Managing Water in a Climate Changing World – USCID 2008

Water Conservation by
Tumalo Irrigation District
Through Piping of Canals

Jon Burgi, P.E.
David Evans & Associates, Inc.
Bend, Oregon
Water Conservation by Tumalo Irrigation District Through Piping of Canals
Water Conservation by Tumalo Irrigation District Through Piping of Canals

Tumalo Irrigation District Quick Facts:

• Established – 1904 as the Tumalo Project

• Serves approximately 60 square miles with approximately 8,000-irrigated acres

• Over 80 miles of canals, laterals and ditches

• Serves 635 land owners

• Peak Summer diversion of approximately 180 cfs

• Major concerns include consistent deliveries, urbanization, aging infrastructure, and ESA environmental concerns.
Water Conservation by Tumalo Irrigation District Through Piping of Canals

Water Conservation/Piping – Why bother?

1. Consistent Delivery of Water
   • Prior to conservation efforts, TID was often unable to deliver full deliveries to users.

2. Urbanization
   • Access, Aesthetics, Attractive nuisance

3. Aging infrastructure
   • Safety concerns associated with canal breach

4. Environmental Reasons
   • DEQ TMDL’s
   • Endangered Species Act
Water Conservation by Tumalo Irrigation District Through Piping of Canals

Water Loss from system:

- Historical water losses have approached 60%
- Evaporation = 100 AF/yr
- On-Farm Loss = 5,000 AF/yr
- Operational Loss = 5,000 AF/yr
- Leakage = 30,000 AF/yr
- Completed Projects = 1,800 AF/yr
- Current Projects decrease leakage by 6,500 AF/yr
TUMALO IRRIGATION DISTRICT – WATER CONSERVATION PROJECT

Past Projects
• Columbia Southern project - 1999
  • Pipe ¼ mile of the Tumalo Feed Canal to increase capacity
  • Returned natural flow to approximately 9-miles of Tumalo Creek.

• Bend Feed Canal Project Group – 2005
  • Pipe sections of the Bend Feed Canal with 7.5-foot diameter HDPE pipe. Approx. 3 miles.
  • 5.8-cfs permanent senior water right allocation in Tumalo Creek
Bend Feed Canal
Current Project – Tumalo Feed Canal

• 6-mile piping project to mitigate leaky, porous open canals
• Enhanced water delivery to TID irrigators
• 20-cfs of conserved water will be permanently dedicated in-steam
• Provide backbone of pressurized system
• Phase 1 completed last year
• Phases 2 through 5 should be completed in the next 7 years.
Water Conservation by Tumalo Irrigation District Through Piping of Canals
Tumalo Feed Canal
Future Projects

• The long range plan for Tumalo since the early 1990’s has been to pipe their entire system

Benefits

• Shoring up delivery’s
• Pressurized water at the farm
• Canal safety
• Environmental benefits of water in stream
• Potential for Hydro power
Construction of Main Canal – 1920’s
Construction of Main Canal – 1920's