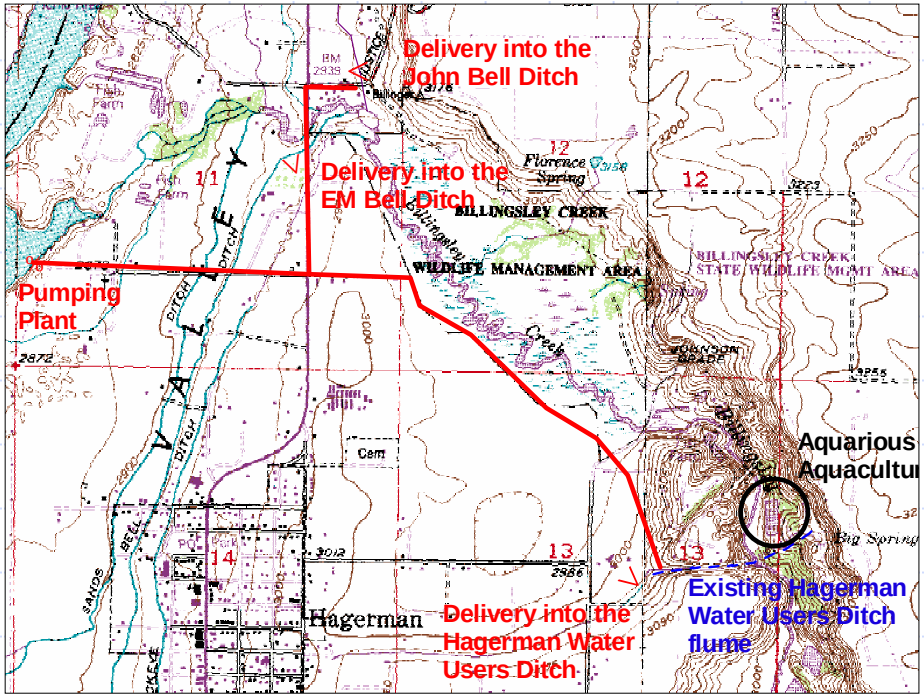
<u>Preliminary Estimated Costs</u>

Construction: $141,000

Annual O&M: $25,000

North Hagerman Irrigation Pump Project

- ❑Replace use of Billingsley Creek flows by three irrigation-only canals with pumping from Snake River.
- ❑This assumes “high-lift” water will be available for use in this project.
- ❑Also allows flows offset from the Hagerman Water Users Ditch to pass through the Aquarius Aquaculture hatchery.
- ❑Estimated water supply increase to Billingsley Creek system: 8,000 AF/yr
- ❑Estimated water supply increase to Aquarius Aquaculture: 3,000 AF/yr



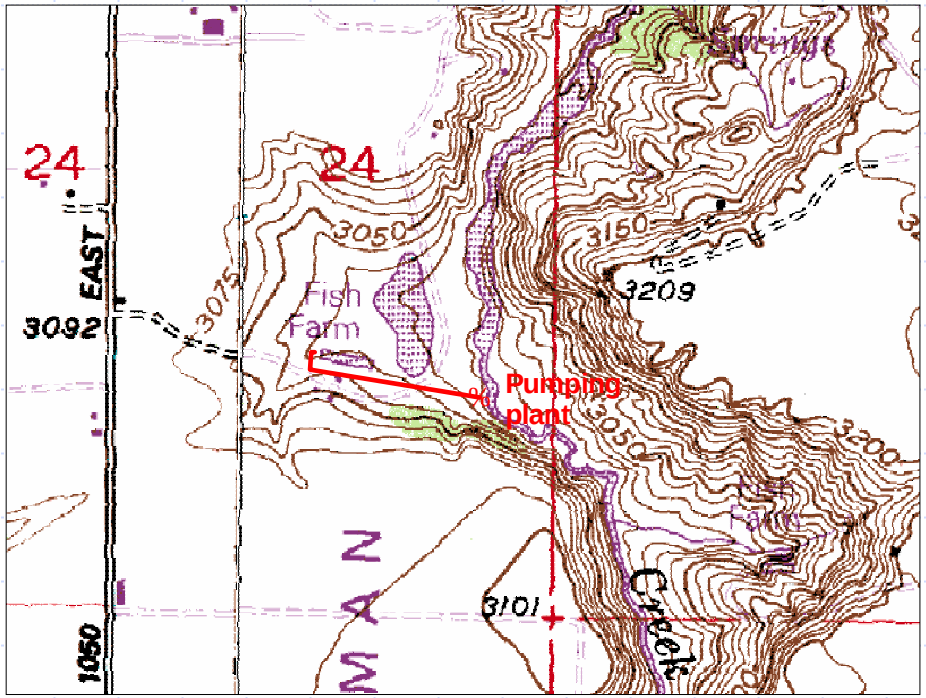
Preliminary Estimated Costs

Construction: $900,000

Annual O&M: $400,000

Billingsley Creek Ranch Fish Farm Pump Project

- ❑Augment spring flow supply with pumping from Billingsley Creek.
- ❑Flow would return to Billingsley Creek at approximately same location as pump.
- ❑This assumes other water management projects increase Billingsley Creek flows to a sufficient level.
- ❑Estimated water supply increase to Billingsley Creek Ranch Fish Farm: 6,500 AF/yr



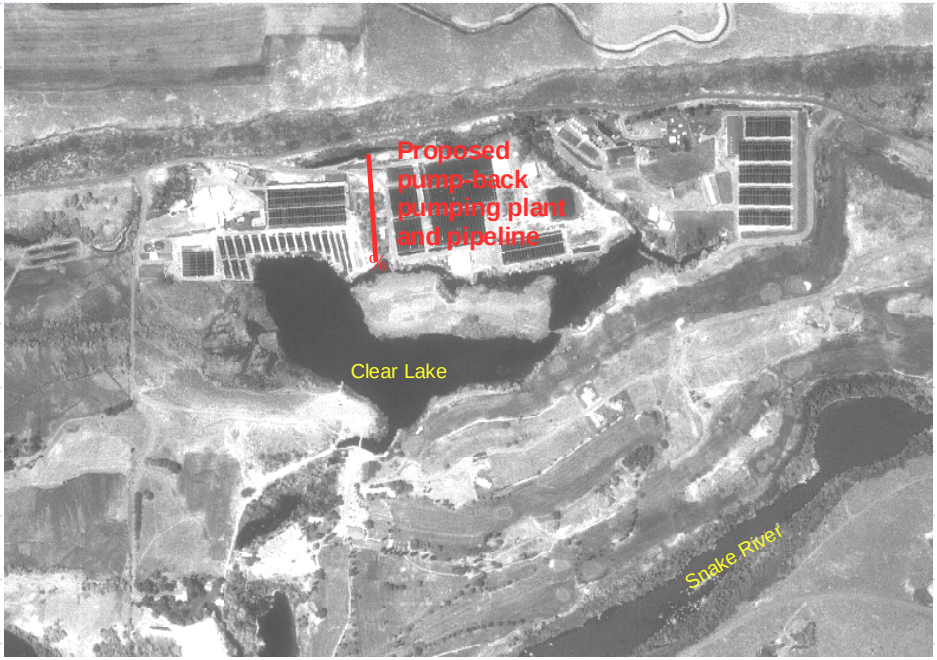
<u>Preliminary Estimated Costs</u>

Construction: $66,000

Annual O&M: $18,000

Clear Lake Pump Back Project

- Recycle flow for the benefit of hatcheries at this location.
- Pump from Clear Lake to upper end of diversion facilities.
- Mix recycled flow with new spring flows to augment water supplies.
- For preliminary planning a flow rate of 50 cfs was selected, which results in 36,200 AF/yr



<u>Preliminary Estimated Costs</u>

Construction: $616,000

Annual O&M: $85,000

Other Hatchery Pump Backs

- Pump back systems could be installed at other hatcheries throughout the Thousand Springs reach.
- Within the Thousand Springs reach the aggregate aquaculture water rights total approximately 3,000 cfs.
- It is assumed, with other parties bearing the costs, enough aquaculture facilities will want pump backs to reach a target of 100 cfs (72,400 AF) throughout the Thousand Springs reach -- 3% of aquaculture water rights.

Managed Recharge Projects

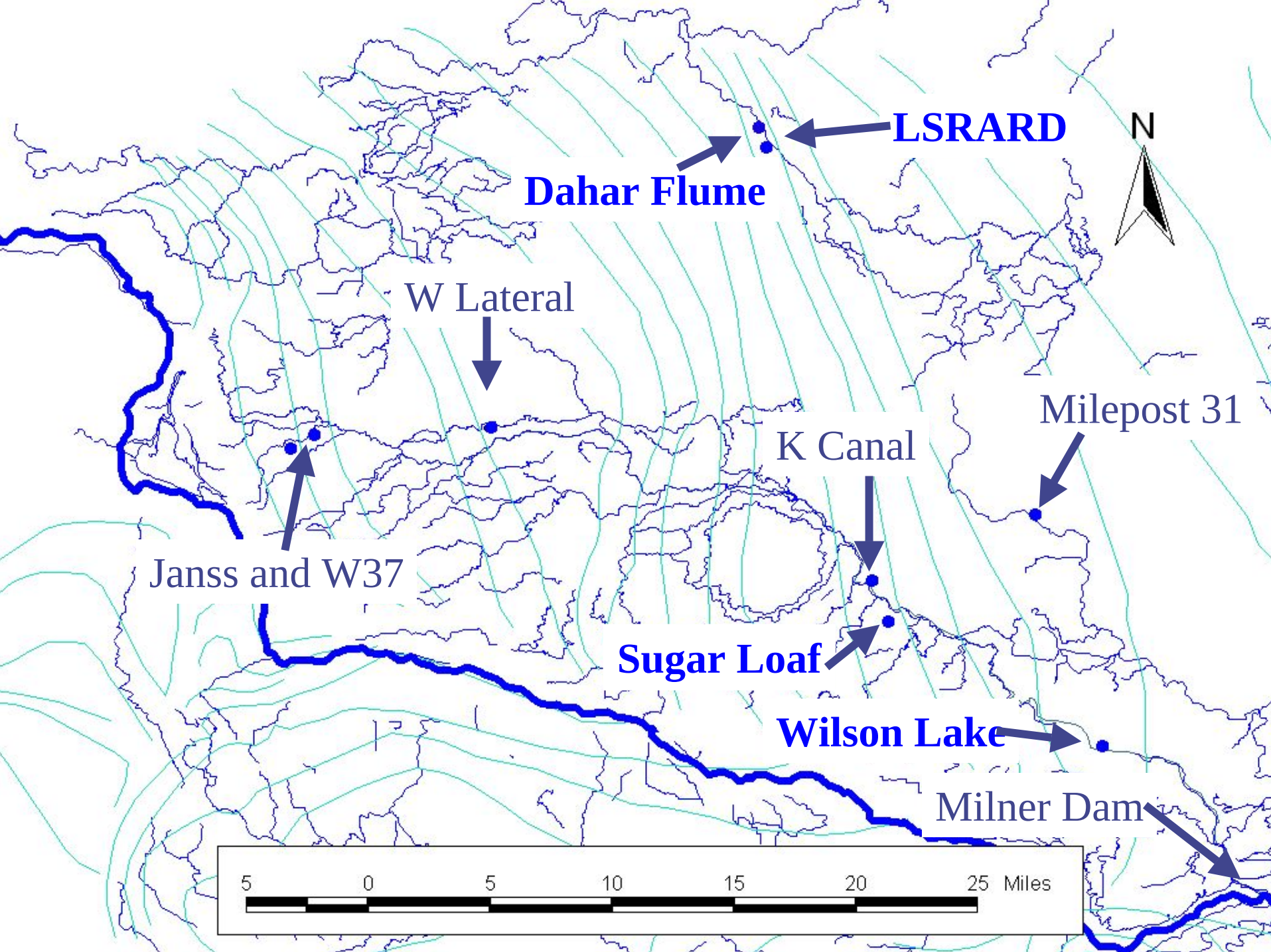
David Blew

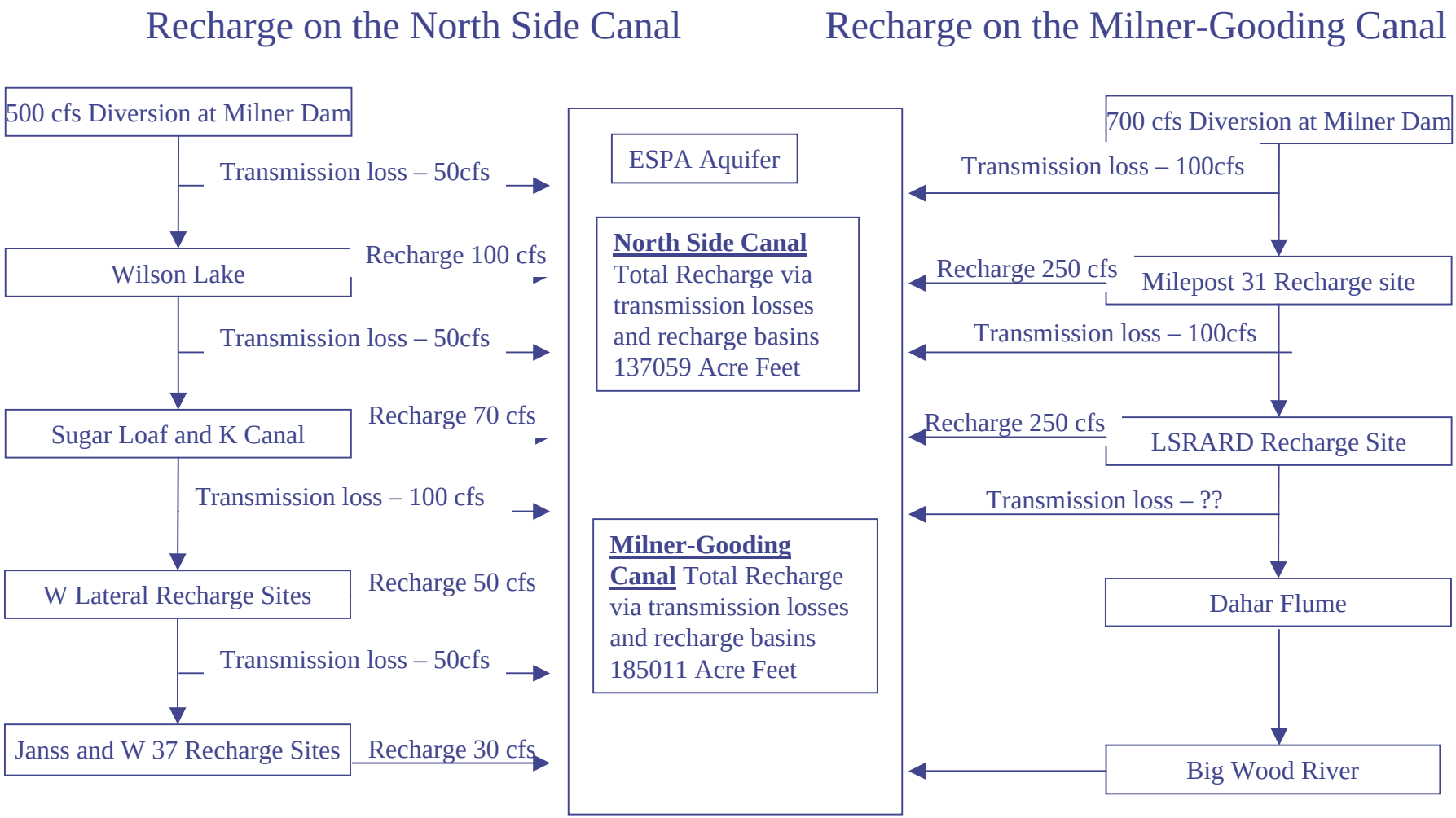
Idaho Department of

Water Resources

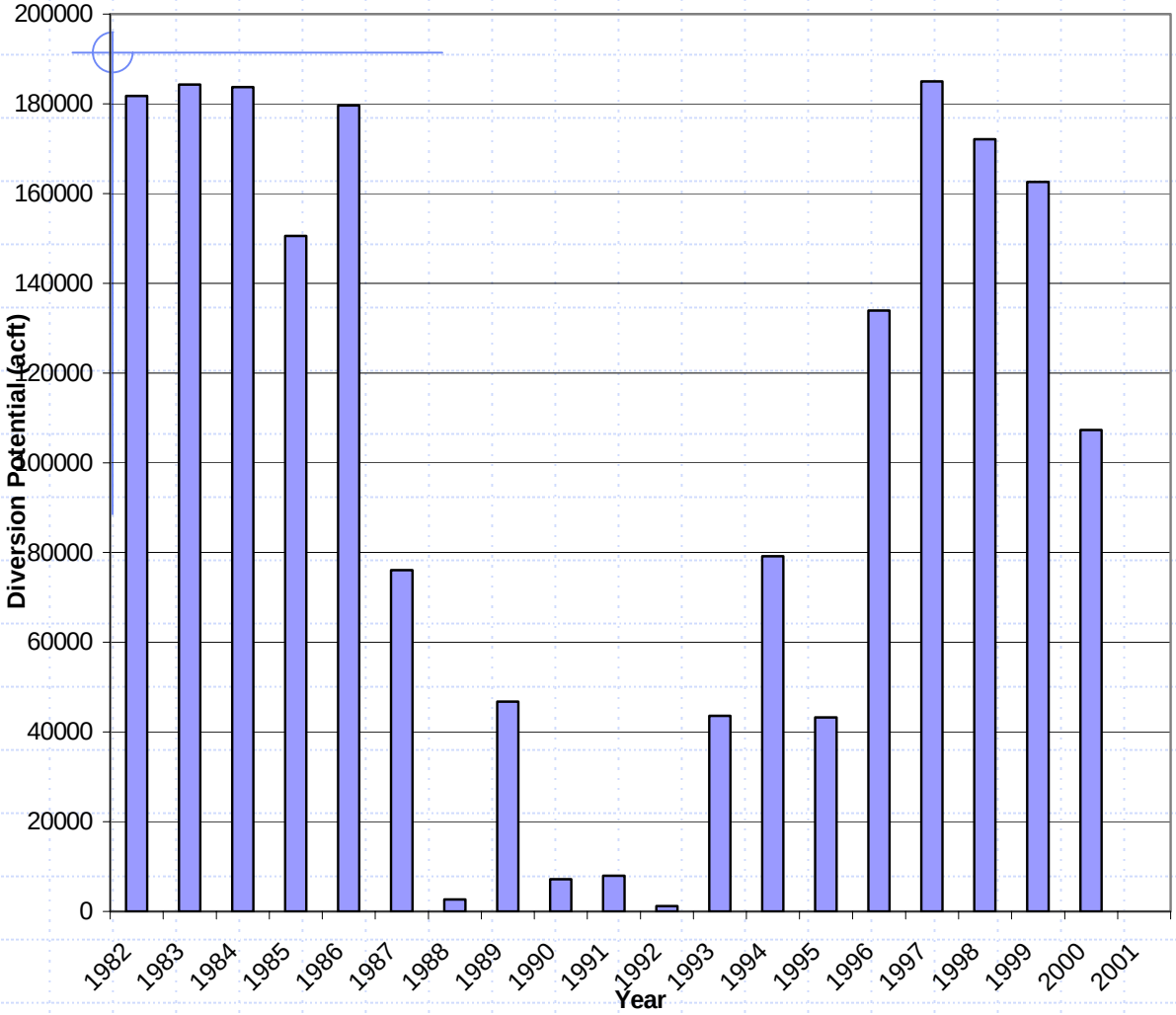
Managed Recharge Projects Summary Table

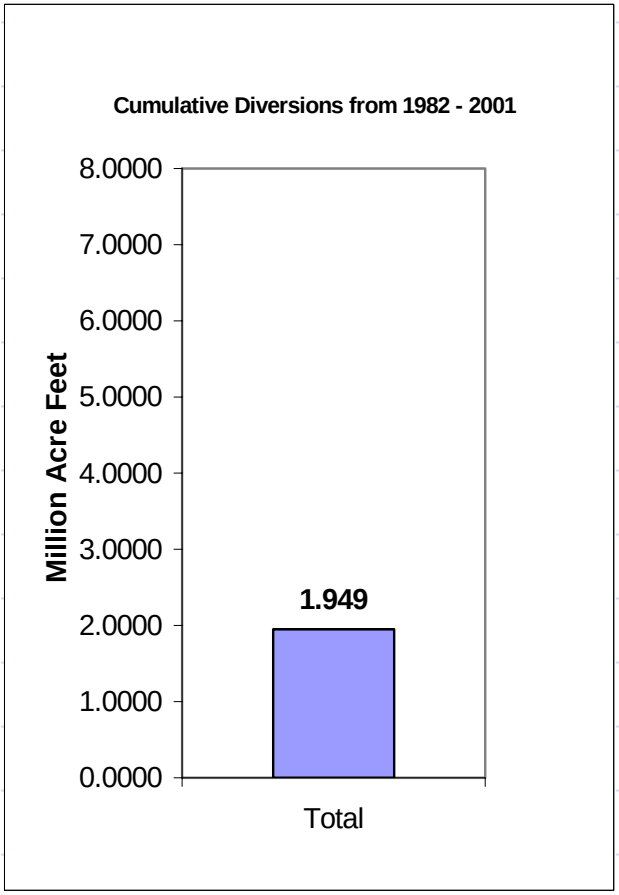
	PRELIMINARY ESTIMATED CONSTRUCTION COST
Milepost 31	$535,000
K Canal	$685,000
W Lateral (Wendell Sites)	$90,000
Janss and W37	$75,000
Delivery System Improvements	$100,000
TOTALS	**$1,485,000**
ESTIMATED O&M AND OPERATIONAL COST	**$1,112,920**
Total Acre Feet	**219,000**


LSRARD
N
Dahar Flume
W Lateral
Milepost 31
K Canal
Janss and W37
Sugar Loaf
Wilson Lake
Milner Dam
5
0
5
10
15
20
25 Miles

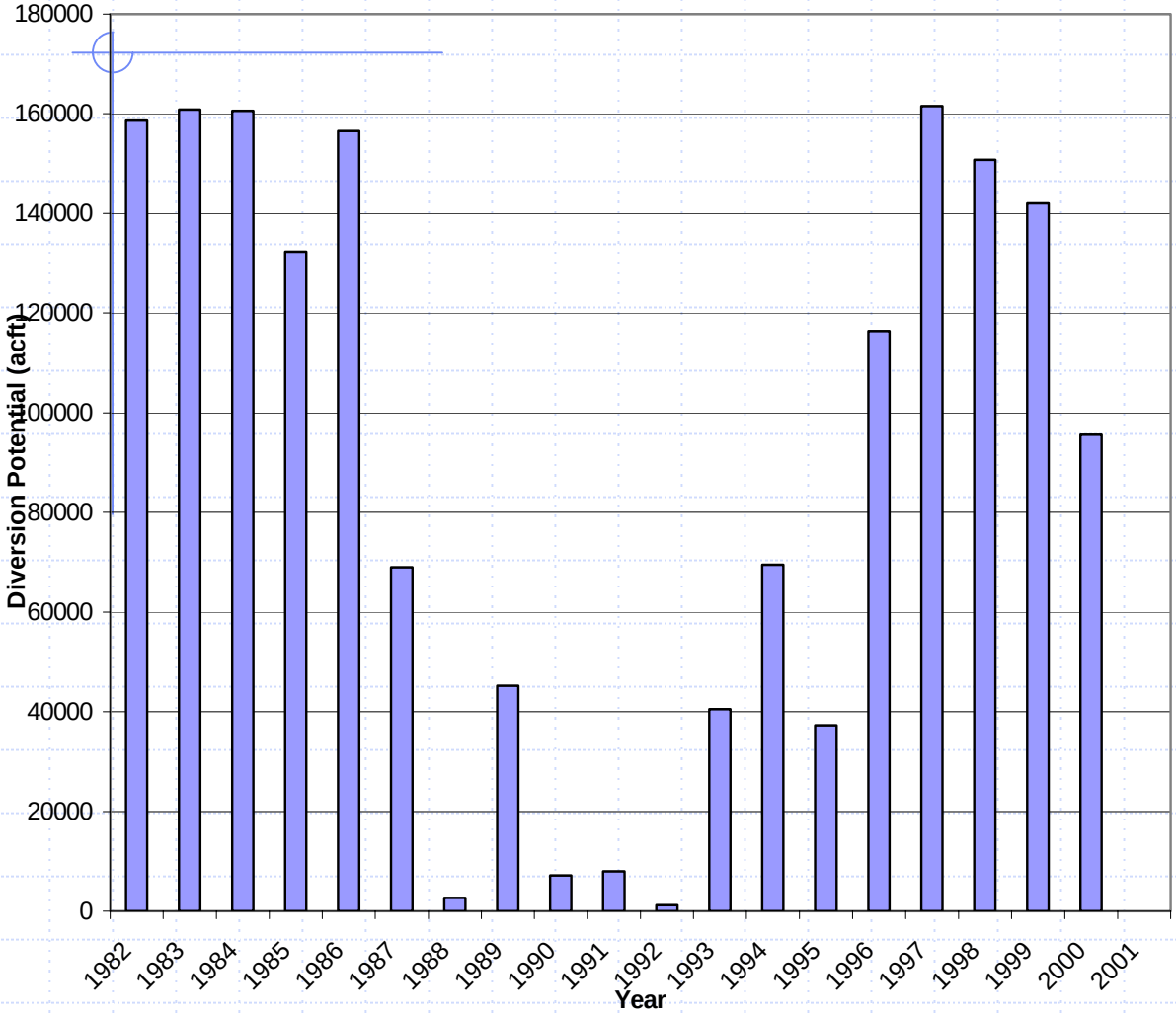

Recharge on the North Side Canal
Recharge on the Milner-Gooding Canal
500 cfs Diversion at Milner Dam
Transmission loss – 50cfs
Wilson Lake
Recharge 100 cfs
Transmission loss – 50cfs
Sugar Loaf and K Canal
Recharge 70 cfs
Transmission loss – 100 cfs
W Lateral Recharge Sites
Recharge 50 cfs
Transmission loss – 50cfs
Janss and W 37 Recharge Sites
Recharge 30 cfs
ESPA Aquifer
North Side Canal Total Recharge via transmission losses and recharge basins 137059 Acre Feet
Milner-Gooding Canal Total Recharge via transmission losses and recharge basins 185011 Acre Feet
700 cfs Diversion at Milner Dam
Transmission loss – 100cfs
Recharge 250 cfs
Milepost 31 Recharge site
Transmission loss – 100cfs
Recharge 250 cfs
LSRARD Recharge Site
Transmission loss – ??
Dahar Flume
Big Wood River

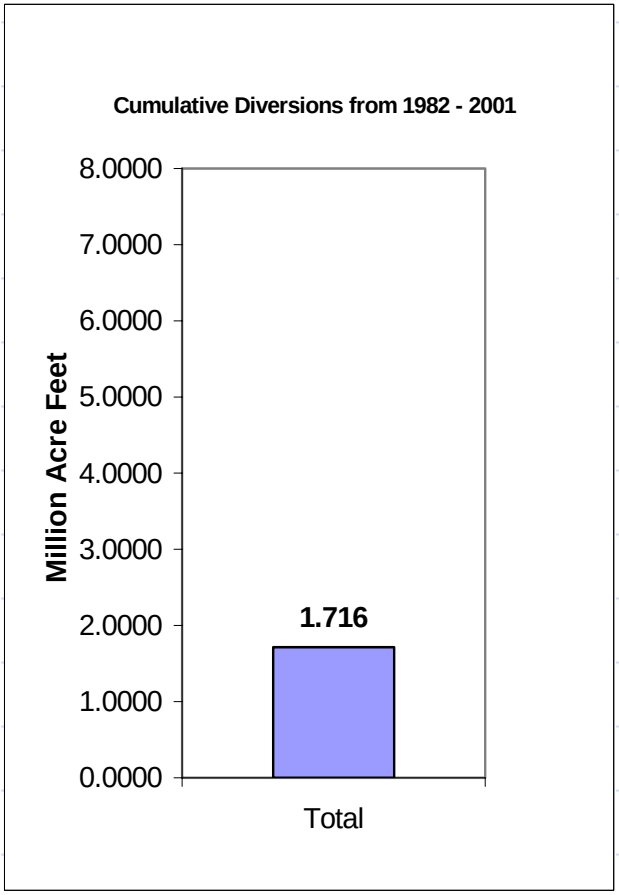
Diversion Potential at Milner into the Milner-Gooding Canal

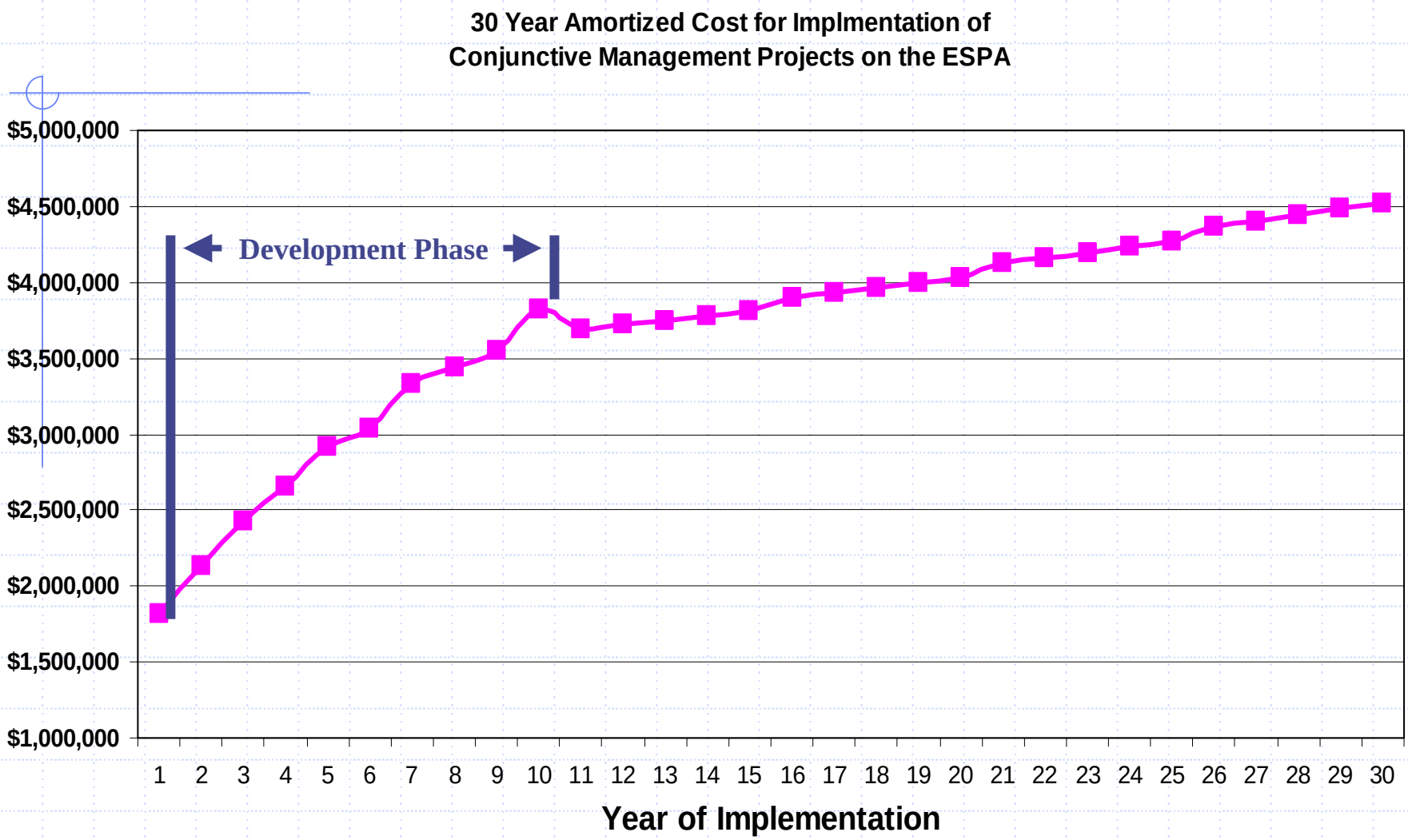




Diversion Potential at Milner into the North Side Canal






30 Year Amortized Cost for Implmentation of
Conjunctive Management Projects on the ESPA
$5,000,000
$4,500,000
$4,000,000
$3,500,000
$3,000,000
$2,500,000
$2,000,000
$1,500,000
$1,000,000
Development Phase
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Year of Implementation