



SUSTAINABILITY PLAN 2014 v. 17

INTRODUCTION

Natural resource system limitations demand that we balance our need for domestic, industrial, hydroelectric, and agricultural water use with the very real ecological necessity of maintaining adequate stream flows for fish and wildlife habitat. The Farmers Irrigation District strives to play a direct and supportive role in achieving sustainable practices of water use for the common good, and this document guides our practices.¹

In response to concern regarding matters of economy, ecology, and social equity in the Hood River Basin, we strive to act as natural resource stewards. District programs are thus dedicated to watershed restoration, in-stream flow enhancement, renewable energy production, and on-farm irrigation efficiency. District projects are funded through various means, including water user assessments, watershed and water conservation grants, Energy Tax Credits and ETO incentives, low interest SRF ODEQ loans, Renewable Energy Credit sales, and royalty revenue (from the sale of various innovative fish screen technologies).

PROJECT HISTORY

The foundation for the District's sustainable practices was established in about 1980 when the Farmers Irrigation District embarked on a small-scale hydroelectric program to create revenue for water conservation projects. The District and its basin partners have realized several positive outcomes from this program, some of which are characterized immediately below.

¹ For detailed background regarding the District's water conservation program, see the original Farmers Irrigation District Water Conservation and Management Plan, adopted by the District and the Oregon Water Resources Department in 1995 and revised in 2011.

FID Project Numbers

Audited capital improvements (1985 to 2012) = **\$39,089,548**

Audited debt service expenditures (1985 to 2012) = **\$37,700,294**

Audit Reports 1985 - 2012		
Year	Capital Improvement \$	Debt Service \$
1985	2,971,194.00	543,310.00
1986	5,666,986.00	543,310.00
1987	4,247,493.00	1,225,015.00
1988	427,784.00	1,325,180.00
1989	884,693.00	1,346,066.00
1990	26,373.00	1,395,662.00
1991	46,872.00	1,402,052.00
1992	91,800.00	1,401,525.00
1993	132,677.00	1,366,264.00
1994	69,255.00	1,369,816.00
1995	122,808.00	1,368,609.00
1996	0.00	1,533,827.00
1997	299,237.00	1,469,680.00
1998	394,920.00	1,499,184.00
1999	100,417.00	1,415,230.00
2000	253,140.00	1,122,704.00
2001	429,802.00	1,393,474.00
2002	1,699,421.00	2,296,510.00
2003	354,343.00	1,455,401.00
2004	0.00	1,369,365.00
2005	16,562.00	1,550,560.00
2006	7,901,606.00	1,143,571.00
2007	2,644,967.00	2,241,347.00
2008	1,049,535.00	949,682.00
2009	3,818,503.00	949,832.00
2010	4,634,315.00	1,123,485.00
2011	400,068.00	1,466,253.00
2012	404,777.00	1,433,380.00
TOTALS	39,089,548.00	37,700,294.00

- Water diversions eliminated: 22
- Fish-safe screen installations: 9
- Supplemental water right acres abandoned: 2,000
- Acre-feet spray water conserved annually: 3,500 acre-feet (from the 1995 baseline)
- Individual irrigation pumps eliminated: 1,450
- Kilowatt hours conserved annually due to eliminated irrigation pumps: 1.45 million
- Acre-feet irrigation water conserved annually: 15,000 (from the 1995 baseline)

- Renewable Low Impact Hydropower annual kilowatt hour production increase: 2,300,000
- Micro-sprinkler irrigation heads provided to residential irrigators: 15,000
- Average percent annual reduction in residential irrigation usage: 300
- Trees planted In the Green Point Creek riparian corridor: 7,800
- Board feet of large woody debris placed in Green Point Creek: 85,000
- Minimum flow agreements adopted: 2 (Hood River and Green Point Creek)
- Remote telemetry monitoring sites established: 12 (down from the 2013 baseline)
- Flow measurement weirs installed: 7
- Flow regulators and low head gauge holes installed: 610
- Flow meters and piezometers installed: 77

Project Summaries

Diversion & Flow Measurement Projects	Description
Farmers Canal Intake	Armored reinforced concrete walls, vortex sediment management tubes, Farmers Conservation Alliance (FCA) horizontal fish screen and fish return, flume replacement with PVC pipe, telemetric flow data collection system for minimum instream flow compliance, telemetrically controlled headgate, conveyance tunnel bullnose and headgate seal for downstream system protection, and riparian enhancement. Concrete lined tunnel.
North Greenpoint Creek	FCA horizontal fish screen with fish return and riparian enhancement
Deadpoint Creek	FCA horizontal fish screen connected to Lowline Pipe, riparian enhancement
South Pine Creek	Horizontal fish screen connected to Lowline Pipe, riparian enhancement
North Pine Creek	Horizontal fish screen connected to Lowline Pipe
Mainstem Greenpoint	Telemetric flow data collection system for minimum in-stream flow compliance
Gate Creek	Horizontal fish screen connected to Stanley Smith Pipeline
Upper Greenpoint Reservoir	New upper dam face rip rap and rock on crown to prevent wind and wave erosion,

	flow measurement weir, and telemetry
Lower Greenpoint Reservoir	Flow measurement weir, fresh rock on dam crown.
Ditch Creek at Forebay 3	Inlet structure and horizontal fish screen connected to Forebay 3 with fish return and ladder connected to Ditch Creek . Poured two large 8" thick, rebar reinforced concrete walls to improve structural integrity of forebay walls.
Ditch Creek at Highline	Horizontal fish screen inlet structure connected to the Highline pipeline
Rainy Creek	Horizontal fish screen inlet structure

Open Canals and Laterals Converted to Pipe

Piping Project	Length (miles)	Description
Highline Canal	5.10	HDPE and PVC pipe
Farmers Canal (<u>partially piped</u>)	5.96	HDPE and PVC pipe; <u>2.45 miles remain to be piped</u>
Low Line Canal	6.07	HDPE, ADS, & Duramaxx pipe
Greenpoint Canal	5.20	PVC and steel pipe
South Greenpoint Canal	0.50	ADS pipe
Stanley Smith Pipe	4.60	PVC pipe, Gate Creek to Upper Kingsley Reservoir
York Hill Lateral	1.30	PVC pipe
Binns Hill Lateral	0.50	PVC pipe
Cox Lateral	0.60	PVC pipe
Golf Course Lateral	4.56	PVC pipe; includes Country Club, Sunset, Ing, and Sterr
Kenwood Lateral	1.17	PVC pipe
Dieck Lateral	0.90	PVC pipe
Portland Drive Lateral	0.80	PVC pipe
Markham Lateral	2.23	PVC pipe; includes Hayes Drive and Wallace Lateral
Avalon/Belmont Lateral	11.15	HDPE and PVC pipe; includes May, Muddy, and Frankton sublaterals
Tucker Lateral	6.25	HDPE and PVC pipe; includes Cemetery, Eliot, Barker, and Nickelsen sublaterals
High School Lateral	1.72	PVC pipe
Orchard Road Lateral	2.12	PVC pipe
Various pipeline replacements	4.00	PVC pipe replacing small sublaterals and user group lines

Parkertown	0.47	PVC pipe
Penstock 2 & 3	5.7	Concrete reinforced steel, mortar lined pipe
Total Miles of Pipe	67.44	

Miscellaneous

Oregon Trout Certificate of Appreciation to Farmers Irrigation District: Outstanding Management Practices – on behalf of Oregon Trout’s mission to protect and restore native fish and their ecosystems (October 1998)

Oregon Plan for Salmon and Watersheds – FCA Horizontal Screen Program (May 2005)

Water Resources Commission Water Management Award from the Oregon Water Resources Department (2005)

Farmers Irrigation District Horizontal Fish Screen US Patent #6964541 (11/15/2005)

ACEC Oregon Engineering Excellence Grand Award to Farmers Irrigation District and Anderson Perry Engineering for Diversion System Improvements (2006)

Farmers Irrigation District Horizontal Fish Screen Canadian Patent #2,440,140 (10/28/2008)

Low Impact Hydropower Institute Certified Facility Certificate # 000045 (March 2009)

Farmers Irrigation District Horizontal Fish Screen US Patent #7594779 (9/29/2009)

California Energy Commission Renewable Portfolio Standard Eligibility Certificate CEC-RPS-ID #61366A (April 2011)

Oregon Renewable Portfolio Standard Certified (April 2012)

Direct support to Farmers Conservation Alliance (FCA) resulting in contributions to rural communities in the Western United States equaling:

- Fish screen installations: **27**
- Stream miles opened: **177.61**
- Acres of farmland protected: **34,058**
- CFS converted to fish-friendly diversion: **545.2**
- Environmentally-friendly Megawatts supported: **8.01**
- Operation and maintenance dollars saved annually: **\$494,200**

Based on the results of its early work in the realm of sustainable practices, the District developed the following mission statement to guide its future work.

MISSION

Farmers Irrigation District strives to promote ecologically, socially, and economically sustainable agriculture by providing renewable energy and irrigation service for the common good.

SUSTAINABILITY POLICY (adapted from the original thinking of Ontario Power, Canada, 2002, and used with permission)

The Farmers Irrigation District shall guide its practices according to the flowing tenets:

- Sustainable on-farm practices
- Renewable, Low Impact Hydropower Institute Certified energy production
- Resource use efficiency and balance
- Community relations and social equity
- Ecosystem protection

The Farmers Irrigation District shall adhere to the following core practices:

- Meet or exceed all legislative and agency environmental requirements
- Integrate ecological, social, and economic factors into all planning, decision-making, and business practices
- Use group process to reflect upon and reform these core practices
- Further develop renewable and sustainable energy and water-use practices
- Educate, encourage, and empower employees and community to conduct activities in a sustainable manner
- Communicate through local, national, and international media the progress made toward achieving these sustainable practices

OPPORTUNITIES

In an ongoing manner, Farmers Irrigation District shall develop and implement sustainable practices through the following generally described opportunities:

- Water Rights and Instream Flow Management
- GIS Program development
- Water Accounting Program development
- Metering and remote telemetry program enhancement and rebuild
- System control, flow control, and data acquisition enhancement
- Farmers Canal pipe installation completion
- Sediment Management Facilities Project
- Reservoir Consolidation and Riparian Enhancement Project
- Farmers Screen technology upgrades
- Plant 2 Optimization and Repowering Project
- North Green Point Creek Pipe Enhancement Project
- On-Farm Soil Moisture Sensors and Poly-Tube Micro-Sprinkler Program
- Diversion Elimination Program
- Water Education Programs
- Hood River Watershed Group participation
- UGA City of Hood River water service continuation as per MOA
- Indian Creek Stewards Program participation
- Renew Green Point Creek watershed enhancement work
- Enhance renewable energy production and secure REC premiums
- Accumulate 2 million dollars in cash reserves

TASKS AND TIMELINES

The opportunities listed above lead immediately to the following specific tasks and timelines over the next 5 years:

- Plant 2 Optimization and Repowering Project (2015 or 2016)
- Complete Farmers Canal Pipe Project (2013 to 2017)

- Complete North Green Point Creek Pipe Enhancement Project (2016)
- Complete Reservoir Consolidation and Riparian Enhancement Project (2017 or 2018)

MONITORING, EVALUATION, AND PLAN RENEWAL

The Farmers Irrigation District will use the following parameters to assess the efficacy of this planning process:

- Assess the FID-ODFW-ODEQ Green Point Creek and Hood River Minimum In-stream Flow MOAs for compliance and overall effectiveness, making adjustments as indicated to further basin-wide ecosystem health
- Increase Green Point Creek average summer in-stream flow (June to August) to 25 cubic feet per second
- Monitor Plant 2 hydropower plant discharge temperature condition to ensure compliance with ODEQ standards
- Increase net hydropower production to 27,000 MWh per year by 2016

This plan is periodically updated by District staff and reviewed and adopted by the District Board of Directors approximately every 2 to 3 years. We welcome your comments.