

# *East Fork Irrigation District Water Management & Conservation Plan*



*March - 2011*



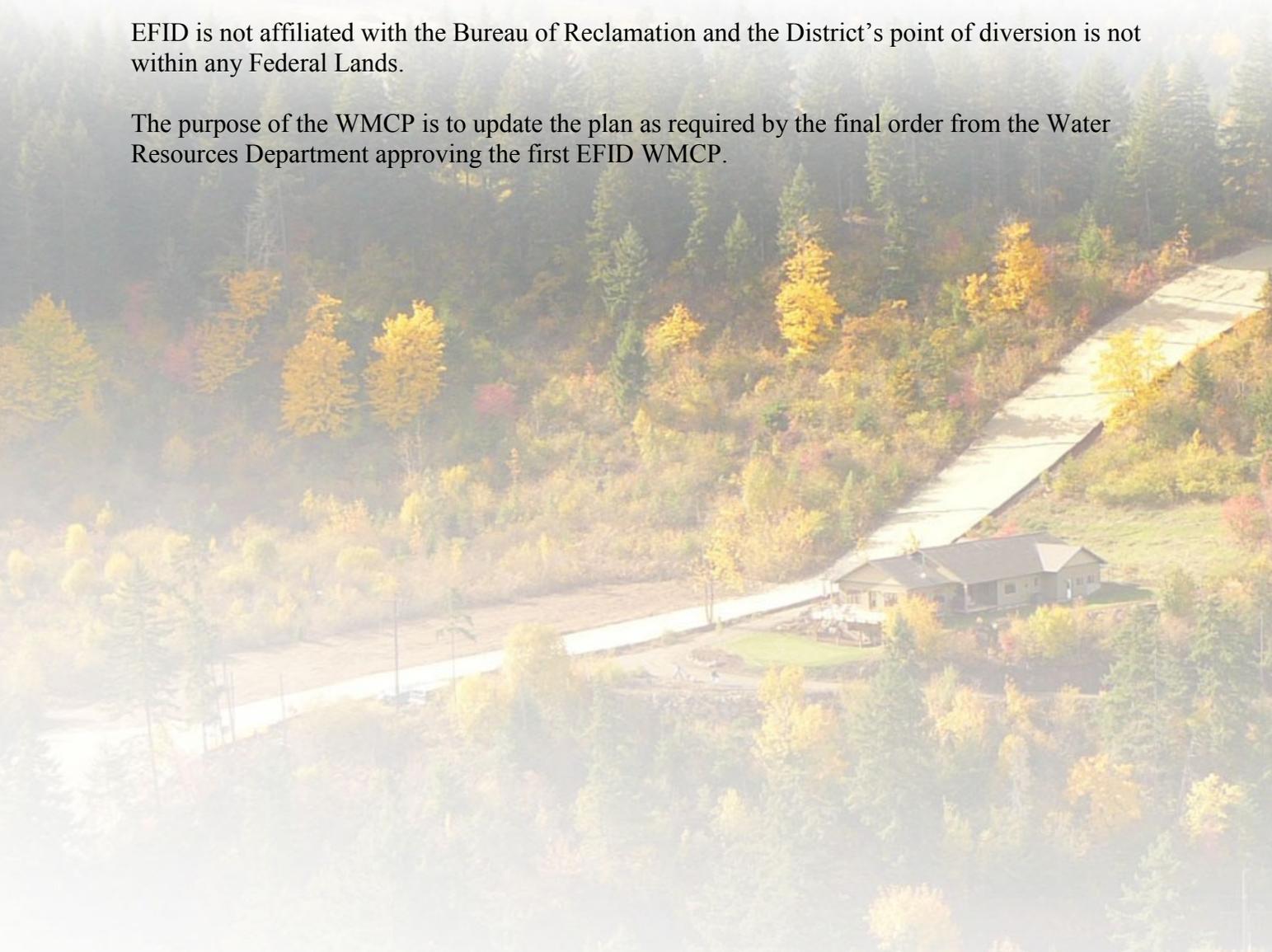
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## **Executive Summary**

The East Fork Irrigation District (EFID) is submitting this updated Water Management and Conservation Plan (WMCP) in accordance with OAR Chapter 690 Division 86. This plan is divided into six sections that cover the EFID Water Management and Conservation Plan. The order of the first five sections within the plan follows the rule requirements in OAR 690 Division 86. Section Six of the plan also provides a brief history of the district.

EFID is not affiliated with the Bureau of Reclamation and the District's point of diversion is not within any Federal Lands.

The purpose of the WMCP is to update the plan as required by the final order from the Water Resources Department approving the first EFID WMCP.

An aerial photograph showing a large, light-colored building with a dark roof, situated on a hillside. The surrounding area is densely forested with trees displaying vibrant autumn colors in shades of yellow, orange, and red. A paved road or driveway leads to the building. The overall scene is captured from a high angle, looking down on the property.

**East Fork Irrigation District  
PO Box 162 • Odell, OR 97044**

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**Section 1– Water Supplier Description**  
**OAR 690-086-0240**

The East Fork Irrigation District (EFID) is located in Hood River County; headquartered in Odell, Oregon. EFID is not affiliated with the Bureau of Reclamation and the District’s point of diversion is not within any Federal Lands.

The District encompasses the area of land north of the diversion from East Fork Hood River to the Columbia River, east of the Hood River and west of the East Hills of the Hood River Valley. The district boundary consists of approximately 15,150 acres on which 9611.57 acres of water rights are allocated.

The East Fork Irrigation District (EFID) diverts water for both the Mount Hood Irrigation District (MHID) and the East Fork Irrigation District.

**Section 1.1**  
***Source of water***

East Fork Irrigation District diverts irrigation water from the East Fork Hood River just south of the community of Mt. Hood and south of Tollbridge Park. EFID has one point of diversion, located on the East Fork Hood River approximately one mile east of Parkdale, Oregon.

The point of diversion is specifically described as, NW/SW, Section 4, Township 1 South, Range 10 East, Willamette Meridian, being 3750 ft. South and 430 ft. East from the NW corner of Section 4. EFID diversion is located on the east abutment of the East Fork Hood River. The diversion structure consists of a 12 feet wide by 4 ½ feet high vertical actuated headgate. Reinforced concrete wing walls extend about 8 feet beyond each side of the headgate. Local bedrock and river boulders provide the necessary water elevation control.

Gauging station 14114000 on the EFID main canal located east of Highway 35 is operated by the Oregon Water Resources Department (OWRD). Through use of telemetric equipment, real time data is available via OWRD’s web page. Historical records are available from 1925 to present.

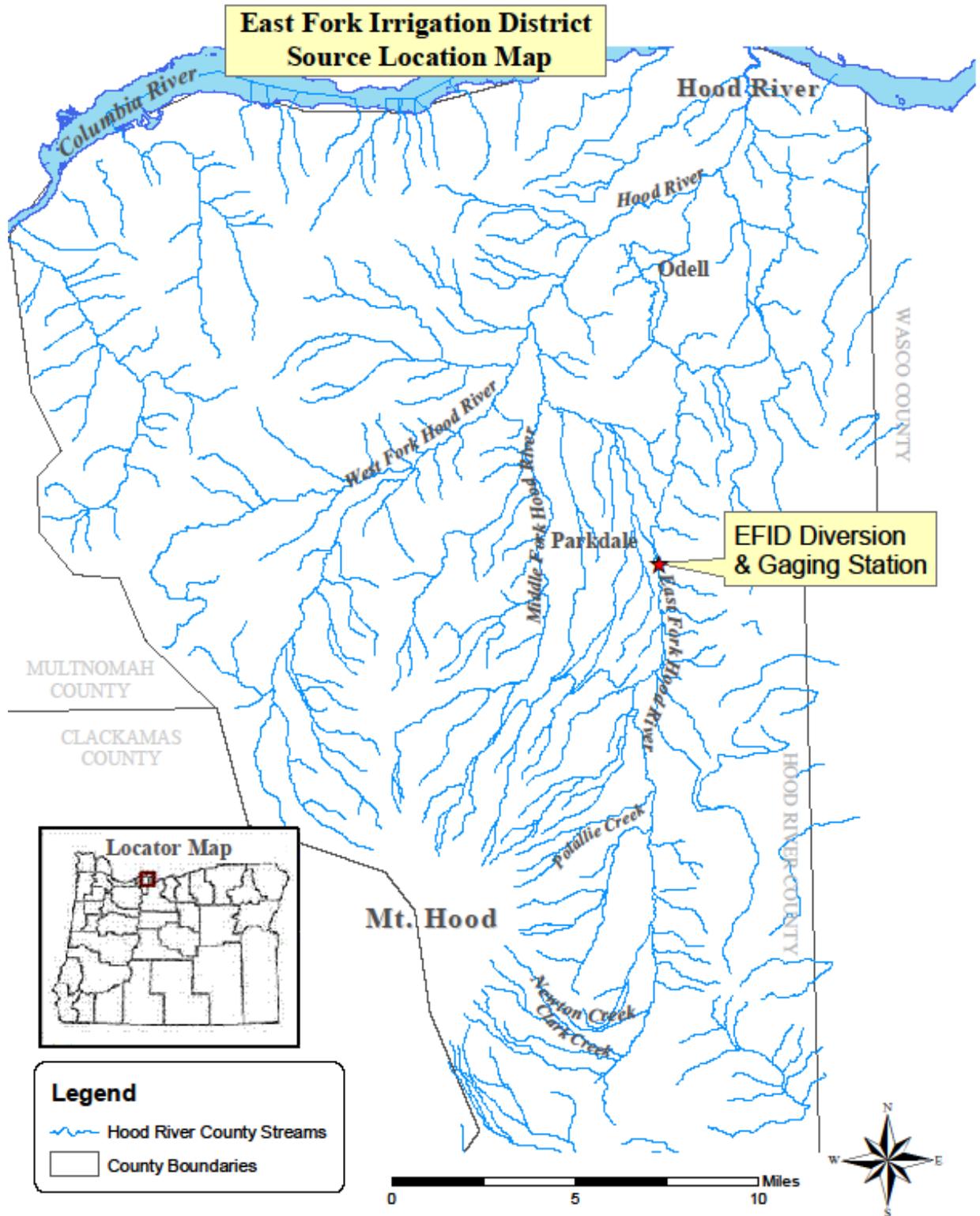
EFID’s water supply is natural stream flow from the East Fork Hood River. The Hood River is a tributary of the Columbia River. Approximately 25 miles long from its mouth to its farthest headwaters on the East Fork, the river descends from wilderness areas in the Cascade Range on Mount Hood and flows through the agricultural Hood River Valley to join the Columbia River in the Columbia River Gorge. The East Fork, approximately 15 miles long, rises on the east side of the mountain in the Mount Hood National Forest fed by Newton-Clark Glacier (Pollalie Creek). The limiting factor for this water supply is a high degree of sediment from glacial till.



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East Fork Irrigation  
District Headgate on  
East Fork Hood River

Section 1.1  
Source of water - Location Map



**Section 1.2**  
**Summary of water rights**

EFID has seven (7) certificates for irrigation use and one permit for agricultural spraying, frost and fire protection. EFID has submitted thirteen (13) transfers of water rights for change in place of use. In 2002, a Division 15 Transfer (T-9129) was filed to change the character of use on 10.8 acres of irrigation water rights to industrial water right to be used on a lumber mill.

**TABLE A**  
**WATER RIGHTS HELD BY OR SERVING THE EAST FORK IRRIGATION DISTRICT**

<b>Cert.</b>	<b>Decree/ Permit</b>	<b>Priority</b>	<b>Use</b>	<b>Rate</b>	<b>Duty</b>	<b>Remarks</b>
<b>81340</b>	<b>Volume 17, Page 333</b>	Nov. 25, 1895	Primary irrigation of 8526.52 acres and Inchoate rights for 20.25 acres	106.55 cfs and 0.25 cfs	3 aft./acre	This is the primary right for most of the District. Of the 20.25 acres of inchoate rights 10.8 acres are industrial rights.
<b>80929</b>	<b>29617</b>	Mar. 13, 1964	Primary irrigation of 478.8 acres	5.99 cfs	3 aft./acre	
<b>80928</b>	<b>30825</b>	Aug. 13, 1965	Primary irrigation of 89.0 acres	1.1 cfs	3 aft./acre	
<b>80927</b>	<b>32101</b>	Oct. 26, 1966	Primary irrigation of 57.0 acres	0.71 cfs	3 aft./acre	
<b>80926</b>	<b>32685</b>	June 14, 1967	Primary irrigation 25.0 acres	0.31 cfs	3 aft./acre	
<b>N/A</b>	<b>43393*</b>	Feb. 23, 1977 (25.0 cfs) and Aug. 15, 1978 (12.1 cfs)	Agriculture spraying (10 cfs), frost control (27.0 cfs), fire protection (.10 cfs)	37.1 cfs	NA	Claim of Beneficial Use to be completed by WRD
<b>84803</b>	<b>43395</b>	Aug. 8, 1977 (4.45 cfs) and Aug. 3, 1978 (0.61 cfs)	Primary irrigation 405.0 acres	5.06 cfs	3 aft./acre	
<b>84802</b>	<b>46707</b>	Feb. 3, 1982	Primary irrigation 10.0 acres	0.125 cfs	3 aft./acre	
<b>Mt. Hood Irrigation District (MHID) Water Right Delivered By East Fork Irrigation District</b>						
<b>64423</b>		Nov. 27, 1896	Primary irrigation of 724.3 acres	11.55 cfs	3 aft./acre	
<b>57882</b>		Mar. 2, 1964	Primary irrigation of 93.7 acres, Supplemental irrigation 1.0 acres	1.1 cfs	3 aft./acre	
<b>N/A</b>	<b>43518</b>	Apr. 22, 1977 and Aug. 8, 1978	Agriculture spraying (.5 cfs), frost control (21.66 cfs), fire protection (.05 cfs), Stock (.05 cfs)	22.26 cfs	N/A	

All diversion from East Fork Hood River

Irrigation season April 15th - September 30th

\* water use season March - October

**TABLE B  
TRANSFERS SUBMITTED TO OWRD BY EAST FORK IRRIGATION DISTRICT**

<b>Transfer</b>	<b>Source</b>	<b>Date</b>	<b>Use</b>
3967	East Fork Hood River	1978	Primary Irrigation 1.00 acre
2776	East Fork Hood River	1978	Primary Irrigation 5.00 acres
5910	East Fork Hood River	1987	Primary Irrigation 1.00 acre
7523	East Fork Hood River	1997	Primary Irrigation 8.80 acres
8107	East Fork Hood River	2000	Primary Irrigation 1.08 acres
8648	East Fork Hood River	2001	Primary Irrigation 3.95 acres
8993	East Fork Hood River	2002	Primary Irrigation 11.40 acres
9609	East Fork Hood River	2004	Primary Irrigation 3.50 acres
9804	East Fork Hood River	2005	Primary Irrigation 7.05 acres
10254	East Fork Hood River	2006	Primary Irrigation 10.05 acres
10416	East Fork Hood River	2007	Primary Irrigation 11.65 acres
10748	East Fork Hood River	2008	Primary Irrigation 6.40 acres
10972	East Fork Hood River	2009	Primary Irrigation 1.55 acres

### **Section 1.3** ***Schematic of the system***

EFID has one point of diversion (POD) from the East Fork Hood River. Irrigation water is diverted for both EFID and Mt. Hood Irrigation District (MHID) from the POD. The unlined Main Canal varies from 20 – 10 feet wide with an average depth of 2.5 feet. This canal carries all the water for both districts. MHID has two PODs along the Main Canal totaling 12.65 cfs. There is a series of 3 silt settling pits on the Main Canal. The Main Canal serves about 550 acres.

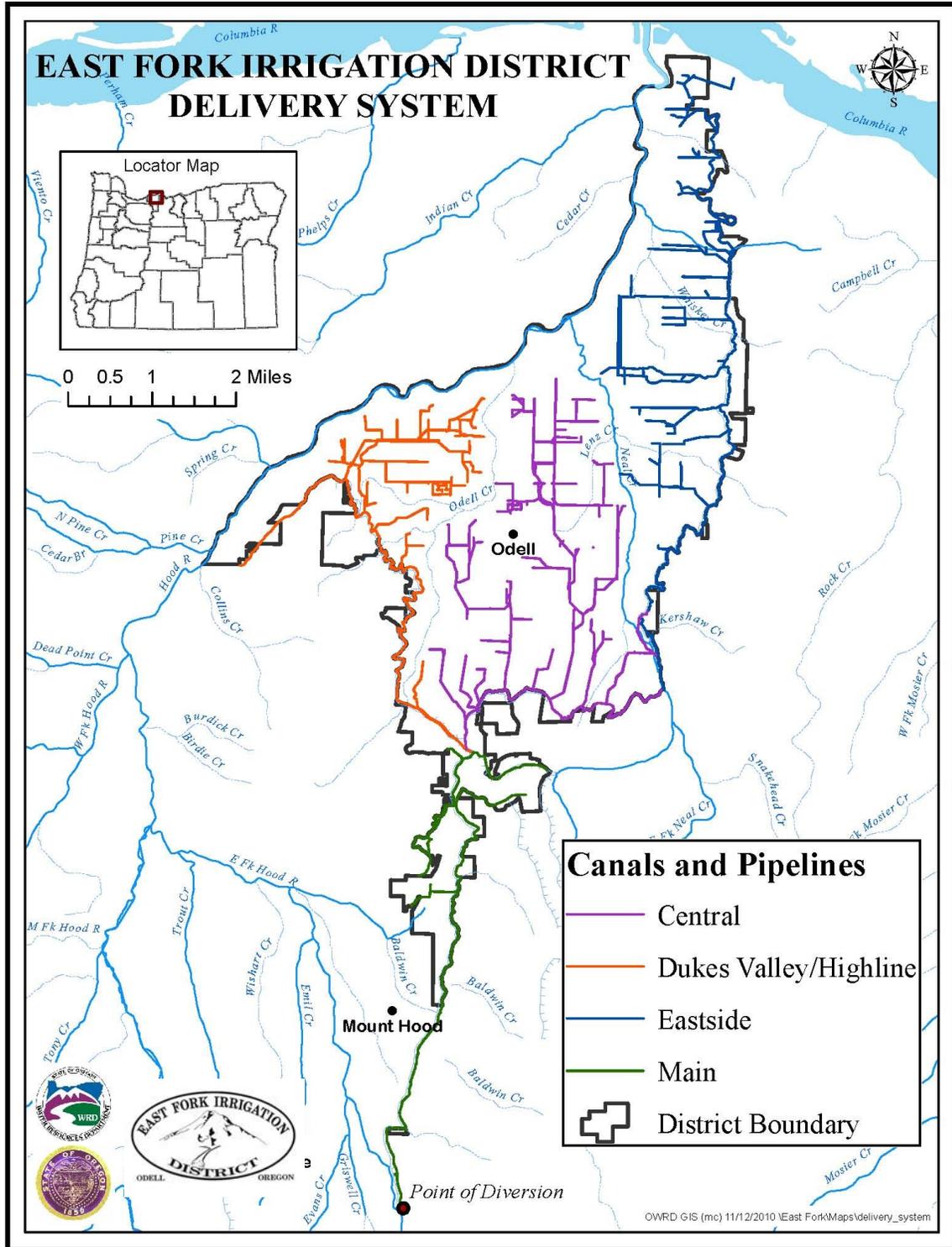
Approximately 6.5 miles down the Main Canal, the district has a traveling screen and diversion. At this diversion structure water is diverted to Dukes Valley/Highline Canals and to the Central Lateral Pipeline which supplies water to the Central area and to the Eastside Canal.

The unlined Dukes Valley Canal is approximately 10 feet wide, 2 feet deep and 5 miles long flowing in a north and westerly direction. A short section of old flume is still in place along the Dukes Valley Canal. This canal serves about 1900 acres. The unlined Highline Canal is very narrow with an average width of 2 feet. This canal flows in the west and southerly direction serving 155 acres.

The Central Lateral Pipeline varies from 72” - 60” Weholite pipe, 48” HDPE pipe to 30” steel pipe flowing in the northeasterly direction approximately 4.5 miles before discharging into the Eastside Canal. There are seven main laterals off the Central Lateral Pipeline. The Central Lateral Pipeline serves 3700 acres.

The unlined Eastside Canal flows in the northerly direction approximately 4.5 miles before it is piped. The open canal varies from 14 to 4 feet wide and 1.5 feet deep. The lower eastside is piped to within 1 mile of the Columbia River. The Eastside Canal and pipeline serves 3300 acres.

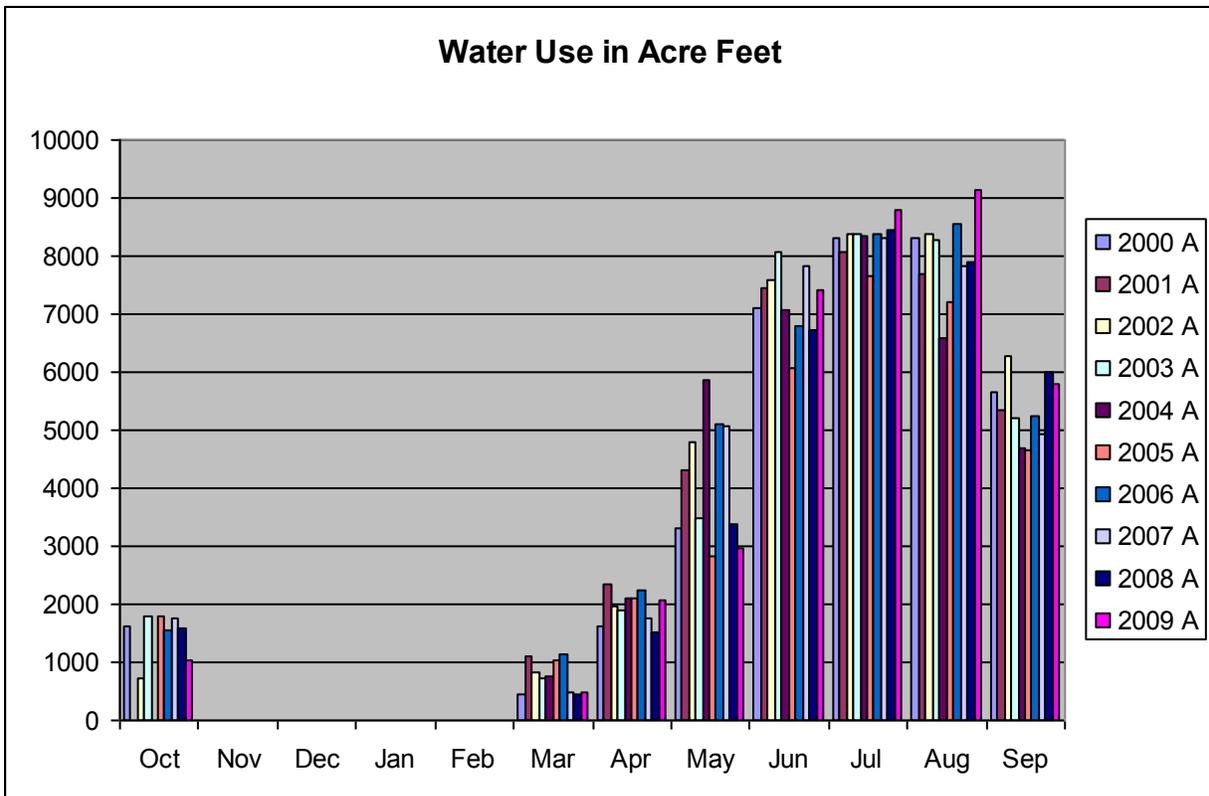
Section 1.3  
Schematic of the system



**Section 1.4**  
*Current water use, including peak and average annual diversions*

**TABLE C**  
**EAST FORK IRRIGATION DIVERSION BY MONTH**  
**WATER SUPPLY YEARS 2000 2009**

Month	Average acre feet	High acre feet	Low acre feet
March	741.8	1134.4	442.4
April	1963.8	2355.6	1523.8
May	4111.7	5859.6	2834.0
June	7210.8	8056.6	6064.0
July	8304.0	8791.2	7653.6
August	7989.1	9138.1	6598.0
September	5381.6	6283.4	4668.2
October	1187.6	1799.2	732.0



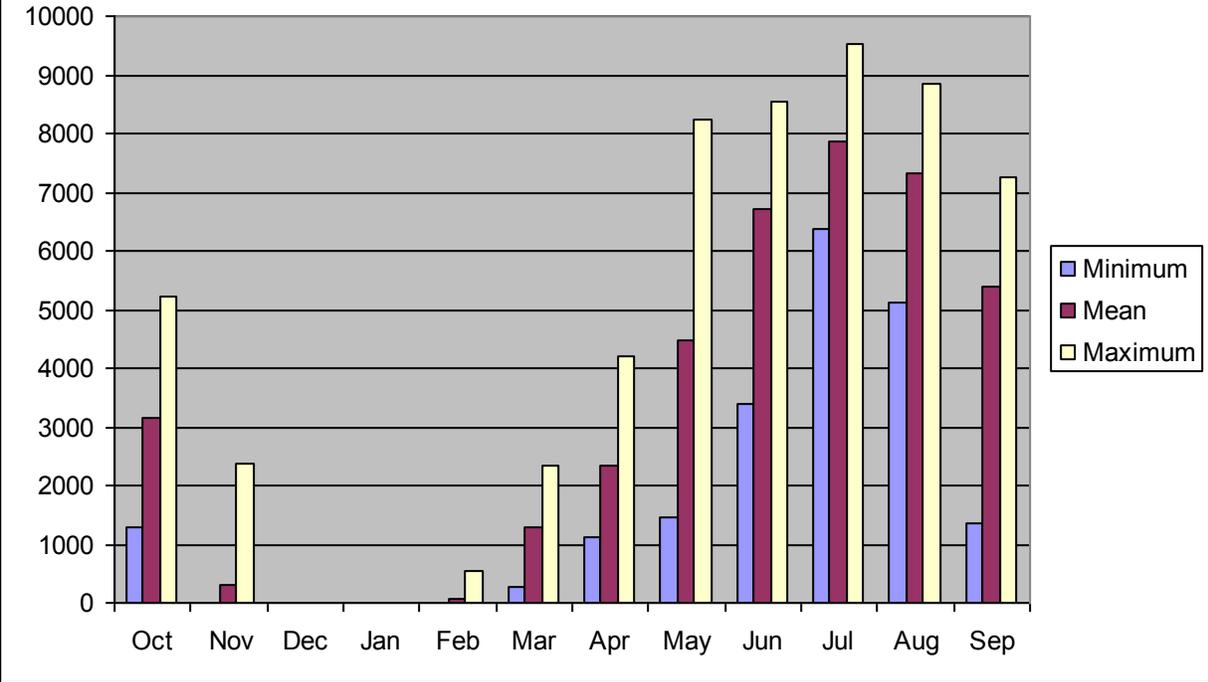
**TABLE D**  
**ACRE FEET OF WATER USE REPORTED**  
**WATER YEARS 2000 - 2009**

Water Year	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
2000	1619	0	0	0	0	447.2	1618.8	3325.4	7105.6	8314.4	8314.4	5649.8
2001	0	0	0	0	0	1103.2	2355.6	4323	7453.6	8060.8	7705.2	5352
2002	732	0	0	0	0	840.4	1962	4794.8	7591.2	8362.8	8389.6	6283.4
2003	1794	0	0	0	0	719.2	1893.6	3465.8	8056.6	8375.2	8261.6	5216
2004	0	0	0	0	0	755	2117.2	5859.6	7080.8	8341.2	6598	4686.4
2005	1799.2	0	0	0	0	1034.4	2103.02	2834	6064	7653.6	7218	4668.2
2006	1559.2	0	0	0	0	1134.36	2249.2	5088.8	6807.8	8378.4	8547.8	5249.8
2007	1760.4	0	0	0	0	473.36	1755.6	5057.2	7830.6	8312.2	7822	4932.6
2008	1586.42	0	0	0	0	442.4	1523.8	3387.2	6714.6	8450.2	7896.8	5983.8
2009	1025.8	0	0	0	0	468.2	2059.6	2980.8	7403.4	8791.2	9138.1	5794.3

**TABLE E**  
**STATISTICAL ANALYSIS OF MONTHLY DIVERSIONS**  
**AT GAGE CONVERTED TO ACRE FEET**  
**APRIL 1, 1925 - PRESENT**

Month	Minimum daily diversion in cfs	Acre Feet	Mean daily diversion in cfs	Acre Feet	Maximum daily diversion in cfs	Acre Feet
Oct	21	1288.98	51.6	3167.208	85	5217.3
Nov	0	0	5.02	298.188	40	2376
Dec	0	0	0	0	0	0
Jan	0	0	0	0	0	0
Feb	0	0	0.97	53.7768	10	554.4
Mar	4.3	263.934	20.9	1282.842	38	2332.44
Apr	19	1128.6	39.2	2328.48	71	4217.4
May	24	1473.12	73.1	4486.878	134	8224.92
Jun	57	3385.8	113	6712.2	144	8553.6
Jul	104	6383.52	128	7856.64	155	9513.9
Aug	86	5108.4	123	7306.2	149	8850.6
Sep	23	1366.2	90.7	5387.58	122	7246.8

Statistical Diversion by Month in acre feet



**Section 1.5**  
***Summary of major classification of uses and users***

949 Customers	irrigation	9484 acres
1 Customer	industrial	10.8 acres

This summary is based on district records for 2009. Of the 949 customers, 6 of those customers are irrigation user groups consisting of a total of 168 individual water users.

**Section 1.6**  
***Types of on-farm irrigation systems commonly used***

Nearly 100% of irrigation water is applied using sprinklers. Irrigation systems in orchards are primarily in-ground, solid set with sprinklers located within the tree row about one foot above the ground; above-ground, poly tube with low flow sprinklers located within the tree rows about one foot above the ground; or 2 inch, 20 to 30 foot aluminum hand lines with impact sprinkler heads located within the drive rows. Open irrigated fields i.e. hay, pasture, and grass may use big guns (water cannons), hand lines or wheel line laterals with sprinklers with 1/8", 7/64" or 3/32" nozzles. Most blueberries are irrigated with overhead, solid set irrigation. District staff estimates that approximately 40% of the EFID irrigated area use low flow sprinkler application methods. Drip/trickle emitters are not recommended because of the district's water quality at certain times during the irrigation season. On farm filter systems are necessary for all irrigators using low flow sprinkler systems.

The current estimate based on the WMCP user survey (Section 1.7) shows 1,091.5 acres irrigated by poly tube approximately 14.9% this may be a low estimate since two of the survey respondents did not list any acreage data. According to the survey four respondents also listed 123 acres of irrigation by emitters. This indicates a trend towards more efficient patron irrigation. Even so, the limiting factor may be the basic water quality problems with the amount of sand in the delivered water. Self purging filters can correct this problem; however, staff have observed problems with the waste of water from the purging of the device on farm settling ponds may help with this process.

## Section 1.7

### *Crops commonly grown, estimated average and peak consumptive use*

The district maintains a data base containing ownership, water right, crop and billing information for each customer served by the district. Tree fruits such as pears, apples, cherries, and some stone fruits, are the main crops grown in Hood River Valley. Recently crops have diversified some to included blueberries and wine grapes. Hay, grass and pastureland complete the crops grown in the district.

The previous WMCP estimated EFID irrigation uses at approximately 85% orchards; 2% alfalfa/ grass hay, 4% pasture, 3% urban lawn and garden, 3% vineyards; 1 % berries. Currently, irrigation uses are comprised of approximately 76% orchards (pears, cherries, apples, stone fruits); 15% alfalfa, grass hay, pasture; 8% urban areas, schools, etc. and 1% vineyards, berries, nursery. There is a very small amount of industrial use related to lumber/timber operation. There are developed subdivisions of urban users near Odell. Generally, urbanization has been of a limited nature and not expected to be a major issue since most of the land in the district is under Exclusive Farm Use (EFU) laws. Some Measure 37/49 claims have been filed on lands within the district but only a few claims have been acted upon.

<b>Table F</b>			
<b>Estimate of Acreage of Commonly Grown Crops</b>			
Crop	*WMCP Survey	2009 Estimate	Previous Estimate
Pears	5290– 69%	5290-56%	6,229 – 63%
Cherries	900 – 8%	900- 9.5%	600 - 6%
Apples	800– 9%	880-9.3%	1,500 – 16%
Blueberries	62 – 0.8 %	62-0.8%	100 – 1%
Grapes	21 – 0.3%	21-0.3%	300 – 3%
Grass, Pasture, Hay	1450 -9%	1450-15%	600 – 6%
Other Orchards	81 – 1%	100-1.2%	150 – 2%
Urban Areas, Schools	N/A	750 -7.9%	300 – 3%

\*WMCP Survey:

This information was compiled from a survey sent only to district patrons with total water rights of 20 acres or more. The survey was mailed out in May 2008 to 105 patrons with a total of approximately 7375 acres of water rights of which 75 patrons responded with a total of 5125 acres of water rights. The survey requested information on crop varieties by the acre, irrigation system design including nozzle size or gpm, irrigation uses by the acre, water scheduling, type of financial assistance for on farm irrigation projects and interest in using a website.

### *Irrigation Demand*

Table G represents three values from OSU Extension publication 8530 “Oregon Crop Water Use and Irrigation Requirements” with the acreage value from the most recent patron survey. The values for irrigation demand are likely slightly higher since some of the acreage was not captured in the survey. For comparison purposes, water use figures in Table C and crop acreage in Table F show that water use for the representative crops are consistent with the demand in Table G.

<b>Table G</b>						
<b>EFID Net Irrigation Demand</b>						
<b>Oregon Water Use and Irrigation Requirements</b>						
<b>Alfalfa</b>	<b>Five of Ten Years</b>	<b>Acre feet required</b>	<b>Nine of Ten Years</b>	<b>Acre feet required</b>	<b>Nineteen of Twenty Years</b>	<b>Acre feet required</b>
April	1.06	1,759.60	1.97	3,270.20	2.24	3,718.40
May	3.54	6,072.28	4.65	7,976.30	4.88	8,370.83
June	4.76	7,901.60	5.67	9,412.20	5.87	9,744.20
July	6.54	11,218.28	7.01	12,024.49	7.13	12,230.33
August	5.28	9,056.96	5.91	10,137.62	6.06	10,394.92
Sept	2.95	4,897.00	3.98	6,606.80	4.09	6,789.40
<b>Grapes</b>	<b>Five of Ten Years</b>	<b>Acre feet required</b>	<b>Nine of Ten Years</b>	<b>Acre feet required</b>	<b>Nineteen of Twenty Years</b>	<b>Acre feet required</b>
April	0.16	8.40	1.1	57.75	1.42	74.55
May	1.89	102.53	2.87	155.70	3.03	164.38
June	3.27	171.68	4.09	214.73	4.25	223.13
July	4.8	260.40	5.16	279.93	5.28	286.44
August	3.78	205.07	4.29	232.73	4.45	241.41
Sept	1.85	97.13	2.83	148.58	2.95	154.88
Oct	0.08	4.34	0.87	47.20	1.26	68.36
<b>Pears</b>	<b>Five of Ten Years</b>	<b>Acre feet required</b>	<b>Nine of Ten Years</b>	<b>Acre feet required</b>	<b>Nineteen of Twenty Years</b>	<b>Acre feet required</b>
March	0.8	10,540.00	0.47	6,192.25	0.91	11,989.25
April	1.42	18,105.00	2.72	34,680.00	3.11	39,652.50
May	3.9	51,382.50	5.04	66,402.00	5.28	69,564.00
June	5.71	72,802.50	6.73	85,807.50	6.97	88,867.50
July	7.87	103,687.25	8.54	112,514.50	8.66	114,095.50
August	6.38	84,056.50	7.17	94,464.75	7.28	95,914.00
Sept	3.43	43,732.50	4.57	58,267.50	4.69	59,797.50
Oct	0.16	2,108.00	1.42	18,708.50	1.89	24,900.75
<b>Apples</b>	<b>Five of Ten Years</b>	<b>Acre feet required</b>	<b>Nine of Ten Years</b>	<b>Acre feet required</b>	<b>Nineteen of Twenty Years</b>	<b>Acre feet required</b>
March	0.88	1,566.33	0.47	836.56	0.91	1,619.72
April	1.57	2,704.33	2.87	4,943.58	3.27	5,632.58
May	4.41	7,849.43	5.59	9,949.73	5.87	10,448.11
June	6.22	10,713.95	7.36	12,677.60	7.64	13,159.90
July	8.62	15,342.88	9.33	16,606.62	9.45	16,820.21
August	6.97	12,568.07	7.87	14,190.92	8.03	14,479.43
Sept	3.82	6,579.95	5.04	8,681.40	5.16	8,888.10
Oct	0.2	355.98	1.54	2,741.07	2.24	3,987.01

## Section 1.8

### *Description of the operation and maintenance program*

East Fork Irrigation District is governed by a Board of Directors comprised of three directors elected by direct vote of the patrons in sequential years. Each director serves an overlapping 3 year term. The Board of Directors set the policy for the district. They meet the third Tuesday of every month. The district has a full time manager who is responsible to the board of directors, oversees all departments of the district for the day-to-day operations and serves as the secretary of the board. The administrative staff is comprised of a part time office manager and a part time water rights technician. The district has 3 full time operational field staff. Since 2008, EFID has been hiring two seasonal employees to help with the canal cleaning in preparation of the March water delivery.

#### **Operation and Maintenance**

During the irrigation season the EFID O & M responsibilities primarily consist of monitoring and adjusting flow rates in open canals and pipelines. Cleaning and repairing water measuring orifices, pipeline diversion screens and trash racks, district patron delivery box screens, fish screens, the traveling screen and sandtrap bays are daily tasks. Also, responding to district emergencies such as leaky valves, broken delivery pipelines, gopher holes on open canals can be part of their daily routine.



CLP Traveling Trash Screen

Doing locates of district pipelines for construction projects. The Operational Staff ride (by 4 wheeler) or walk their areas canals or pipelines every week for inspection. During the irrigation season a staff member is available 7 days a week. Every weekend one staff member is on duty to cover the entire district. An emergency pager is available on rotation April through October. During the irrigation season, pipeline upgrades or replacement projects are completed in areas only where water delivery shut down is minimal. Brush and grass control around structures and along access roads, canals and pipeline easements is an annual task.



CLP Traveling Trash Screen

Fall/Winter maintenance includes excavating all open canals of silt build up. An excavator is used on the larger canals. In areas that cannot accommodate the excavator, sand and silt is removed by hand. Removal of trees, tree branches, and brush along canals/ditches is performed.

During non-irrigation water season the staff complete pipeline projects, replacing old steel or wood lines and converting to pressurized pipeline delivery systems. Major leaks are also repaired in the off season. Water boxes are repaired with new partitions, weirs, and tops.



Silt in the Sandtrap Bay



Silt in the Sandtrap Bay

Pipeline valves are repaired or replaced. The traveling screen is rebuilt, if needed. The automatic control valves are disassembled, cleaned and rebuilt. Screens and trash racks at diversion points of lateral pipelines or canals are repaired or replaced.

When inclement weather occurs and limits outside work, equipment maintenance, inventory and organizational projects are performed. Operational staff attend educational seminars during the off season.

The Sandtrap facility is comprised of five 100'x12'x12' bays. During a typical season, the quantities of sand/silt removed are approximately the equivalent of 270 cubic yards per bay each time it is cleaned up. From June through September the average number of bay clean up is from 10 to 12 times during the month and during the month of October the average number of bay clean up is approximately four times during the month.

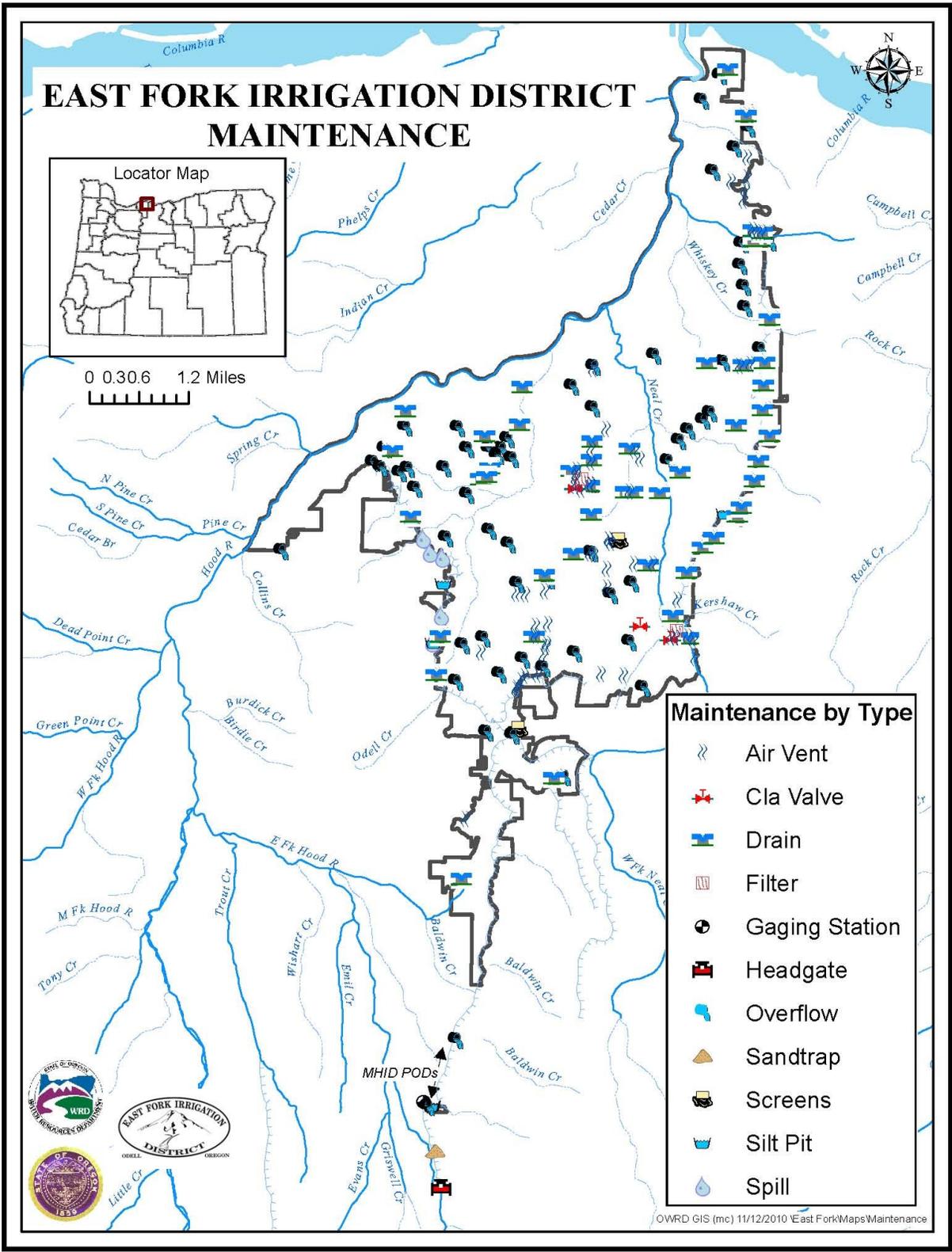


Silt Removal from Pit between Headworks and Sandtrap



During an average year, there is a potential of moving from ten to thirteen thousand yards of sand and silt from the Sandtrap.

Mountain of Silt Removed from Silt Pit Between Headworks and Sandtrap



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**Section 2 - Water Conservation Elements**  
**OAR 690-086-0250**

**Section 2.1**

***Progress report on conservation measures from previously approved WMCP***

EFID has completed several projects since the last previously approved water management and conservation plan. One major project was a collaborative effort that had environmental and district efficiency benefits to improve water quality in Neal Creek by installing a pipeline rather than using the natural stream as a conveyance for irrigation water delivery to the Eastside Canal.

**Central Lateral Pipeline Project** - In 2008, EFID completed the Central Lateral Pipeline Project. This \$11M multi-phased project buried approximately 4.5 miles of pipe, 6000 ft. of 72" Weholite pipe, 3765 ft. of 60" Weholite pipe, 5325 ft. of 48" Solid Wall HDPE pipe, and 8938 ft of 30" Coated Steel pipe in the open, unlined Central Canal and about ½ mile of 8" to 2" PVC pipe in the Eastside Canal. It eliminated the use of Neal Creek, a natural stream, as a conveyance for glacial silt laden irrigation water to the Eastside Canal and improved the water quality in Neal Creek. A Central Lateral Canal Seepage Study was conducted by Jonathan La Marche and Ed Lavelle, OWRD personnel, on August 24, 2004 to determine a measurable amount of water loss from the open canal system. The loss estimate was averaged at 2.1 cfs. EFID worked with



Central Lateral Pipeline Upper Phase Construction  
- 6' Weholite Pipe

Oregon Water Trust (OWT) to file an Allocation of Conserved Water Application on the middle phase (1.5 miles) of the project. The District received monies for this project from the United States Forest Service Title II, Bureau of Reclamation, DEQ 319 Grant, OWEB, and Confederated Tribes of the Warm Springs (BPA). The Hood River Watershed Group also provided labor and consulting. Of the funding for the middle phase of the project, 51.58% was from federal and state non-reimbursable funds of which 1.08 cfs will be allocated to the State for an instream water right. The remaining 1.02 cfs (48.42%) of the conserved water was to be used to replace private water rights from Neal Creek. EFID had identified four water users on Neal Creek with 97 acres of private rights that qualified for the EFID conserved water rights (along with monetary com-



Upper Phase Central Lateral Pipeline Project  
- 6' Weholite Pipe

most of the 97 acres of private Neal Creek water rights with EFID conserved water rights returning water back into Neal Creek. Of the four water users on Neal Creek only one user plans to participate in the replacement of a small portion of their private water rights with EFID conserved water rights. OWT is no longer involved with the project. Currently the 1.02 cfs is reserved instream until EFID decides on a permanent placement for the conserved water rights. Should EFID have a short water year and Neal Creek has low flows the other 3 users could possibly change their mind about the replacement offer. Removal of the Eastside Canal diversion structure and “drum-style” fish screen from Neal Creek has been completed. USFWS provided money to help with the removal and restoration to Neal Creek.



Central Lateral Pipeline Lower Phase B  
Water Box #3 2009 Overtopping Event

During the first year of operation of the CLP, the district experienced air venting problems in Waterbox #3 (indicated in the above photo) primarily related to the elevation difference in the system from 1600' to 400'. EFID contracted to redesign Waterbox #2 and Waterbox #3 by cutting notches out of the concrete baffles in the boxes letting the water flow with less turbulence. The problem was remedied with a manifold of 8" pipes to release the accumulated air; also a "val-matic" air vent similar to the rest of the District's air vents was placed at the steepest area next to the road above Neal Creek.

**Bowcut** - The Bowcut ditch which supplies 71 acres of irrigation water to 22 district patrons is completely piped. In 2003, 860 feet of 10" PVC pipe was installed beginning at the south end of the ditch. In 2007, approximately 1100 feet of 12" PVC pipe was installed from a new diversion water box off the Main Canal and connected with the 10" PVC pipe. Most patrons below the pipeline have pressurized water deliveries; the others, especially those above the pipeline, still need to pump their water.

**Nunamaker Pipeline** – In 2002, EFID installed a new pipeline to upgrade the old Nunamaker line. The Nunamaker line is approximately 8700 feet, the south 4000 feet is 8" PVC pipe and the remaining 4700 feet is 4" PVC. All 21 patrons are delivered pressurized water. Hookups were completed in 2009. Currently, the overflow has not been eliminated. EFID needs to install a pressure regulating valve to control the high pressure delivery due to the drop in elevation.

**Duniphin/Castaneda Line** – In 2008, EFID replaced an old leaky wood and steel line with 6" PVC. An overflow was eliminated. The trenching was provided by Hood River Electric Coop for an electric line for a new cellular tower. This pipeline was cooperatively funded between Mr. Duniphin, Mr. Castaneda and EFID.

**Paasch Line** – In 2004, 1390 feet of 8" PVC was installed (in cooperation with NW Natural Gas Company trench) to pressurize the lower part of the Paasch Line (west from Eastside Road). In 2009, 1500 feet of 8" PVC pipeline was installed (east from Eastside Road to the water box in Moore Orchards (2N-11-07). Also, about 1600 feet of 4" PVC pipe was installed cooperatively between a water user (Fox) and the District. The water user purchased the pipe and trenched 800 feet of the ditch and the district staff excavated the other 800 feet of ditch and laid the entire new pipeline. This eliminated the use of pumps and water boxes.

**Ackerman Hill Line** – In 2009, installed a 1900 foot section of 8" PVC pipeline from Wy'east Road east on Castaneda, Byers, and Tatyrek properties and then north along the west edge of Glacier Ranch property. This pipe installation is part of the first phase of the Ackerman Hill pressurization project.

**Rasmussen Line** – In 2008, installed a 1400 foot section of 10" PVC pipeline to replace an 8" and 10" concrete pipeline. Also installed 400 feet of 4" PVC pipeline to deliver pressurized water to Evan's filter (2N-11-19). The overflow was reduced and relocated. In spring of 2010, approximately 1350 feet of 3" PVC pipeline was laid in the Thomsen Road right-a-way to supply pressurized irrigation water to Wilhite (2N-10-25). In the summer of 2010, approximately 1900 feet of 6" PVC pipe was installed to supply 5 water users (Wright, Bailey, L. Moore, Moore Orchards and Roulette). The pressurization of the Rasmussen Line is a continuing project .

**Dominguez Silt Pond** – This silt pond is located at the head of the Main Canal. In March 2010, EFID extended the silt pit by digging two additional pits 50' long by 18' wide and about 8' deep each on down the canal. With the increase in the silt settling area at the beginning of the Main Canal, the water introduced into the delivery system should be cleaner especially in the summer months of late July, August and early September when the water from Mt. Hood can become heavily silt laden.

### *Other Goals Completed*

All permits are now finalized into certificates. The District used the OWRD's Reimbursement Authority Program to expedite the processing of the Claim of Beneficial Use for their last 2 permits.

Installed a temporary fish ladder in the East Fork Hood River at the headworks in spring of 2008 in cooperation with CTWS and OWEB grant funding. This fish ladder will be on going until the new headworks is completed. Currently, EFID is working on a redesign and replacement of the headworks



Temporary Fish Ladder at Headworks

## **Section 2.2**

### ***Description of the water supplier's agricultural water measurement program***

EFID operates measuring devices such as, sharpcrested weirs, staff gauges, dole valves and submerged orifices. Measuring devices are maintained at the beginning of each canal, ditch, main pipeline and pipeline laterals for water management. Water boxes contain weirs and orifices correctly sized to deliver the allotted irrigation water to each individual user or group of users. “On-demand” deliveries are based on a flow rate of 0.4 miners inch (4.49 gpm) per acre.

EFID is in full compliance with Division 85 Water Measurement and Annual Reporting requirements. Daily water records are recorded and compiled into a monthly diversion report. This report is filed on-line with Oregon Water Resources Department annually. (See Table D)

## **Section 2.3**

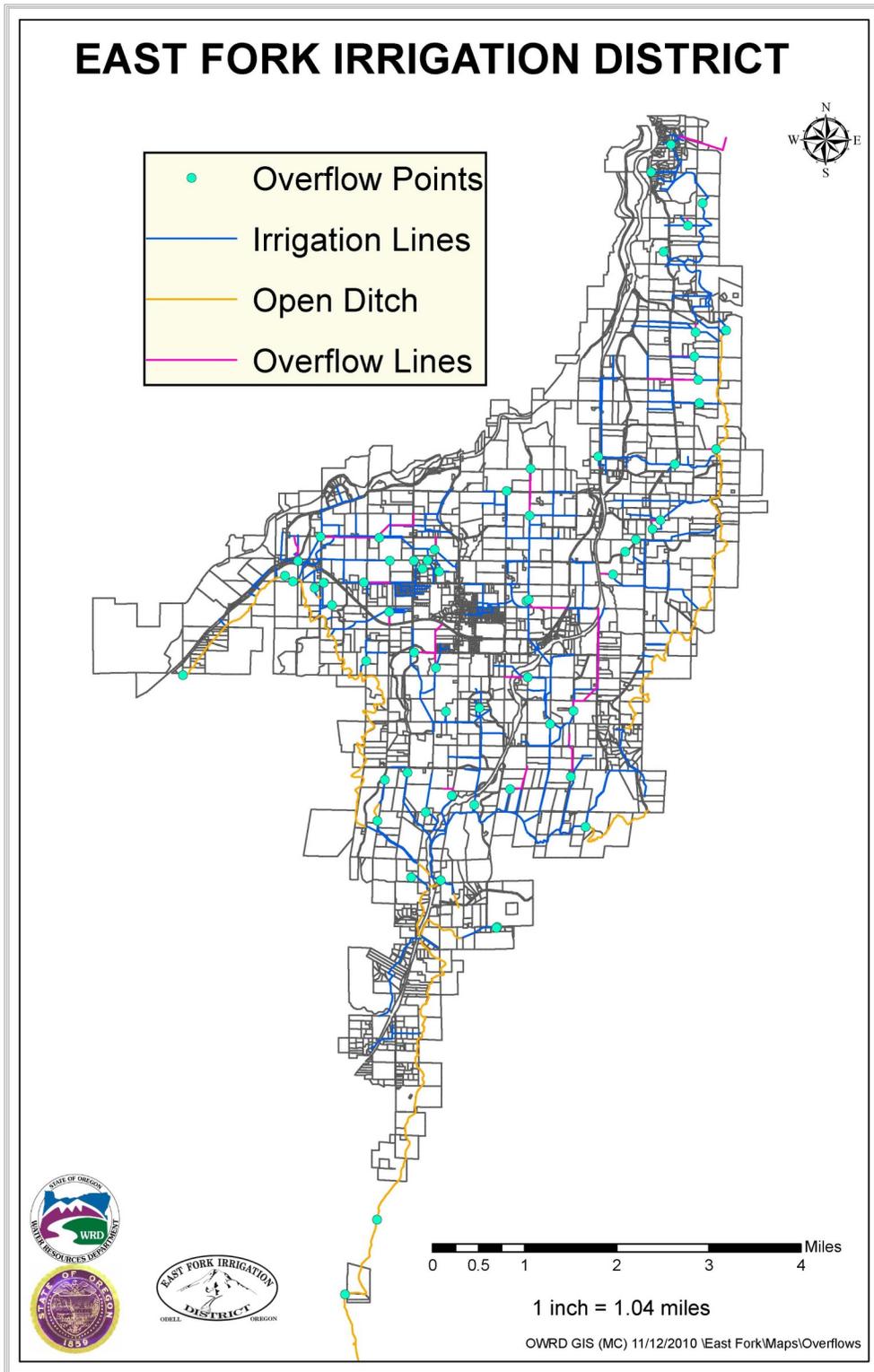
### ***Conservation measures currently implemented***

The Central Lateral Pipeline (CLP) Project has upgraded the open unlined Central Lateral Canal and eliminated the conveyance of irrigation water into Neal Creek. The CLP conveys 47 cfs of irrigation water for the Central area and 42 cfs of irrigation water for the Eastside area via the Eastside Canal. The CLP extends to a delivery box at the Eastside Canal just south of Swyers Drive. EFID no longer uses Neal Creek as a conveyance thus eliminating the diversion structure (for the Eastside Canal) and an obsolete “drum-style” fish screen from Neal Creek. At the beginning of the CLP, a travelling screen removes the trash and a diversion box sends water to the CLP and the Dukes Valley Canal. An emergency overflow is maintained at that location via the Neal Creek Lateral. (Currently, EFID flows 0-5 cfs of water through the Neal Creek Lateral for Mt. Hood Forest Products lumber mill and thirteen (13) patrons that pump from the lateral.) The diversion structure will minimize excess flows into the Neal Creek Lateral and will direct some water surges to the Dukes Valley Canal. The spilling of 0-5 cfs into the Neal Creek Lateral will not be eliminated until the users on the lateral can be delivered water via a different system. Currently EFID is addressing this concern in our short-term goals.

**Section 2.4**  
***Short and long-term goals of the water supplier to improve water management***

<b>Table H</b> <b>Short (5-10 years) And Long (Beyond 10 years) Term Goals</b>		
<b>Goal</b>	<b>Short Term - Long Term</b>	<b>Comment</b>
Replace and reposition the head gate (POD).	Short	Money from CTWS
New type of “push up” dam in the EF Hood River	Short	Inflatable bladder (Obermeyer gate)
Improved fish passage at headworks	Short	
Pressurize the Ackerman Hill Line and eliminate overflows and on farm pumping costs	Short	
Pressurize the Rasmussen Line and eliminate an overflow and on farm pumping costs	Short	
Install telemetry to monitor and report (later automate) the canal rate flows, trash screen performance and headgate position	Short	
Install a pipeline off the Christopher Ditch to supply water to the Upper Neal Creek Road patrons currently on the Neal Creek Lateral	Short	This will eliminate the use of the “emergency” overflow from the Central Lateral Pipeline which is in use now to deliver water to these patrons.
Hydro electric study	Long	With the completion of the Central Lateral Pipeline project, a section was built with the possibility of hydro generation.
Silt settling facility	Long	EFID is working at securing a long term lease on land to development a large silting facility.
Establish an advisory committee to discuss a location and development of a reservoir for stored water	Long	
Continue to maintain and protect district water rights by transferring water rights from land no longer irrigated to lands requesting water on our Wait List.	On going	
Develop a web site	Short	
Proposed Surge Pond at CLP Screen Facility with telemetry	Short	Surge pond will eliminate the spill into Neal Creek Lateral and help maintain a constant water level in the CLP
Create manuals for the 3 operational staff to use in the field containing pertinent information on each staff's area	Short	As these manuals are used, updates can be made periodically as things change.
Create a wall base map with an overlay of the district's delivery and maintenance system. Set up ArcReader on a computer at the district office to be use by all employees and patrons which would contain EFID's GIS information	On going	
Complete GIS mapping of the District's delivery system, diversions, water rights, etc. using ArcMap	On going/ Short	
Continue to replace sections of smaller diameter old wood stave, concrete and steel pipelines with newer product such as PVC or coated, lined heavy gauge welded steel.	On going/ Long	Priority to upgrade pipelines is determined by the amount of repairs and labor required to maintain each pipeline.
More telemetry so that losses can be controlled due to sudden shut down by individual patrons on farm	Long	
Replace all open canals and ditches with large diameter pipe to reduce seepage and improve water control.	On going/ Long	

Section 2.5  
*Description of losses of water from canals, pipelines, and laterals*



**Section 2.5a**  
***Description of losses***

Losses can be highly variable but still significant in the approximate 20 miles of open earth canals and open laterals throughout the District. Water losses due to seepage vary between summer months and spring months. EFID diverts water at 5.61 gpm and delivers water on farm at 4.49 gpm reducing water delivery by 20%. Flow rate is reduced during spring months, thus percent lost is greater. The District is willing to assess canal seepage on a project by project basis, if an allocation of conserved water project is identified.

EFID has 62 overflows within the district boundary. During peak irrigation (July, August, and first half of September) approximately 6.65 cfs is used to operate overflows. Mt. Hood Irrigation District has two takeouts along the Main Canal and overflows approximately 2 cfs.

<b>Table I</b>			
<b><i>Estimated Losses to Overflow Operation</i></b>			
<b>OVERFLOWS</b>	GPM	CFS	Comment
Mt. Hood Irrigation District		2.0	
Main Canal	25.0	0.3	
Central Lateral Pipeline	505.0	*1.9	Includes main spill for Dukes Valley, Eastside and Central
Dukes Valley Canal	160.0	2.0	
Eastside Canal	195.0	2.45	
<b>TOTAL</b>		<b>8.65</b>	
*minus the GPM in Dukes Valley Canal and Eastside Canal			

**Section 2.5b**  
***Assessment of whether water deliveries are insufficient to meet crop needs***

EFID has had no crop losses due to the inability to deliver irrigation water to district patrons. Depending on the season, demand is widespread in late May to the first of June. During the season because of individual patron needs EFID requires a 24 hour notice before turning on or off 50 gpm or more of irrigation water. The 24 hour notice allows the operational staff to adjust water flows to a particular part of the system in order for the delivery system to remain balanced. This saves water so it will not be wasted because of non use. Since the district operates the delivery system with minimal spills, the 24 hour notice is very important. Without proper notice from larger water users, some patrons may be out of water periodically. Lack of communication can cause insufficient water deliveries at times; but once the District is notified, the problem is quickly remedied.

**Section 2.5c**  
***List of alternative conservation measures to reduce the losses of water identified in (a) and address insufficiencies of water deliveries identified in (b)***

Generally there are few delivery insufficiencies due to ***losses of water identified in (a)*** on a regular basis. The alternatives for conservation are listed in the future projects are designed to increase efficiency and reliability.

**Table J**  
**Alternatives for Future Conservation Projects**

<b>LOCATION</b>	<b>LENGTH/FT.</b>	<b>LENGTH/ MILES</b>	<b>STATUS</b>
Fisher Line	4434	0.85	<b>COMPLETE</b>
Bow Cut Pipeline	6139	1.15	<b>COMPLETE</b>
Christopher Pipeline	2481	0.45	<b>SHORT TERM</b>
Pinemont off Christopher	1097	0.20	<b>COMPLETE</b>
Tavern Chute Mooney/Reed	1324	0.25	<b>LONG TERM</b>
Neal Creek Lateral	1118	0.20	<b>SHORT TERM</b>
<b>TOTAL</b>	<b>16593</b>	<b>3.10</b>	
<b>Central Lateral Pipeline</b>			
<b>Central Lateral Pipeline</b>	23241	4.40	<b>COMPLETE</b>
Small Laterals ( aka packer)	6381	1.20	<b>LONG TERM</b>
Overflow	2221	0.40	
Winklebleck line	5828	1.10	<b>LONG TERM</b>
Overflow	294	0.05	
Gilkerson Line	4323	0.80	<b>LONG TERM</b>
Beitler Line	2039	0.40	<b>LONG TERM</b>
Overflow	930	0.20	
Chipping	21966	4.15	<b>LONG TERM</b>
Kennedy Line	482	0.10	<b>LONG TERM</b>
Mobile Home Line	1920	0.35	<b>LONG TERM</b>
Buckley Line	1389	0.25	<b>COMPLETE</b>
Overflow	3886	0.75	
Oanna	10819	2.05	<b>SHORT TERM</b>
Yasui Line	7025	1.35	<b>LONG TERM</b>
Overflow	189	0.05	
Nunamaker Line	8910	1.70	<b>COMPLETE Needs CLA valve</b>
Overflow	6811	1.30	
Neufeldt Line	4884	0.90	<b>LONG TERM</b>
Overflow	1311	0.25	
Duniphin/Castaneda Line	1846	0.35	<b>COMPLETE</b>
Dethman Ridge Line	24582	4.65	<b>COMPLETE</b>
Overflow	5160	0.10	
Lenz Butte Line	2848	0.55	<b>COMPLETE</b>
Shaw Line	9772	1.85	<b>COMPLETE</b>
Neal Mill Line	8574	1.60	<b>COMPLETE</b>
Webster Pressure Line	5502	1.05	<b>COMPLETE Needs CLA valve</b>
Allison Line	4032	0.75	<b>LONG TERM</b>
Overflow	2904	0.55	
Sherrard Road Line	2494	0.50	<b>COMPLETE</b>
<b>TOTAL</b>	<b>182563</b>	<b>33.70</b>	

**Table J - continued**  
**Alternatives for Future Conservation Projects**

<b>LOCATION</b>	<b>LENGTH/FT.</b>	<b>LENGTH/ MILES</b>	<b>STATUS</b>
<b>Eastside Canal</b>			
Laterals	1463	0.30	
Tallman	865	0.15	<b>COMPLETE</b>
Rasmussen Line	11445	2.20	<b>SHORT TERM</b>
Overflow	1756	0.35	
Matheison Line	4589	0.85	<b>COMPLETE</b>
Crag Rat Line	10789	2.05	<b>LONG TERM</b>
Overflow	492	0.10	
Loop Line	18911	3.60	<b>COMPLETE</b>
Dethman/Swyers Line	8261	1.55	<b>LONG TERM</b>
Paasch Line	4639	0.90	<b>SHORT TERM 2/3 COMPLETE</b>
Overflow	1428	0.30	
Kelly Line	3004	0.60	<b>LONG TERM</b>
Overflow	1402	0.30	
Thomsen Line	7968	1.50	<b>SHORT TERM</b>
Overflow	444	0.10	
Thomsen/Boyden	2488	0.50	<b>COMPLETE</b>
Lariza Line	1967	0.40	<b>COMPLETE</b>
Panorama Pt. Line	1023	0.20	<b>LONG TERM</b>
Hukari Line	2919	0.55	<b>SHORT TERM</b>
Overflow	400	0.10	
Lines off lower highline	7732	1.45	<b>LONG TERM</b>
<b>TOTAL</b>	<b>93985</b>	<b>18.05</b>	
<b>Dukes Valley Canal</b>			
Screens to Hwy 35	644	0.10	<b>COMPLETE</b>
Trash Rack to Bryant Pond	3816	0.75	<b>COMPLETE</b>
Cameron Hill	2992	0.60	<b>COMPLETE</b>
Sheppards Ditch-piped	2033	0.40	<b>LONG TERM</b>
Cherry Hill	3348	0.65	<b>LONG TERM Needs Cla Valve</b>
Sheirbon Hill	3919	0.75	<b>LONG TERM</b>
Overflow	719	0.15	
Chamberlain Pressure Line	20290	3.85	<b>COMPLETE</b>
Overflow	5559	1.05	
Sweet Line	2248	0.45	<b>LONG TERM</b>
Rock Acres Line	2003	0.40	<b>LONG TERM</b>
Wheeler Road Line	1464	0.30	<b>COMPLETE</b>
Iwatsuki Box	4162	0.80	<b>SHORT TERM</b>
Summit Road line East	6241	1.20	<b>SHORT TERM</b>
Overflow	1488	0.30	
Bartlett Loop Line	4018	0.75	<b>COMPLETE</b>

**Table J - continued**  
**Alternatives for Future Conservation Projects**

<b>LOCATION</b>	<b>LENGTH/FT.</b>	<b>LENGTH/ MILES</b>	<b>STATUS</b>
Wy'east Road Line	1154	0.20	<b>SHORT TERM</b>
Wy'east School Line	4162	0.80	<b>SHORT TERM</b>
Poole Line	2549	0.50	<b>COMPLETE</b>
Ackerman Hill Line	5921	1.10	<b>SHORT TERM</b>
Overflow	750	0.15	
Chamberlain Line	3006	0.60	<b>LONG TERM</b>
Overflow	769	0.15	
<b>TOTAL</b>	<b>81855</b>	<b>16.00</b>	
<b>OPEN CANALS/DITCHES</b>			
<b>OPEN CANALS/DITCHES</b>	<b>LENGTH/FT.</b>	<b>LENGTH/ MILES</b>	<b>STATUS</b>
Main Canal			
Headgate to Sand trap	2430	0.45	<b>SHORT TERM</b>
Sand trap to Gauging Station	3328	0.65	<b>LONG TERM</b>
Gauging Station to Screens	29762	5.65	<b>LONG TERM</b>
<b>TOTAL</b>	<b>35520</b>	<b>6.75</b>	
<b>Christopher Ditch</b>			
Christopher Ditch	3268	0.60	<b>SHORT TERM</b>
<b>TOTAL</b>	<b>3268</b>	<b>0.60</b>	
<b>Neal Creek Lateral</b>			
Neal Creek Lateral			
Diversion to Mill Take Out	283	0.05	<b>SHORT TERM</b>
Lateral to West Fork NC	773	0.15	<b>SHORT TERM</b>
<b>TOTAL</b>	<b>1056</b>	<b>0.20</b>	
<b>Sherrard Ditch</b>			
Sherrard Ditch	6356	1.20	<b>COMPLETE</b>
<b>TOTAL</b>	<b>6356</b>	<b>1.20</b>	
<b>Eastside Canal</b>			
Eastside Canal	32298	4.40	<b>LONG TERM</b>
<b>TOTAL</b>	<b>32298</b>	<b>4.40</b>	
<b>Dukes Valley Canal</b>			
Dukes Valley Canal			
Hwy 35 to Trash Rack	948	0.20	<b>LONG TERM</b>
Sheppards Ditch	1256	0.25	<b>LONG TERM</b>
Bryant Pond to highline	22177	4.20	<b>LONG TERM</b>
Gilhouley Road	227	0.05	<b>LONG TERM</b>
Picking Orchards	108	0.05	<b>LONG TERM</b>
Highline Canal	12207	2.30	<b>SHORT TERM</b>
<b>TOTAL</b>	<b>36923</b>	<b>7.05</b>	
<b>TOTAL MILES</b>		<b>20.20</b>	

### **Section 2.5d**

#### ***Piping of open canals and ditches to reduce seepage and evaporation.***

A priority for piping open canals and ditches has been identified for elimination of spills/overflows, and reduction of seepage and evaporation would be a side benefit. Projects are prioritized in Table J:

- Complete pipelines to eliminate overflows.
- Manage operational spill closely to run at as minimally as possible.
- Upgrading pipelines to pressurization to reduce on farm pumping costs.

*(See map next page)*

### **Section 2.5e**

#### ***Assessment of alternatives to finance conservation measures***

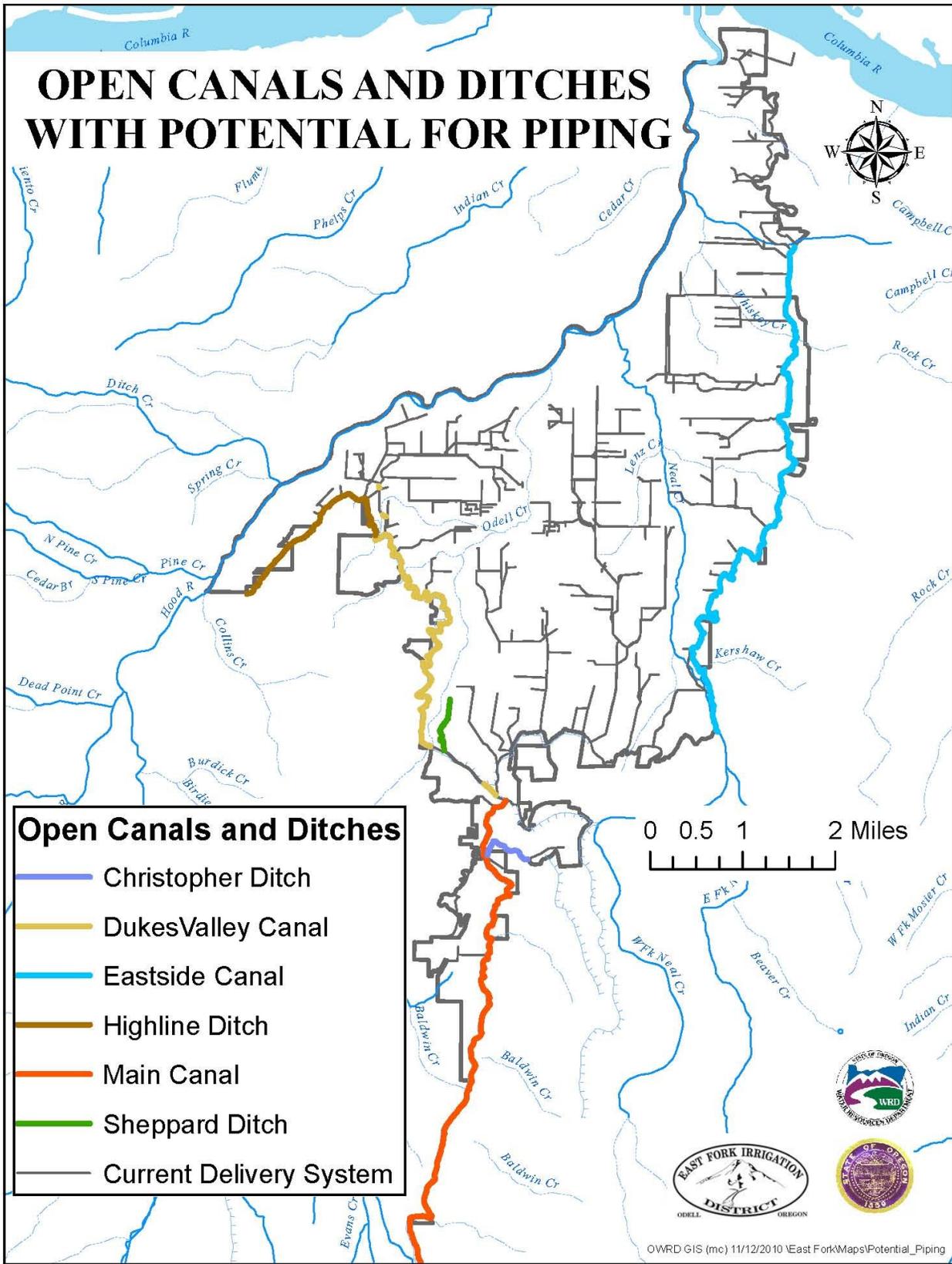
The District has a proven track record for taking advantage of funding opportunities and working with a variety of partners to achieve better funding of conservation measures. EFID is the first irrigation district in Oregon to work with the Department of Environmental Quality as a funding package. Other partners include the US Bureau of Reclamation, Oregon Watershed Enhancement Board and The Confederated Tribes of the Warm Springs. The strategy for development of these funding opportunities during this planning period will be to work with existing partners and develop new relationships as opportunities arise.

On going implementation will be a combination of District budget and outside funding sources. An example of possible partnerships will be to work with the Confederated Tribes of the Warm Springs to improve the Headworks and fish passage.

New relationships with organizations like the National Fish and Wildlife Foundation, Bonneville Power Administration, Northwest Power Planning Council and The Freshwater Trust will be explored. If further grant opportunities are authorized by the Legislature, the District will add these potential programs to the existing programs EFID is already pursuing.

The District's past performance in completing projects funded by grants is a major advantage in obtaining other alternative funding. Other projects such as adding hydro-power generation may also be explored. Depending on funding, EFID may work with OWRD to assemble information to assess the possibility of a grant from the Oregon Department of Energy feasibility program.

# OPEN CANALS AND DITCHES WITH POTENTIAL FOR PIPING



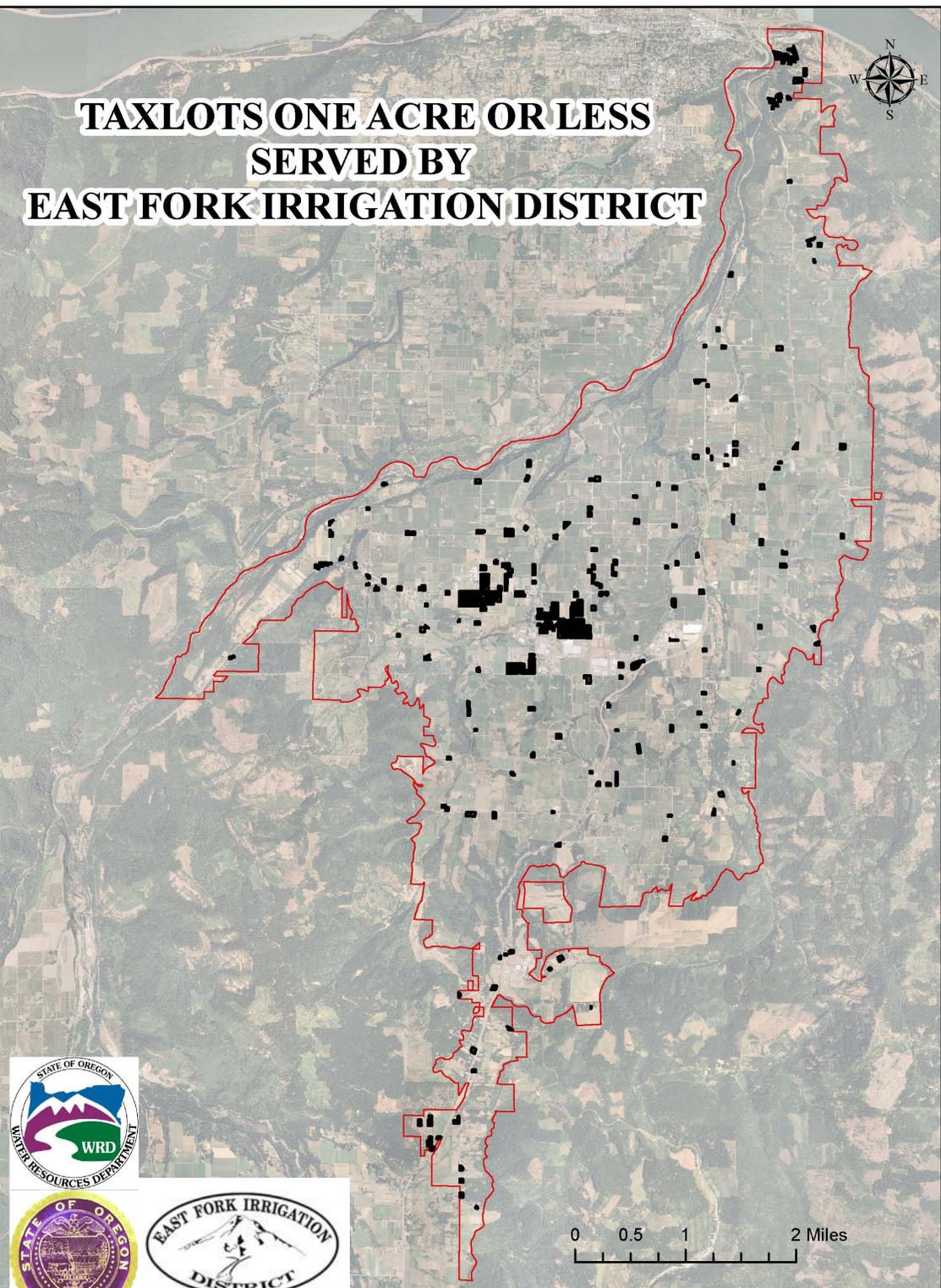
**Section 2. 6**  
***Promotion of energy audits for district water users***

The system is primarily under pressurization or gravity feed rather than from pumps. The District will continue to explore possible savings in the form of low pressure, low flow, poly tube irrigation systems that reduce wind drift evaporation qualify for the Business Energy Tax Credit. Weather-based irrigation systems, moisture sensor controls and variable speed pumping also are eligible. Lining canals or encasing them in pipe reduces pumping energy and water required and qualifies for the tax credit.

**Section 2.6a**  
***Conversion to metered, pressurized deliveries to all parcels of 1 acre or less***

The District has an analysis using GIS info – the majority of these parcels are already pressurized or delivery is to a water box and the patrons operate pressurized systems. Some smaller isolated parcels are on parts of the system that are slated for upgrade as a larger future project. At this time there is no opportunity that would be cost effective. *(See map next page)*

# TAXLOTS ONE ACRE OR LESS SERVED BY EAST FORK IRRIGATION DISTRICT



OWRD GIS (mc) 11/12/2010 \East Fork\Maps\Taxlots\_1acre\_wr

**Section 2.6b**  
***Piping or lining earthen canals to reduce losses***

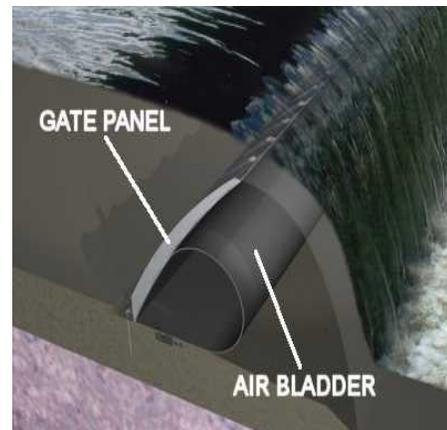
Because of the amount of glacial silt that accumulates in the system, the canals and ditches require cleaning and removal of silt/sand deposits at the beginning of each irrigation season. A tracked excavator is used on canals where space allows. Otherwise, it is done the old fashioned way, men and shovels. Because of concerns over damage to lining materials, lining open canals can be problematic. Using big equipment and shovels when cleaning canals could damage the lining material. Cement lined canals may be practical in some areas but a cost benefit analysis over the existing system and piping is needed. Most of the future system improvements are more likely to go to a piped system rather than lined canals.

**Section 2.6c**  
***Modify distribution facilities and policies to increase flexibility of water deliveries***

Smaller diameter welded steel and wood stave pipelines are currently being replaced. Improving district water management in canal reaches by installing additional water measuring facilities, installing pipelines to reduce seepage and improve water control are opportunities to reduce district labor requirements.

Closed pipeline laterals lend well to system automation. Benefits vs. cost analysis will determine how fast the District moves in this direction, or if additional components of automation are even desirable. Monitoring of flow rates in selected laterals is highly desirable. Electronic flow rate sensing and reporting (SCADA) components can be installed to improve district water management. Installing a remote controlled head-gate and valve actuators at selected sites could also be of benefit.

Installation of an Obermeyer style gate at the headworks will allow for better water control at EFID's diversion from the East Fork Hood River. The redesign and replacement of the headgate will include a new fish ladder providing proper fish passage especially during low water flows.



Example of Obermeyer style gate

As outlined in Table J the following are open canals and ditches which could be piped with estimated flow:

- Highline Ditch 2.0 cfs
- Sheppards Ditch 1.25 cfs
- Christopher Ditch 2.0 cfs (Relates to Upper Neal Creek Road users)
- Eastside Canal 41.3 cfs
- Main Canal 118.1 cfs
- Dukes Valley Canal 23.8 cfs

The District has a variety of existing policies which support water management which are listed below:

The Conserved Water Policy was adopted to provide direction for the Conserved Water Application submitted to OWRD on the middle phase of the Central Lateral Pipeline Project. (Attachment A)

A Wait List Application is available to landowners who are requesting new or additional water rights on lands within the district boundary (or outside the district boundary, if deliverable but would require inclusion into the District). The application must be presented to the Board of Directors for approval. Currently, the EFID has 35 properties on the Wait List. The Wait List total acreage is approximately 280 acres of which 10 properties have requested over the 5 acre maximum allotted at one time. The requests dated back to 2003. In the past five years, EFID has applied 20.75 acres of water rights to applicants on the Wait List. (Attachment B).

A District Permanent Transfer is used to manage water rights within the district boundary. The transfer is used for change in place of use; and/or change in character of use (irrigation to industrial). Water rights to be transferred cannot be subject to forfeiture under ORS 540.610 (5 years nonuse). Water rights which are subject to forfeiture can be transferred under ORS 540.472, Notice of Intent to Transfer, prior to 5 years nonuse. EFID has used the District Permanent Transfer to manage and maintain the district water rights. Since the Hood Basin is not open to any further water rights, the district must manage the water rights allocated from the East Fork Hood River. As development of commercial buildings and housing subdivisions occur, water rights are removed and reallocated to lands within the district boundary. Most water rights are relinquished to the district and applied to the Wait List. However, the landowner has the option to transfer the water rights to other properties he may own that can be served by the district. (Attachment C).

A District Temporary Transfer is used to transfer available water rights for only one irrigation season. A landowner can offer water rights to the district for temporary use on other lands within the district boundary. This process must be requested prior to April 15th. A Temporary Transfer must be filed prior to the use of irrigation water on the lands subject to transfer. (Attachment D).

## Section 2.6d

### *Provision of on-farm irrigation scheduling assistance*

There are several on-farm irrigation scheduling assistance resources that the District supports and will explore integrating into our future website:

- Irrinet, Inc. - Jac LeRoux provides an on-farm service of soil moisture measuring.
- OSU Extension - Steve Castagnoli is responsible for research data concerning irrigation dates calculated from dates of full bloom on pears, apples and cherries. Weather Stations throughout the Valley provide information.
- OWEB Small Grants - Assistance in the installation of soil moisture sensors to help growers schedule irrigation according to crop needs rather than a calendar date. Recipients are recording/tracking their use and soil moisture monitoring for two years as part of the Irrigation Water Management (IWM) training. Many are enrolled in NRCS programs to implement IWM practices on-farm.
- EFID is a partner of the Hood River Irrigation Upgrade Flow Meter Monitoring project funded by OWEB. This study is a three year monitoring project to evaluate the effectiveness of irrigation upgrades to conserve on-farm water use.

## Section 2.6e

### *Reservoirs within the EFID boundary*

The District does not have any reservoirs within the boundary. The District has sand settling pits that should not be mistaken for as reservoirs. However, the opportunity for creating a settling facility to help create a hydro and deliver cleaner water for micro-irrigation systems is a District will explore period of this WMCP. Opportunities for individual users to create ponds to capture run-off from filtration waste are pri-



Dominguez Silt Settling Pit

help create a hydro and deliver cleaner water for micro-irrigation systems is a District will explore period of this WMCP. individual users to create ponds to capture run-off from filtration waste are pri-

## **Section 2.6f**

### ***Adoption of rate structures that support and encourage water conservation***

EFID has adopted rate structures that support and encourage water conservation. All water patrons pay in full for all water rights each year whether they irrigate or not. The Board of Directors has set policy to revise/adjust the assessment rate schedule by adding a “cost of living” increase in March of every year. The District has two tiers of irrigation water rates. Tier One applies to most patrons and is based on \$167 per tax lot and \$48 per acre or part thereof with a one acre minimum assessment of \$215. Tier Two applies to those patrons that are in a Homeowners Association or an Irrigation User Group. Tier Two patrons must sign a Memorandum of Understanding which outlines the requirements of an Irrigation User Group and is then submitted for approval by our Board of Directors. Tier Two rates apply mainly to subdivision landowners which are delivered water by a single point of diversion from the EFID system. The rate is \$61 per tax lot and \$48 per total water rights acres for the entire user group. These rates reflected the assessment for the 2010 irrigation season.

District assessments are used to pay for O & M, capital improvements (distribution system replacements or upgrades), equipment and administrative costs.

## **Section 2.6g**

### ***Other Conservation Measures to improve water use efficiency***

Install flow meters to accurately measure the use of water at points of diversion to compare with the amount of allotted water rights to properties or pipelines.

Piping open canals/ditches would decrease O & M (removal of debris, silt, weed control along banks). Pressurizing pipelines to eliminate on-farm pumping costs.

Install pressure regulating valves to control high pressure delivery and be able to supply irrigation water at the optimum 35-40 psi on-farm.

Installation of soil moisture sensors to help growers schedule irrigation according to crop needs rather than a calendar date.

## Section 2.7

### *Information and education program addressing all types of uses served*

EFID is implementing an information and education program addressing all types of uses served. The following is a listing of ongoing activities:

Hood River County Rural Living Handbook- A resource for country living and land stewardship prepared by the Hood River Soil & Water Conservation District and funded by a grant from the Oregon Watershed Enhancement Board. The booklet provides information about irrigation water management, water rights and water conservation and is distributed from our office.

EFID has held an annual Spanish Irrigators Lunch for the last two years. Postcards are sent to all orchardists inviting their Hispanic workers, especially those in charge of irrigation practices, to attend. Information on the importance of the 24 hour notice, regulating pressure to optimize the water use, explanation of the delivery system (where the water comes from) and to answer any questions or concerns the workers may have. The most recent lunch included representatives from Middle Fork Irrigation District and Farmers Irrigation District with hope to alternate Districts each year and involve more Hispanic workers valley wide.

EFID mails out an annual newsletter, *The Pipeline*. The newsletter includes information about new Board members, employees, pipeline projects, water conditions and outlook for the season, 24 hour notice reminder, and other pertinent information for that year.

EFID holds an annual meeting. In the recent past, the meetings have been luncheons. In 2006, the meeting was held at Tollbridge Park with a tour of the district sandtrap/headworks facility. In 2007, the conserved water policy was discussed. In 2009, a tour of the completed Central Lateral Pipeline Project was conducted. Patrons are encouraged to attend and voice opinions and ask questions about concerns with irrigation water or district management of the water.

EFID fully cooperates with Hood River Watershed Group, CTWS, OWRC, OWRD, ODFW OWEB, DEQ and The Fresh Water Trust to promote water management and conservation. The District will review the education and information activities and new opportunities on an annual basis as a non-irrigation season activity. Part of this effort will be to continue to attend appropriate meetings and conferences OWRC, OWRD and Oregon State University extension service and water resources institute may offer.

**Section 2.7a**  
***Other conservation measures?***

EFID will provide information to patrons to help file a ground water use application with OWRD. Recently some patrons of the district have interest in using ground water. These wells provide supplemental irrigation water rights to their EFID primary irrigation water rights to be used at a time of drought or heavily silt laden water. Also applications are being made for primary rights on land not served by EFID. Some of these patrons have been on the Wait List for years and want to proceed sooner than the water may come available through the district.

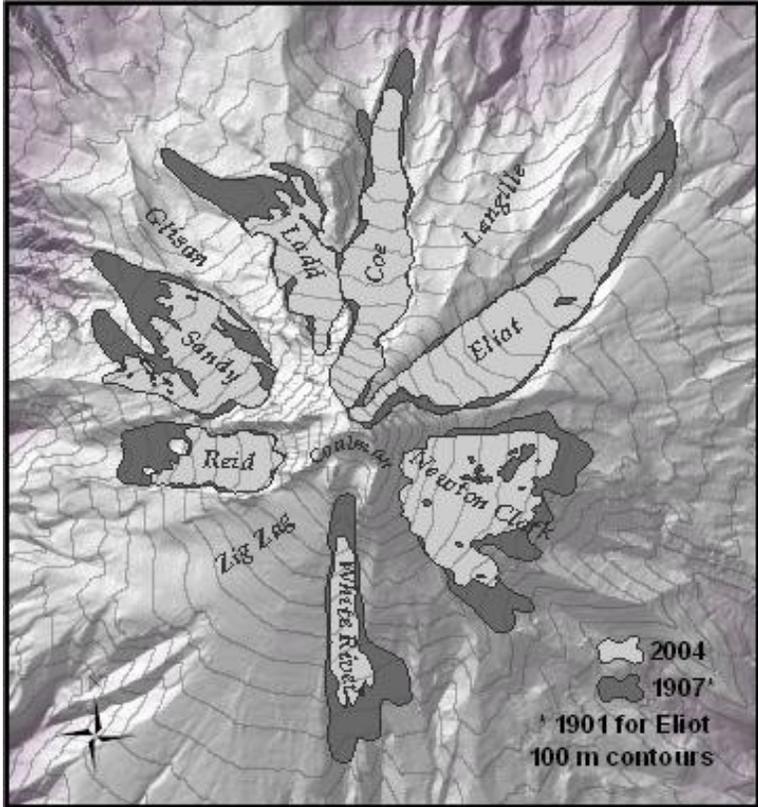
Financial Assistance Programs used by EFID farmers:

Grant Programs - OWEB Small Grant Program. Has been used in the Hood River valley to help orchardists convert from outdated hand lines and impact sprinklers to more efficient low flow sprinkler heads, soil moisture sensors, pressure reducing valves and flow meters. The new irrigation system applies water at lower volumes and distributes the water more effectively to the root zone of the trees. Applying water at less volume and optimum pressure reduces excessive runoff and erosion, leaching of soil nutrients and wasting water on drive rows and tree foliage. The program is a minimum of 25% cost share/in-kind. By installing more efficient irrigation systems on-farm, the District can increase flows in the East Fork Hood River which will help restore fish populations in the watershed and help meet the in stream water right in the lower East Fork Hood River.

EQIP (Environmental Quality Incentives Program) - Federally funded program (authorized in Farm Bill 2008) through NRCS, a voluntary conservation program providing assistance to implement conservation management practices on working agricultural land. EQIP is most commonly used to provide financial and technical assistance in water management. Assistance comes in the form of planning and design efficient irrigation system upgrades and irrigation scheduling. EQIP is a cost-share agreement paying up to 75 % of the costs of priority conservation practices. Applications are accepted on a continual basis and ranked for funding at announced cutoff dates.

**Section 2.8**  
**Monitor and evaluate effectiveness of conservation measures**

The District is monitoring the existing conservation projects consistent with grant conditions from OWEB. Additional monitoring or measurement requirements may be required by regulatory or funding agencies for specific projects. All of the Districts in the Hood Basin have increased concerns with water supplies being impacted by global climate changes.



The following excerpt from a Portland State University study illustrates the loss of glacier size (Spatial and morphological change on Elliot Glacier, Mt. Hood Oregon by Keith Jackson and Andrew Fountain).

Glacier	1907 Area (km <sup>2</sup> )	2004 Area (km <sup>2</sup> )	Loss (km <sup>2</sup> )	Loss (%)	Terminus Retreat (m)
Coe	1.41 ± 0.13	1.20 ± 0.02	0.21	15	390
Eliot*	2.03 ± 0.16	1.64 ± 0.05	0.39	19	680
Ladd	1.07 ± 0.10	0.67 ± 0.05	0.40	37	1190
Newton Clark	2.06 ± 0.15	1.40 ± 0.14	0.66	32	310
Reid	0.79 ± 0.13	0.51 ± 0.05	0.28	35	490
Sandy	1.61 ± 0.17	0.96 ± 0.14	0.65	40	690
White River	1.04 ± 0.11	0.41 ± 0.03	0.63	61	510
<i>Total</i>	<i>10.01 ± 0.95</i>	<i>6.79 ± 0.48</i>	<i>3.22</i>	<i>-</i>	<i>-</i>
<i>Average</i>	<i>1.43 ± 0.14</i>	<i>0.97 ± 0.07</i>	<i>0.46</i>	<i>34</i>	<i>609</i>

**Table 1.** Area and length change on the seven Mount Hood glaciers examined. \*1901 for Eliot Glacier rather than 1907.

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## Section 3 -Water Curtailment Element OAR 690-086-0260

### Section 3.1

#### *Description of past supply deficiencies and current capacity limitations*

2001 – Precipitation ranged from 42 to 58 percent of normal. Snow pack ranged from 30 to 69 percent of normal. Stream flows in the Hood River ranged from 25 to 45 percent of normal with lowest recorded in last 30 years. Fear that segments of the Hood River could be entirely depleted of flow. Complicating the drought condition, high volumes of sediment from receding glaciers on Mount Hood can cause severe damage. The projected water supply outlook suggests deteriorating conditions throughout summer. Water shortage could be devastating for high valued irrigated agriculture, consisting of pears, apples, cherries and other crops, heavily relying on irrigation water to produce sufficient quantities of high quality fruit. The drought caused low flows will effect the habitat conditions for salmon and steelhead and reduce the amount and quality of spawning and rearing habitat, water temperature and increase stress on juvenile and adult fish. Signs were posted saying “Brown Lawns Save Fish”. Hood River County filed for a Drought Declaration which was granted by the State of Oregon, Governor John Kitzhaber.

2005 - Precipitation was 25 percent of normal. Snow pack was 23 percent of normal. March, 2005 stream flows in the Hood River was running at 407 cfs. The mean rate for the same time is 1360 cfs ( 40 year average). *Same concerns as above – severe sediment problems, devastating to agriculture, concerns with fish and habitat.* Hood River County filed for a Drought Declaration which was granted by the State of Oregon, Governor Ted Kulongoski. However, this year, monthly meetings were held to discuss conditions within the Hood Basin Watershed. Meetings were attended by Water District managers, Board of Directors and employee of irrigation and domestic water districts, representatives from Hood River Soil and Water Conservation District (HRSWCD), The Confederated Tribes of the Warm Springs, Farm Services Agency, Oregon Department of Fish and Wildlife, Oregon Water Resources Watermaster, OSU Extension Office, City of Hood River and Hood River County Administrator and Commissioners. Information was exchanged and discussed. Articles about the drought conditions ran in the Hood River News, outreach conservation programs through HRSWCD were offered, irrigation districts kept all patrons informed on potential curtailment action with direct mail or grower meetings.

Fortunately the EFID priority dates are very senior to other water rights in the basin. However, current capacity limitations include traditional low flow conditions on the East Fork Hood River, which includes high silt conditions. High silt conditions exist at both high flows and low flows. At this time, there are no alternative sources such as a high capacity reservoir to stabilize the water supply in cases of drought and low flows. EFID relies on the existing policies for water shortages to deal with water supply shortages and continues to explore water storage, groundwater use and conservation to decrease the need for curtailment.

## Section 3.2

### *Description of situations that trigger implementation of water curtailment element*

The following triggers will be used to identify drought conditions:

- NRCS reported snow pack on January 20<sup>th</sup> is less than 75% of average and a low Hood River stream flow is forecast. The EFID Manager via newspaper articles, direct mailing or personal contact provides a “heads up” in late January to alert irrigation water users of the potential for reduced water deliveries.
- By March 1<sup>st</sup> snow pack is less than 75% of average or a low Hood River stream flow is forecast. Timing and amount of runoff varies from year to year. The East Fork Irrigation District Board via newspaper articles, direct mail, or grower meetings will issue an alert regarding potential curtailment and allotment procedures.
- Watershed snow pack on April 1<sup>st</sup> is less than 75% of average or a low Hood River stream flow is forecast. Late spring precipitation, with resulting watershed runoff and cool temperatures, can increase stream flow and reduce crop irrigation water requirement, negating potential drought conditions. If potential drought conditions persist on May 1<sup>st</sup>, the East Fork Irrigation District Board will consider implementation of selected curtailment and allotment procedures.
- Watershed snow pack on April 1<sup>st</sup> is less than 50% of average or a low Hood River stream flow is forecast. Though possible, it is not probable that spring weather conditions will salvage a predictable drought condition. The East Fork Irrigation District Board will consider implementation of selected curtailment and allotment procedures.
- When glacial outbursts render East Fork Hood River water poorly suited for irrigation. Glacial outbursts can render East Fork Hood River water poorly suited for irrigation purposes almost every year. Drought severity depends on glacial sand yield and the number of days water is contaminated with high portions of glacial sand. When water is unavailable for the following days in a month, a severe drought condition exists.

April -- 30 days

July -- 7 days

May -- 20 days

August -- 7 days

June -- 14 days

September -- 7 days

Other factors that may affect extent of curtailment activities include:

#### **1. Drought condition determination**

NRCS and US Weather Service provide public forecast information for potential runoff from January through early spring months in all river basins in Oregon. The District cooperates with NRCS to help maintain awareness of current snow pack conditions in the upper Hood River watershed. District staff can poll individual SNOTEL sites on a continuing basis. Runoff projections are known immediately upon release, via in-office computer. Printed monthly reports by river basin are received at the District office, reviewed, and filed for future reference. Information presented is compared with information obtained from other sources.

## 2. Drought condition indices

The following indices, trends, reports, etc. are used by EFID decision-makers to support current and pending drought conditions:

- East Fork Hood River water quality can determine whether or not water is suitable or poorly suitable for irrigation purposes. During mid to late summer months glacial sand (flour) content can devalue East Fork Hood River water use for irrigation for periods of several days to several weeks.
- Published NRCS SNOTEL data and runoff projection. See the NRCS Snow Survey Products website at <http://www.or.nrcs.usda.gov/snow/>
- EFID self-evaluation of snow survey data, watershed condition, weather, potential runoff, etc.
- East Fork Hood River stream gauge readings.
- Published Oregon Weather Summary, Oregon Climate Service, Oregon State University (10 day lag time).
- Published NOAA Climatological Data (month lag time) Burn Index.

## 3. Drought condition modification

Variations in weather patterns may correct a drought situation before it becomes critical, i.e. above average late spring and early summer precipitation and lower than normal temperatures may alleviate the effect of a dry winter and poor snow pack. There is no way to accurately predict the weather. At any time in the spring or early summer, should a potential drought condition change to what shows to be a more normal water supply year, the same communication procedures that were followed to initiate action will be used to cancel or modify action.

### A. Courses of Action

When the trigger level is reached the following action occurs:

#### 1. EFID courses of action

- a. Limited watershed yield resulting in reduced irrigation water diversion.
  - 1) An evaluation of watershed conditions is made by District staff, Board members and consultants, etc. as needed to:
    - Identify temporary structural modifications that can be made to the East Fork Hood River diversion and in canals and laterals to limit the affect of a reduced flow rate.

- Design temporary (or permanent) modifications as needed to return the component or facility to a fully operational status. For example: construct earth wing dams < 50 cubic yards, extend reinforced concrete wing walls, install new toe (cutoff ) walls, replace open ditch with pipeline etc.
  - Design permanent modifications to return the component or facility to a fully operational status.
- 2) Evaluation personnel identify modification alternatives, costs, and required construction time (for each alternative).
  - 3) The East Fork Irrigation District Board of Directors select which alternative(s) are to be implemented, including: source of funding, implementation (contract, force account, EFID staff and equipment, etc.), and construction time allowed for completion of the required work. Along with the alternative(s) selected, the EFID Board identifies whether repairs are temporary or permanent; and if temporary, when is permanent follow up work scheduled.
  - 4) EFID Board identifies reduced water delivery actions to be implemented by staff.
- b. Component failure resulting in reduced irrigation water diversion.
- 1) An evaluation of the structural failure site(s) is made by District staff, board members, equipment and material suppliers, consultants, etc. as needed to:
    - Determine, if possible, the cause of failure.
    - Identify temporary repairs needed to return the component or facility to service until winter shutdown.
    - Design permanent repairs to return the component or facility to a fully operational status.
  - 2) Evaluation personnel identify repair alternatives, costs, and required construction time (for each alternative).
  - 3) The East Fork Irrigation District Board of Directors will select which alternative (s) are to be implemented, including: source of funding, implementation (contract, force account, EFID staff and equipment, etc.), and construction time allowed for completion of the required work. Along with the alternative(s) selected, the EFID Board identifies whether repairs are temporary or permanent; and if temporary, when is permanent follow up work scheduled?
  - 4) EFID Board identifies reduced water delivery actions to be implemented by staff.
- c. Glacial outbursts render East Fork Hood River poorly suited for irrigation use.
- 1) District staff makes an evaluation of poor water quality conditions.
    - District Manager takes action needed to minimize negative impacts on district and water users. For example: Clean sandtrap bays and canal sand pits for increased settling efficiency. Make other management changes.

- Identify temporary (or permanent) structural modifications that can be made to minimize negative impact on water users. For example: Excavate earthen sediment basin downstream of existing reinforced concrete basin, reduce canal cross section (or install pipeline) to increase canal velocities, thus sediment deposition.
  - Prepare preliminary design modification
- 2) Using consultants as needed, detail temporary (or permanent) structural design modifications.
  - 3) District Manager implements modification(s) costing less than \$2,000. Or, in consultation with at least 2 board members, implement structural modifications costing over \$5,000.

## 2. Community courses of action

When the trigger level is reached the following community actions occur:

- The EFID Manager contacts the Hood River County Commissioners, the Hood River SWCD and appropriate local, state and federal agencies to cooperatively assess the conditions based on accumulated low elevation winter precipitation and projected runoff. When drought conditions are viewed as a real issue, Hood River County officials then request from the Governor a declaration that official drought conditions exist.
- The Oregon Drought Council (representatives from state agencies, federal agencies, and the Governors office) meet to assess the request and local conditions. This group makes recommendations to the State Emergency Management Group. The State Emergency Management Group provides a recommendation to the Governor. The Governor officially declares the specific county or region as a “Drought Area”.
- East Fork Irrigation District is then allowed to use any of the following applicable tools under OAR 690-15, permanent water right transfers, temporary water right transfers, and water supplementation. Declaration also helps users qualify for federal relief funds, etc.

### Section 3.3

#### *Description of the procedure used to allocate water during shortages*

## A. Curtailment and Allocation Plan Implementation

### 1. Curtailment Procedures

Based on the projected water supply and recommendations of District staff, the EFID Board of Directors provides the final decision and direction for allocation of water during and following each curtailment event. Degree of curtailment and allocation to users will be based on the projected water supply reduction and water right priority. Considerations are:

- |                            |                              |
|----------------------------|------------------------------|
| a. Stage of crop growth    | c. Percent of growing season |
| b. Soil moisture condition | d. Amount of water available |

Curtailment procedures that will be followed during low water supply (drought) years include:

- Water delivery to farm turnouts on affected laterals will be uniformly curtailed in proportion to the volume of water available and water right priority date. The primary curtailment activity is, and will continue to be, reducing on-farm application rates. Application rates can be reduced by (1) reducing the number of on-farm sprinkler and micro irrigation laterals operating at one time, and (2) using smaller irrigation nozzles in all laterals.
- Provide intensive management and control of all water within the District.
- Decrease operational spills to near zero.
- Provide practical, comprehensive information to irrigation decision-makers to help reduce on-farm water use.
- Encourage landowners to keep grass cover crops short by frequent mowing.
- Aggressively cooperate with local, state and federal agencies providing assistance to irrigators on how to optimize on-farm water use.
- Evaluate the potential for providing financial incentives to users for reduced delivery, based on availability of outside resource funding.
- Evaluate potential for non EFID cost share funding for installing temporary (or permanent) on-farm water conservation measures i.e. on-site weather stations and irrigation scheduling software, soil moisture monitoring equipment, flow meters, smaller sprinkler nozzles, etc.
- Provide a comprehensive weekly analysis of water availability, with water use goals set week-by-week.

## **2. Allocation Procedures**

East Fork Hood River stream flow will be delivered to irrigated lands according to availability and water right priority date. Allocation procedures that will be followed during low water supply (drought) years include:

With District approval, individual water users can voluntarily:

- a. Reduce the amount of water applied per acre by decreasing irrigation set time, thus allowing near normal operation of sprinkler and micro irrigation laterals, including irrigation frequency (days between irrigations).
- b. Reduce nozzle (or emitter) size on all on-farm irrigation laterals, thus allowing near normal operation.
- c. Reduce irrigated acres until repairs can be made or the water supply improves.
- d. Share available water with other users having more critical water needs.
- e. Do not irrigate during low water supply periods in lieu of receiving a higher priority for water later in the irrigation season.

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**Section 4 - Water Supply Element  
OAR 690-086-0270**

**Section 4.1**

***Estimate of long-range water demand projections for 20 year***

Currently, EFID has a Wait List consisting of 35 properties with approximately 280 acres requesting new or additional water rights to land which could be served by the EFID delivery system. As irrigation water rights become available within the district because of urbanization or voluntary removal, these rights are allocated to people on the Wait List.

**Section 4.2**

***Comparison of the projected water needs and available sources***

Increases from the existing live stream flows are unlikely, probable sources are on going transfers within the District, conservation programs and allocation of conserved water and additional storage.

<b>Comparison of the projected water needs and available sources</b>	
<b>Source</b>	<b>Comment</b>
On Going Transfers	Good program with history of success
Conservation Programs And Allocation Of Conserved Water	Good program with history of success
Wells	More likely to increase among individual users rather than as a District wide process.
Additional Storage within boundary	New storage and or a settling facility are on going goals, particularly for better micro irrigation and hydro electrical production alternatives. This could be an on farm or district project.
Additional Storage outside of District boundary	New storage and or a settling facility to augment capacity for better reliability, Hydro, micro irrigation or to serve the Wait List is needed but difficult to find.

**Section 4.3**

***List of potential sources of water to supply the long-range needs***

District Permanent Transfers are filed with OWRD to change the place of use of district rights. These rights become available for transfer by urbanization of lands within the district boundary. EFID is notified by Hood River County Planning Department of all land use actions occurring within its boundaries. EFID has the opportunity to comment and place requirements on the land use actions prior to approval by Hood River County Commissioners. Most land use actions require the removal of a portion of water rights which the District can allocate to the Wait List. EFID manages its water rights carefully as to not lose any water rights from nonuse.

Interest in drilling a well has just recently increased. A few growers have drilled wells to supplement their EFID primary irrigation water rights; to increase the availability of water, should a catastrophic event happen on Mount Hood shutting off the East Fork Hood River. The District is vulnerable to massive glacial silt/sand flows which could destroy the irrigation water supply and diversion facility. *(Drilling wells has become important to blueberry growers who irrigate from over head sprinklers and need to keep the silt laden water off the berries)*

The District needs a reservoir for storage of water to use in the late season. The reservoir would also act as a settling area, with the potential of providing cleaner water to the District patrons. The reservoir would be used in late season when the East Fork Hood River has very low flow and the water quality may be poor.

#### **Section 4.4** ***Comparison of potential sources of additional water***

Transfer applications—District Permanent Transfer \$850 EFID fee, District Temporary Transfer \$700 EFID fee, no assurance when water may be available; this is good source as long as the district can supply the water, no negative environmental impact.

Wells – Hood Basin is currently still open to well drilling, submit an application to OWRD for an initial review to check for possible restrictions on drilling, need to file a ground water application for irrigation water rights with OWRD (\$1000 fee), cost \$15,000 to \$30,000 for drilling and pump, no assurance of hitting water and/or a significant amount of water.

#### **Section 4.5** ***Regional options for meeting future water needs***

The District will continue to monitor opportunities for meeting future water supply needs through regional cooperation. At this time, there is not any group effort for this type of planning.

#### **Section 4.5a** ***Cooperative Management***

In the future, EFID will possibly manage Mt. Hood Irrigation District since EFID now diverts MHID irrigation water (12.65 cfs) through the EFID Headworks/Sandtrap.

Since January 2009, EFID has been involved with the Hood River County Water Planning Group. This group is working on long range planning for evaluating existing water resources within the Hood Basin in hopes of developing a plan for meeting future water demands.

#### **Section 4.5b** ***Urbanization and other Land-use trends***

Urbanization Ballot Measure 49 claims could change the once EFU land into tracts of land with home sites. A portion of the water rights would need to be removed and transferred.

Odell Unincorporated Community - Increase the boundary of Odell and change the land use zoning allowing higher density housing.

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**Section 4.5c**  
***Local government related plans or ordinances***

The District will participate in any comprehensive plan if Hood River County is going to participate in Periodic Review.

**Section 5 - Additional Requirements**  
**OAR 690-086-0225**

No additional requirements known to apply at this time.

**Section 5.1**  
***List of the affected local governments to whom the plan water made available  
and a copy of any comments on the plan provided by the local governments***

Make available to Hood River County and Mt. Hood Irrigation District.

As a courtesy to:

- The Confederated Tribes of the Warm Springs
- Hood River Watershed Group
- Department of Environmental Quality
- Oregon Department of Fish and Wildlife
- Oregon Watershed Enhancement Board
- US Forest Service
- Oregon Water Resources Congress
- Middle Fork Irrigation District
- Farmers Irrigation District
- Hood River Soil & Water Conservation District

***Copy of comments on the plan provided by the local governments***

Comments received March 24, 2011 by email from Steve Stampfli, Coordinator, Hood River Watershed Group are as follows:

Cindy, I thumbed through the document, and was pleased to see you used one of my photos for the background of the second page.

Other quick comments:

The map on page 2 shows Powerdale Dam. You might want to add to the callout, "removed".

The same map does not show location of EFID diversion or supply routes. I'm not sure why you included all the fish facilities, and not more EFID related stuff.

Page 17 makes reference to USFW contributing to diversion removal. This should read USFWS.

On page 19, Section 2.3, you report 0-5cfs spilled into Neal Creek Lateral to supply users. We do flow monitoring of that lateral, and always see water in it at the base. The upper limit has been around 8.5 cfs during irrigation seasons of 2009 and 2010, although I know a small portion may be natural inflows from elsewhere.

Page 20, maybe I missed it but I thought you were evaluating a surge pond at start of CLP to alleviate spills into Neal Creek Ditch and Dukes Valley Ditch.

In list of acronyms, add HRWG (Hood River Watershed Group)??

Thanks for sending this, and good job as usual...

sms

Steve Stampfli, Coordinator  
Hood River Watershed Group  
3007 Experiment Station Road  
Hood River, OR 97031

Phone: 541-386-6063 (W)  
Email: [hoodriver@gorge.net](mailto:hoodriver@gorge.net)  
Web Site: [www.hoodriverswcd.org](http://www.hoodriverswcd.org)

Comments received April 29, 2011 by email from Jordan Kim, Assistant Manager, Hood River Soil and Water Conservation District are as follows:

Hi Cindy,

Sorry it took me to the eleventh hour to get you comments back on this. I finally had a minute to read through it today and I had a few comments. I never read the original WMCP, but this one looks great. It really shows how much you guys have accomplished and has lots of very useful stats/info on use and conservation measures. I know I'll find this VERY helpful with our flow meter monitoring project. Thanks again for sharing this with us...

Here are my comments (of course feel free to take 'em or leave 'em!)

-On page 2, the source location map is a little confusing if you didn't already know that the diversion point is at the Tribe's sandtrap acclimation site. Maybe adding that label would help? (*I'd be happy to help make a map if you need it.*)

- On page 16, in the second paragraph, the first sentence reads: “In 2008, EFID completed the Central Lateral Pipeline Project. This \$11M project buried 4.3 miles of 72” - 60” Weholite pipe, <<insert # of miles of >> 48” HDPE pipe to 30” steel pipe in the open, unlined Central Canal and about ½ mile of 8” to 2” PVC pipe in the Eastside Canal.

-On page 18, in the last paragraph, the sentence: “Installed a temporary fish ladder in the East Fork Hood River at the headworks in spring of 2008 in cooperation with CTWS and OWEB grant funding.

-On page 28, the second sentence: “The District will continue to explore possible savings in the form of low pressure, low flow, poly tube irrigation systems that reduce wind drift evaporation and qualify for the Business Energy Tax Credit.”

- On page 30, the second sentence of the second-to- last paragraph reads: “Benefits vs. cost analysis will determine how fast the District moves in this direction, or if additional components of automation are even desirable.”

On page 30, the first sentence of the last paragraph, there is a typo: “Installation of an Obermeyer style gate at the headworks will allow for better water control at EFID’s diversion from the East Fork Hood River.”

-On page 32, the first sentence: “There are several on-farm irrigation scheduling assistance resources that the District supports and will explore integrating into our future website.”

-On page 33, the first sentence of the second section reads: “Install flow regulators to actually measure the use of water at points of diversion to compare with the amount of allotted water rights to properties or pipelines.” Should this be flow *meters*? I could be confused, but I thought regulators actually restricted the amount of water the user could pull. Also, I know many of your growers have installed soil moisture sensors to help them schedule their irrigations according to crop need rather than a calendar date. New OWEB small grant recipients are recording/tracking their use and soil moisture monitoring for two years as part of our IWM training. Many have also enrolled in NRCS programs to implement IWM practices on-farm. Don’t know if these actions would be something you’d want to list here or not...

-On page 35, regarding the OWEB small grant program: “OWEB Small Grant Program. Has been used in the Hood River valley to help orchardists convert from outdated hand lines and impact sprinklers to more efficient low flow sprinkler heads, soil moisture sensors, pressure reducing valves, and flow meters.”

-Also on that page, Carly reviewed the EQIP blurb: “EQIP (Environmental Quality Incentives Program) - Federally funded program (authorized in Farm Bill 2008) through NRCS, a voluntary conservation program providing assistance to implement conservation management practices on working agricultural land. In Hood River County, EQIP is most commonly used to provide financial and technical assistance in water management. Assistance comes in the form of planning and design of efficient irrigation system upgrades and irrigation scheduling. EQIP is a cost-share agreement paying up to 75 % of the costs of priority conservation practices. Applications are accepted on a continual basis and ranked for funding at announced cutoff dates.”

-On page 36 – You guys are listed as partners on our Hood River Irrigation Upgrade Flow Meter Monitoring project funded by OWEB. The study is a three year monitoring project to evaluate the effectiveness of irrigation upgrades to conserve on-farm water use. Don't know if you want to mention this or not, but thought I'd let you know. I can give you more details if you are interested.

-On page 38, the fourth bullet reads: "Though possible, it is not probable that spring weather conditions will salvage a predictable drought condition." Not sure what this means... maybe "allow for" would be a clearer word choice there. (Or maybe I'm just not familiar with the weather lingo. J )

-On page 41 (Community Course of Action) under the first bullet: "The EFID Manager contacts the Hood River County Commissioners, the Hood River SWCD..."

-On page 44, Section 4.5 –There is a group, organized by the county that is working on long-range planning for evaluating existing water resources in the county in the hopes of developing a plan for meeting future water demands. I'm pretty sure Mike Benedict and Les Perkins are leading this effort.

-On page 45, you provided this to us to review too! J Thanks!

Hope this helps. Thanks for the opportunity to review this

*Jordan Kim*

Assistant Manager  
Hood River Soil & Water Conservation District  
3007 Experiment Station Rd.  
Hood River, OR 97031  
[www.hoodriverswcd.org](http://www.hoodriverswcd.org)  
(541) 386-4588  
Fax (541) 386-4588 (Call first)

## Section 5.1a

### *Response to the comments from affected local governments to whom the plan water was made available*

On March 21, 2011 a hardcopy of EFID's updated Water Management and Conservation Plan was sent to Hood River County and Mt. Hood Irrigation District as per requirements of OAR 690-086-0220 and described in Section 5.1. Also, on March 22, 2011 a courtesy email was sent to all agencies listed in Section 5.1 that the draft update could be reviewed on the Oregon Water Resources Department FTP site. Copies of the notification letter and email are included. The comment period was open until April 30, 2011.

East Fork Irrigation District received comments from two agencies, Steve Stampfli, Coordinator, Hood River Watershed Group (HRWG) and Jordan Kim, Assistant Manager, Hood River Soil & Water Conservation District (HRSWCD). Some comments were grammatical changes, oversights and/or clarifications which were incorporated into the text where necessary. The following is a summary of the comments from both the HRWG and HRSWCD and how EFID addressed each issue/comment.

- Comments from Steve Stampfli included:

**Section 1.1 – Source of Water – Location Map** - Steve thought the map should show Powerdale Dam “removed” and questioned why the map showed all the fish facilities and not more EFID diversion and supply routes. A new water source location map was designed and changed out. A Delivery System map (page 6), a Maintenance map (page 15), an Overflow map (page 21) and an Open Canal and Ditches map (page 27) show the infrastructure related to EFID.

**Section 2.3 – Conservation measures currently implemented** – Steve questioned the 0-5 cfs spill into Neal Creek Lateral to supply users who pump for that lateral. The HRWG do flow monitoring on the lateral and always see water in at the base (where it flows into the West Fork of Neal Creek). The measurements shows the upper limit around 8.5 cfs during irrigation seasons of 2009 and 2010 of which a small portion may be natural inflows (runoff) from elsewhere. The lower limit is more than 0 cfs since EFID spills to supply irrigation water to users on that lateral. EFID is planning to pipe the Christopher Ditch and to extend the pipe to include delivery to the irrigation users that are currently pumping from the Neal Creek Lateral. Once the irrigation users are off the Neal Creek Lateral, EFID would need to continue to spill around 2-4 cfs into the Neal Creek Lateral to help control the flow demands on the pipeline. The District currently controls about 90% of the pipeline flow and can match the demand fairly closely. There is about 10% of the water use in the pipeline, however, that is independently controlled by individual farmer/growers. As the growers turn water on and off, the District has to operate a small spill to keep the water level entering the pipeline constant. Currently EFID is in the design phase of a proposed surge pond project to be located immediately downstream from the Central Lateral Pipeline screen facility. This surge pond will eliminate the existing spill into the Neal Creek Lateral. It will be preliminarily sized at around 100,000 cf of pond storage. This will allow storage of 2 cfs of spill water for up to 12 hours. The project includes a 1500 gpm pump station to pump captured spill water back into the pipeline system. The pond will be armored with rip rap and will contain low silt dams in the bottom to help trap settled silt and

allow equipment into the pond to remove sediment. There will be a drain in the pond to allow it to drain naturally in the winter. Both these projects are addressed in **Section 2.4-Table H - Short and Long Term Goals** and are indicated as short term goals.

**Section 2.4 – Short and long term goals of the water supplier to improve water management** - Steve thought that the surge pond project should be included in Table H. The construction of a surge pond to alleviate spills into Neal Creek was added to Table H as a short term project.

Also, Steve suggested EFID change USFW to USFWS and to add HRWG (Hood River Watershed Group) to the list of acronyms. These changes were made.

- Comments from Jordan Kim included:

**Section 1.1 – Source of Water – Location Map** - Jordan thought the location was confusing and did not show the EFID diversion point. A new water source location map was designed and changed out.

**Section 2.1 – Progress report on conservation measure from previously approved WMCP** - Jordan suggested that the 4.3 miles of pipe for the completed Central Lateral Pipeline Project be specific to the length and size of the buried pipe. Each pipe size was described with a specific length and was added to the text.

**Section 2.1 – Other Goals Completed** – Jordan added that OWEB grant funding helped with the installation of the temporary fish ladder in the East Fork Hood River at the headworks in 2008. This information was added to this completed goal.

**Section 2.6d – Provisions of on-farm irrigation scheduling assistance** – Jordan mentioned that HRSWCD has a program to assist growers who install soil moisture sensors (through a OWEB small grant program) to help them schedule irrigation according to crop need rather than a calendar date. Recipients record and track their irrigation use and soil moisture monitoring for two years as part of the Irrigation Water Management (IWM) training. Many are also enrolled in NRCS programs to implement IWM practices on-farm. Another HRSWCD project that EFID is a partner in is Hood River Irrigation Upgrade Flow Meter Monitoring project funded by OWEB. This is a three year monitoring project to evaluate the effectiveness of irrigation upgrades to conserve on-farm water use. EFID’s manager has completed an onsite inspection of the installed flow meters in our district. HRSWCD is doing the monitoring and data analysis which will be shared with EFID annually. These on-farm projects have been incorporated into this section.

**Section 4.5a – Cooperative Management** - Jordan remarked that a group organized by Hood River County Commissioners and Hood River County Planning Department has been working since January 2009 on evaluating current and future water demand needs in the Hood River Basin. EFID’s manager is participating in this study group. The Hood River County Water Planning Group is now applying for a study grant from Bureau of Reclamation to assist in further evaluation of the water resources in the basin. EFID supports the efforts of this group to update the water management within the Hood River Valley. This information was added to the plan text.

Other comment received from Jordan Kim consisted of grammatical errors and clarification descriptions of the OWEB small grant programs and EQUIP (Section 2.7a – *Other Conservation Measures?*). These changes were incorporated into the text where necessary.

*Notification Letter*

**EAST FORK IRRIGATION DISTRICT  
P. O. Box 162  
3500 Graves Road  
Odell, Oregon 97044  
(541) 354-1185**

March 21, 2011

**East Fork Irrigation District  
Water Management and Conservation Plan  
March 11, 2011**

East Fork Irrigation District has drafted an updated Water Management and Conservation Plan to be submitted for adoption to the Oregon Water Resources Department. According to OAR 690-086-0225, Section 5, a draft version of the Plan is enclosed for your review.

We invite your comments and the comment period will remain open until April 30, 2011. Any comments or questions are greatly appreciated.

Please submit your comments or questions in writing to [cindyefid@hoodriverelectric.net](mailto:cindyefid@hoodriverelectric.net)

If you have any questions, please feel free to contact our office.

Thank you,

Cindy Sheppard  
Water Right Technician

*Courtesy Notification Email*

**EAST FORK IRRIGATION DISTRICT  
P. O. Box 162  
3500 Graves Road  
Odell, Oregon 97044  
(541) 354-1185**

March 22, 2011

**East Fork Irrigation District  
Water Management and Conservation Plan  
March 11, 2011**

East Fork Irrigation District has drafted an updated Water Management and Conservation Plan to be submitted for adoption to the Oregon Water Resources Department. As a courtesy, EFID has a draft Plan located at the Oregon Water Resources Department FTP site. You are welcome to review our Plan at <http://www1.wrd.state.or.us/files/uploads/East%20Fork%20Irrigation%20District/>

We invite your comments. The comment period will remain open until April 30, 2011.

Please submit your comments or questions in writing to [cindyefid@hoodriverelectric.net](mailto:cindyefid@hoodriverelectric.net)

If you have any questions, please feel free to contact our office.

Thank you,

Cindy Sheppard  
Water Right Technician

**Section 5.2**  
***Proposed date for submittal of an updated WMCP***

Since EFID is not a BOR District, EFID proposes to update the WMCP in 10 years unless an unanticipated funding opportunity came up to require it.

## EAST FORK IRRIGATION DISTRICT

### Conserved Water Policy

Adopted June 19, 2007

**A. Authority & Purpose:** The Board of Directors (the “**Board**”) of the East Fork Irrigation District (the “**District**”) is required to adopt a Conserved Water Policy (the “**Policy**”) pursuant to Oregon Administrative Rule (“**OAR**”) 690-018-0025. The rule requires that if the District seeks allocations of conserved water pursuant to Oregon Revised Statutes (“**ORS**”) 537.455 to 537.500, then it must adopt a policy that, at a minimum:

- Describes how water saved by conservation measure will be allocated by the District;
- Describes how the District will address the allocation of conserved water percentages under ORS 537.470;
- Provides District patrons the opportunity to fund a share of the conservation project that is proportionate to the patron’s share of the water rights involved in the allocation of conserved water and to receive a corresponding share of the conserved water;
- Provides District patrons an opportunity to petition for a vote by all District patrons on this Policy; and
- Provides District patrons an opportunity to appeal a proposed District conservation project to the Board for failure to follow this Policy.
- The purpose of this Policy is to provide District patrons with the information required by OAR 690-018-0025 and to set the procedures by which this Policy will be implemented.

**B. Definitions:** The following definitions shall apply in this Policy.

1. “**Conservation**” means the reduction of the amount of water diverted to satisfy an existing beneficial use achieved either by improving the technology or method for diverting, transporting, applying or recovering the water or by implementing other approved conservation measures.
2. “**Conserved Water**” means that amount of water that results from conservation measures, measured as the difference between:
  - a. The smaller of the amount stated on the water right or the maximum amount of water that can be diverted using the existing facilities; and
  - b. The amount of water needed after implementation of conservation measures to meet the beneficial use under the water right certificate.

3. **“District Allocation”** means the amount of Conserved Water allocated to the District by the Oregon Water Resources Department.

**C. Policy of the Board: Conservation Measures**

1. Conserved Water Projects undertaken by EFID are to be filed under ORS 537.455 - 537.500, and will address one or more of the following conservation purposes:
  - a. Reduce transmission loss (seepage) within EFID open canal system;
  - b. Eliminate conveyance of irrigation water in a natural stream (turbidity) as demanded by certain agencies (ie DEQ);
  - c. Increase the chances of securing additional funding by meeting grantors objectives in order to complete the major pipeline project; or
  - d. Eliminate construction of new fish screening structure.
2. **Allocation of Conserved Water:** Allocation priority will be for establishing new irrigated lands within the District’s boundary.
  - a. Allocation shall be based on a maximum of 75% to irrigation and 25% to in-stream requirements; or if more than 25% of the funds used to finance the conservation measures comes from federal or state public sources and is not subject to repayment, the in-stream percentage will equal the percentage of public funds used to finance the conservation project.
  - b. No patron shall be entitled to any of the District Allocation other than the amount necessary to maintain the patron’s full rate and duty at its regular turn out(s), except as provided *infra*.
3. **District Allocation:** The Board of Directors will use three methods to divide the District Allocation. The District Allocation will first provide opportunities to those under the patron funding category, next to petition for replacement, and finally to the waiting list.
  - a. **Patron Funding:** Funding Patrons are entitled to a portion of the District Allocation equal to the percentage of the funding for the water conservation project paid by the Funding Patron to the District up to that amount necessary to maintain the Funding Patron’s full rate and duty for all irrigable acres that the Funding Patron owns or controls within the District boundaries, even if that amount is more than the amount provided under #2 *supra*.
  - b. **Replacement:** Upon a petition granted by the District Board of Directors, District patrons may replace their private water rights for an equal amount of water rights received in the District Allocation. The petition shall provide evidence of (a) existing private rights; (b) which are within the District boundaries; and (c) use of those rights within the last five years. To be eligible for replacement, (d) the private water rights cannot be coupled with a District delivered right. If these criteria are met, petitions will be evaluated for presenting favorable opportunities to the District including but not limited to the District’s opportunity to use such private rights, after acquired by the District,

to achieve instream goals, delivery loss reduction or other conservation measures (“evaluation criteria”). All petitions must be in writing and receive initial staff approval for criteria (a) through (d) before a hearing is set in front of the Board of Director for review of the evaluation criteria. The hearings will occur after initial staff approval in the order the petitions were filed. Any determination by the Board of Directors will give findings of fact and conclusions of law to support the final decision.

- c. **Waiting List:** In the event there is remaining water, as a result of the conservation efforts, after fulfilling the requirements of Funding Patrons and Replacement Patrons, the District shall allocate the remaining conserved water according to the District Waiting List Policy.
- d. **Vote on Policy:** The Board of Directors may, at its discretion, choose to hold an election on this policy. In addition, if within 60 days after the Board of Directors adopts this policy or later if provided by law, District patrons may petition the Board to hold a District vote on the approval of this policy. The petition must be signed by fifteen (15) percent of the total number of votes that may be cast in an election for a director pursuant to ORS 545.189(1). Upon receiving a valid petition, the District shall hold a vote of all District patrons. The vote shall be whether to approve or reject this Policy. The vote shall be conducted according to the laws and procedures that govern District elections.
- e. **Reconsideration of Water Conservation Projects:** Proposed water conservation projects shall be approved by the Board at any one of its regularly scheduled Board meetings. Patrons may comment on the proposed water conservation project during the Board meeting at the time scheduled for that agenda item before a vote of the Board of Directors is taken. If the Board approves the proposed water conservation project, any patron in good standing may request reconsideration of the Board’s decision in writing within two weeks from the date of the Board’s decision. The request for reconsideration shall include the name, address, and telephone number of the patron appealing the Board’s decision, a concise statement of the reasons the proposed water conservation project does not comply with this policy, possible modifications to the water conservation project that could provide compliance, and any other issues that the patron wants to address related to the water conservation project. The Board shall hold a hearing on the request for reconsideration at its next regularly scheduled meeting. The patron appealing the Board’s decision shall have an opportunity to present the patron’s position during the hearing. After hearing, the Board may take any of the following actions on the request for reconsideration: (1) grant the reconsideration and reject the proposed water conservation project; (2) grant the reconsideration and modify the proposed water conservation project; or (4) deny reconsideration. The final order on the request for reconsideration shall be issued by the Board of Directors in writing and include findings of fact and conclusions of law.
- f. **Policy Review and Updates:** The Board shall review and update this Policy at its annual meeting at least every fifth year following adoption.
- g. **Applicability:** This Policy applies only to applications for allocations of conserved water filed with the Oregon Water Resources Department by the District after November 5, 2004. This Policy does not apply to applications for allocations of conserved water filed by individuals, including District patrons.

## Attachment B

### WAIT LIST APPLICATION POLICY

Application to the Wait List is available to landowners who are requesting new or additional water rights to lands within the District boundaries (or outside the District boundaries, if deliverable but requires inclusion into the District). The application must be presented to the Board of Directors for approval.

**The Board of Directors can set limitations/restrictions on an application as follows:**

- **Delivery System Capacity**

All applications are subject to capacity of the delivery system to the property. If the pipeline or canal cannot supply the additional requested amount of irrigation water, the application may be denied. Exception only, if the application can be satisfied by using available water delivered from the same system (canal or pipeline). The District will not replace (resize) pipelines or canals for Wait List applicants. However, at landowner's expense and District's approval, an existing pipeline can be replaced (resized) to increase capacity to supply irrigation water to the property.

- **District Boundaries**

If the property lies outside of the existing district boundaries and irrigation water can be delivered, the landowner will need to petition to the District for inclusion. Refer to the transfer fee schedule for associated costs.

- **Easement**

An easement is required should a landowner need to cross private property to establish connection to the District's delivery system (existing canal or pipeline). The easement must be recorded with Hood River County Records and Assessments with a copy to EFID.

- **Private Delivery System Permission**

If delivery of irrigation water is through a private system and additional capacity is available, the landowner must get permission from all users on the private system. An easement granting permission to connect to the private delivery system must be recorded with Hood River County Records and Assessments with a copy to EFID.

- **EFID Water Rights Cannot Be Supplemental Rights**

All EFID water rights are primary rights. If a property has private water rights that conflict with EFID water rights either voluntary cancellation (5 years non use), or change of private rights to supplemental rights is required. A cancellation or change must be filed with Oregon Water Resources Department to complete the transfer process.

- **Amount of Water Rights Requested**

Applications can be made for any quantity of irrigation water but cannot exceed the tax lot acreage. Only 5 acres of water rights will be granted at one time. If the application request is for more than 5 acres, the remaining water rights (after 5 acres have been granted) can remain on the Wait List but moves to the bottom of the list.

It is the responsibility (cost) of the landowner to get the water to their property from the District's "high point of delivery".

As irrigation water rights become available through the District, these rights are offered to applicants on the first come, first serve basis. Wait List priority is based on date of application. If an applicant is offered water rights but for some reason declines the offer, their application request is moved to the bottom of the list. When the offer of new or additional water rights is accepted, the applicant is required to pay the cost of a District Permanent Transfer. Refer to transfer fee schedule.

The Wait List will be reviewed and updated every 2-3 years. As property is sold, the application will remain with the legal description (tax lot).

## Attachment C

### **DISTRICT PERMANENT TRANSFER POLICY (ORS 540.580)**

A District Permanent Transfer is used to manage water rights within the district boundaries. The transfer is used for change in place of use; however, also can be used for change in character of use (irrigation to industrial). Water rights to be transferred cannot be subject to forfeiture under ORS 540.610 (5 years nonuse). Water rights which are subject to forfeiture can be transferred under ORS 540.472, Notice of Intent to Transfer, prior to 5 years nonuse.

Reasons for transferring water rights can include voluntary removal of rights by a landowner; land development within the district such as subdivisions, commercial buildings; forfeiture of rights (4 years nonuse); wait list applications. Review by the Board of Directors is needed prior to approval.

The District Permanent Transfer can accommodate numerous lands (landowners) under one petition. EFID sends a notice of transfer to OWRD for review. The District cannot allow the change in place of use of irrigation water until obtaining approval from OWRD. When approval is received, landowners are notified. By December 31<sup>st</sup> of same calendar year, EFID files a petition with OWRD for permanent transfer.

An order approving the transfer is received from OWRD which includes specific time lines to finalizing the transfer. OWRD allows the District and landowners 2 years to complete the transfer. Landowners must clear and develop the land and irrigate the land “beneficially” within the 2 year period. The District (staff) is required to inspect the progress and complete a site report to final proof the transfer. If a landowner has not complied with the terms of the transfer and has good reason, an extension may be filed, at the expense of the landowner. If an extension cannot be justified, the final proof will only include that portion of the water rights which were developed within the 2 year period.

#### **Uses of District Permanent Transfer**

EFID has used a District Permanent Transfer to manage and maintain the district water rights. Since the Hood Basin is not open to any further water rights, the district must manage the water rights allocated from the East Fork Hood River. As development of commercial buildings and housing subdivisions occur, water rights are removed and reallocated to lands within the district boundary. Most water rights are relinquished to the District and applied to the Wait List. However, the landowner has the option to transfer the water rights to other properties he may own within the district.

**DISTRICT TEMPORARY TRANSFER POLICY  
(ORS 540.570)**

A District Temporary Transfer is used to transfer available water rights for only one irrigation season. A landowner can offer water rights to the District for temporary use on other lands within the district boundary. This process must be requested prior to April 15<sup>th</sup>. A temporary transfer must be filed prior to the use of irrigation water on lands subject to transfer.

The landowner must sign a Power of Attorney affidavit allowing the District to remove all or part of the irrigation water rights from the property for one irrigation season. The landowner can renew the affidavit on a yearly basis.

A long term lease is available if a landowner wishes to enter into a contract for more than one year. The irrigation water may seem more desirable if the recipient landowner can secure the water for a determined length of time.

A temporary transfer must be filed with OWRD. An injury report is requested from the Watermaster regarding the change in place of use of the water rights. OWRD prohibits the delivery of water to the existing and/or proposed place of use included in the temporary transfer until the OWRD approves the request or a 60 day period has expired. Temporary transfers will be filed prior to May 15<sup>th</sup> to obtain approval for the current irrigation season.

After approval from OWRD, the recipient landowner is notified and assessed current irrigation charges for the additional water rights. District staff will increase the existing weir/dole valve to accommodate the increase in water rights. District staff will also need to reduce or shut off the weir/dole valve for the lands that need to be temporarily “dried up”.

OWRD can at anytime further condition, reject or revoke the temporary transfer if the department finds reason (injury). Applying irrigation water on the land from which the right has been transferred and on the new temporary location during the same irrigation season is prohibited and may subject the District and landowner(s) to civil penalties. Upon expiration of the temporary transfer (September 30<sup>th</sup>), all water rights revert automatically to the original place of use.

**Uses of District Temporary Transfer**

EFID has used District Temporary Transfers to supply irrigation water to lands for which landowners have submitted a well application to OWRD. The landowner is awaiting results of the initial review process before actual well drilling begins. Currently, the District has two landowners for which a District Temporary Transfer was filed prior to their well applications review; one is short term (1-2 years) and the other long term (5 years).

EFID has used this transfer process to move irrigation water to lands for the initial planting of wine grapes. After 2-3 years, the vines become established and require less or no irrigation water. Landowners who have used a temporary transfer to develop a vineyard “dry land” farm the grapes after a few years.

A District Temporary Transfer was used on a property to which a District Permanent Transfer had been filed but injury to the water right was found. The irrigation water was spreading into a wet area of an old creek bed. The District filed a temporary transfer to watch how the land “dried up”. The land was observed for an irrigation season to determine the exact area of land to which the water rights could be removed. A District Permanent Transfer was filed the following year.

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## ACRONYMS

EFID	East Fork Irrigation District
MHID	Mt. Hood Irrigation District
CLP	Central Lateral Pipeline
OWRD	Oregon Water Resources Department
OWT	Oregon Water Trust
CTWS	The Confederated Tribes of the Warm Springs
USFS	United States Forest Service
BOR	Bureau of Reclamation
DEQ	Department of Environmental Quality
OWEB	Oregon Watershed Enhancement Board
ODFW	Oregon Department of Fish and Wildlife
BPA	Bonneville Power Administration
OWRC	Oregon Water Resources Congress
NRCS	Natural Resources Conservation Service
EQIP	Environmental Quality Incentives Program
USFWS	United States Fish and Wildlife Service
HRSWCD	Hood River Soil and Water Conservation District
HRWG	Hood River Watershed Group

## **EAST FORK IRRIGATION DISTRICT HISTORY**

### ***East Fork Irrigation Canal Company***

As shown in a Valley Improvement Company record book, the East Fork Irrigation Canal Company was formed from that company in the fall of 1895. Oregon Water Resources Department records reveal that the East Fork Irrigation Canal Company filed a Notice of Appropriation, recorded October 4, 1895. Two subsequent Notices were filed October 15 and November 25 of the same year for a total of 14,000 miners inches (350 CFS). On October 24, 1921 a Hood River County Circuit Court Decree described 7,581.65 acres as being irrigated at that time. The Decree also allowed an additional 4,215.42 acres an inchoate right and required that this land be fully irrigated by January 1, 1925. Since that time Applications for Permit to Appropriate Water have been filed for additional land still being placed in production for irrigation, frost control, orchard spraying and fire protection.

The East Fork Irrigating Company built ditches, wooden flumes and pipelines to distribute water. Many of the farmers worked out their charges by building ditches with teams of horses, slip scrapers and hand tools. Some of the first pipe was made of logs bored out at a sawmill owned by the Company along Neal Creek. The mill was powered by a Pelton water wheel.

### ***East Fork Irrigation District***

The East Fork Irrigation Canal Company became financially in trouble in 1913 with \$52,182 indebtedness and no money to operate on. The East Fork Irrigation District was then formed authorizing bonds to be issued for \$150,000, asked for a one year option to purchase the Company and took over the operation of the system for that year. In February 1914, the Company was dissolved and the District took over completely by paying off the debts owned by the Company.

The East Fork Irrigation District was organized, in 1913 under the laws of the State of Oregon. The District was organized as a taxing body for the purpose of delivering irrigation water to properties within its territory. It is administered by a Board of Directors elected by registered voters of the district. Currently water is delivered to about 1000 turnouts managed by 970 water users. Revenues are derived from user fees on land within the District. Expenditures are made for the operation, maintenance and improvement of the irrigation system and retirement of assumed bonded debt.

In March 1915 an extensive program of enlarging the distribution system was undertaken. Many contracts were let between 1915 and 1917 to accomplish this work. Much of the enlarging of canals and ditches was done by teams of horses and by hand labor. A single moldboard plow furrow was used to guide a "crowder board" pulled by a team of horses. Repeated passes resulted in a narrow roadbed in which a trench was excavated by hand. Horses were used to string out the pipe along the trench. Sometimes horses were used to pull the wooden pipe out

Many wooden flumes were built across draws and over rocky terrain, because lumber was cheap and faster to install than to dig a ditch. Other flumes were used to replace ditches that proved to be too steep and were eroding the land. The usual life for a flume was about 20 years. In the 1920's the District started a program of digging ditches around the draws in the Pine Grove area to eliminate as many flumes as possible. This was accomplished with horses and manpower. It provided good winter work, especially in the depression days.

Pipelines placed in 1914 – 1915 were wire bound untreated wood. The wood being vertical grain Douglas fir, free of knots. The wood started rotting with resulting pipe failure about 1932 and was replaced by larger sized, creosote dipped wood stave pipe or steel pipe where pressure was involved. The last original untreated wood pipeline was replaced in 1961.

Between 1934 and 1940 most of the larger sizes of pipe in mainlines was replaced. Twenty foot lengths of creosote dipped wood stave pipe would be shipped to Hood River by railroad in boxcars or on flat cars. It was a challenge to unload the pipe onto trucks and get laid out along the ditches. Trucks used at that time were of short wheel-base and in order to get a good amount of pipe on, were loaded much too long. Sometimes 4 or 5 men would ride the front bumper of the truck to hold the front end down for steering until the truck reached the top of the steep hill from the railroad yard.

In 1923, concrete pipe was introduced as a means to enclose open ditches or to replace wood pipelines and flumes. Many miles of concrete pipe have been used by the District and also by farmers to install non-pressure "permanent irrigation systems". Many sections are still serviceable, but some have been abandoned, being replaced with steel, asbestos cement or PVC plastic pipelines to provide gravity pressure for operating sprinkler and micro irrigation systems. Original on-farm irrigation systems used mostly rills (small furrows) and sometimes narrow borders to flood the gentle (4%) to steeply sloping (30%) land. Fruit orchards, pasture and hay land were the primary crops irrigated. Head ditches or wooden flumes with holes bored in the sides were used to supply water to rills and borders. Later concrete pipelines with standpipes were used. When tractor drawn speed sprayers came into use, rills were more than a nuisance. Following the development of impact type sprinklers in the early 1940's and the end of World War II in 1945, when pipeline again became available, converting from flood to hand-move sprinkler irrigation systems became a reality. Irrigation application efficiencies increased from 25 –50% to over 90%. Today most on-farm systems are solid-set sprinklers with a few micro (drip, trickle, minispray/sprinkler, etc.) some with varying degrees of automatic controls. In 1929, 1930, and 1931 large amounts of sand and glacial flour (rock flakes to colloidal clay sized rock particles) filled the upper section of the main canal. The volume was such an extent that in the middle of the summer water was shut off and farmers with some hired help were called to shovel out enough sediment to allow water to flow. The following winter sand had to be cleaned out the full length of the main canal and also some laterals. That prompted the design of a sand trap to be located immediately below the East Fork of Hood River diversion head gate. A sand trap was built during the 1931-1932 winter at a cost of slightly over \$6,000. For many of the following years the sand trap had to be flushed every two weeks during midsummer. There have been a few years when required flushing was only once or twice the entire year. During the 2002 irrigation season daily flushing of at least one bay was required during heavy sediment yield periods. Due to major flood damage in the spring of 1996 a new sand trap and fish screen was constructed in 1996 –1997.

The East Fork of Hood River water supply is generally adequate. However, there have been severe water supply shortages during several years, when there was just barely enough water to meet September and October needs. One of these shortages prompted a study for a storage reservoir. The area containing the Hanel Mill and surrounding property on Neal Creek was chosen as the most suitable location. After an engineering firm conducted a study and prepared a report, the District Board because of high cost and limited benefits rejected the idea. In the 1960's, 1970's and 1980's, Permits for additional water for about 1000 acres was applied for through ORWD.

The District has continued to make changes and upgrade or replace delivery systems as demonstrated in our 2002 Water Management and Conservation Plan (WMCP) and continues to progress as shown in this revised WMCP. EFID manages the water rights allocated to the district so as not to lose water rights to forfeiture. The district is constantly striving to provide pressurized, less turbid irrigation water to on-farm deliveries. By delivering cleaner irrigation water, the farmers will be able to use smaller size nozzles in sprinkler systems which will lead to conserving water.

**LIST OF EFID MANAGERS**

J.W. McDonald	1913 – 1914
R.A. McClanathan	1915 – 1916
F.A. McDonald	1917 – 1923
Charles Shaw	1923 – 1945
Edwin Shaw	1945 – 1980
Ronald Reinhart	1980 – 1982
Raymond Moore	1982 – 1985
Clarence Neville	1985 – 1996
John R. Buckley	1996 – Present

**LIST OF EFID BOARD OF DIRECTORS**

January 1913	C.R. Bone, J.E. Ferguson, Ed J. Hawkes, J.A. Moore, Chris Dethman
February 1915	W.D. Allen, Ed J. Hawkes, M. Pendergast, Geo.T. Prather, J.A. Moore
June 1915	W.D. Allen, M.M. Hill, M. Pendergast, Geo.T. Prather, J.A. Moore
March 1916	W.D. Allen, M.M. Hill, M. Pendergast, Geo.T. Prather, J.P. Naumes
February 1917	J.R. Steele, M.M. Hill, M. Pendergast, Geo.T. Prather, J.P. Naumes
February 1918	Nels O. Hagen, M.M. Hill, M. Pendergast, Geo.T. Prather, J.P. Naumes
February 1919	Nels O. Hagen, M. Pendergast, C.E. Copple
1920	Nels O. Hagen, Edward E. Lage, C.E. Copple
1925	Nels O. Hagen, Edward E. Lage, John E. Plog
1943	L.E. Allen, Edward E. Lage, John E. Plog
1948	Harold Fletcher, Edward E. Lage, John E. Plog
1949	Harold Fletcher, Edward E. Lage, Arvo Anderson
1960	Harold Fletcher, Edward E. Lage, William R. Gale
1962	Harold Fletcher, Alan Bickford, William R. Gale
1966	Sho Endow, Jr., Alan Bickford, William R. Gale
1968	Sho Endow, Jr., George M. Ackerman, William R. Gale
1972	Sho Endow, Jr., George M. Ackerman, Robert W. Chamberlin
1978	Sho Endow, Jr., George M. Ackerman, Merrill R. Graves
1980	Sho Endow, Jr., George B. Wertgen, Merrill R. Graves
1983	Sho Endow, Jr., Jim Wells, Merrill R. Graves
1990	Sho Endow, Jr., Jim Wells, Phil Davis
2001	Brian Nakamura, Jim Wells, Phil Davis
2007	Brian Nakamura, Jon Laraway, Phil Davis
2008	Brian Nakamura, Jon Laraway, Dwight Moe