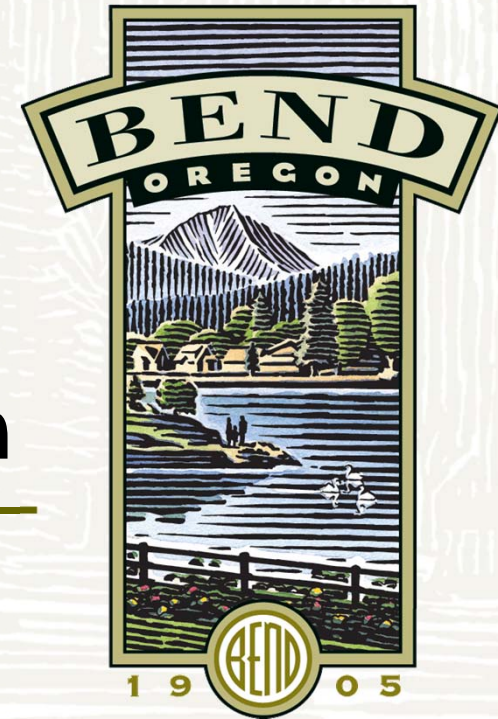


WRF Secondary Expansion

Treatment Selection Process and Results



Paul Roy / Jim Wodrich

Public Works - Utilities

May 19, 2010

WRF Facilities Plan



- Completed in June 2008 by Carollo Engineers
- Developed to provide a guide document to year 2030
- Anticipated Bend population of 119,000
- Current secondary treatment system deemed “insufficient to meet future flows and loads”

Predesign process



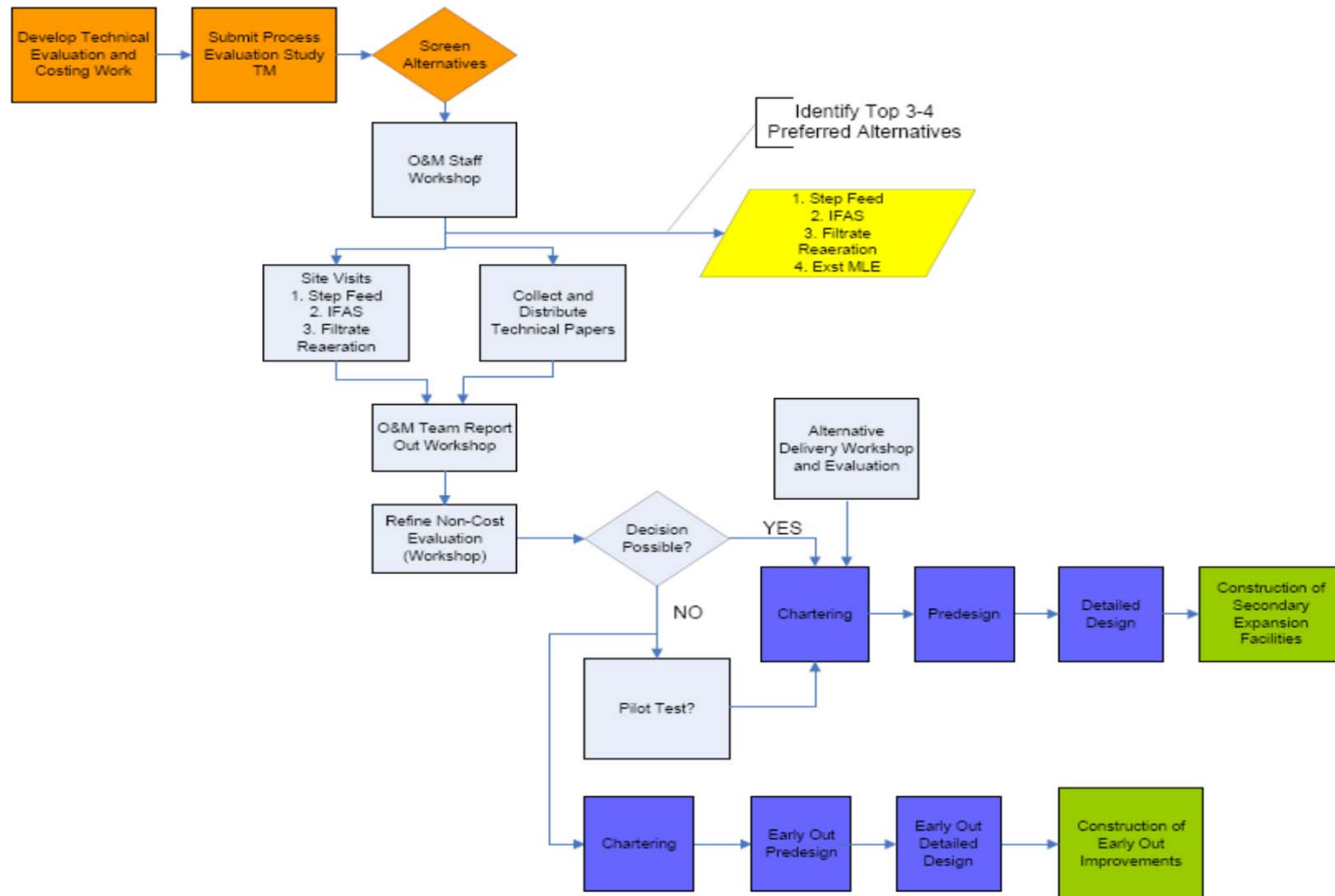
- CH2M-Hill hired to complete design of the secondary treatment system
- First step to verify findings of WRF Facilities Plan
- Value Engineering (VE) Study utilized to review technology and potential alternatives
- VE Study revealed several potential options

VE Study



- Staff and CH2M-Hill identified four top technologies for further study
- Two options beyond current system technology and Facilities Plan recommended option
- Formal process developed to analyze the selected options
- Process goals to determine “best” process for Bend and to develop staff “buy-in”

Selection Process



Decision Process – Process Evaluation Study

Bend WRF

1/13/2010

CH2M HILL

Selection Activities



- Stakeholders identified
- Teams were developed to perform site visits
- Attempted site selection with similarities with Bend
- Criteria and question developed by stakeholders
- Site visit info formally presented to stakeholders by site teams

Technology - Site Visits



- **Filtrate Re-Aeration**
 - New York City / Mesa, AZ
- **Step Feed Aeration**
 - Hillsboro, OR
- **IFAS Process**
 - Denver, CO / Cheyenne, WY
- **MLE Process**
 - Current Bend treatment process

Final Selection

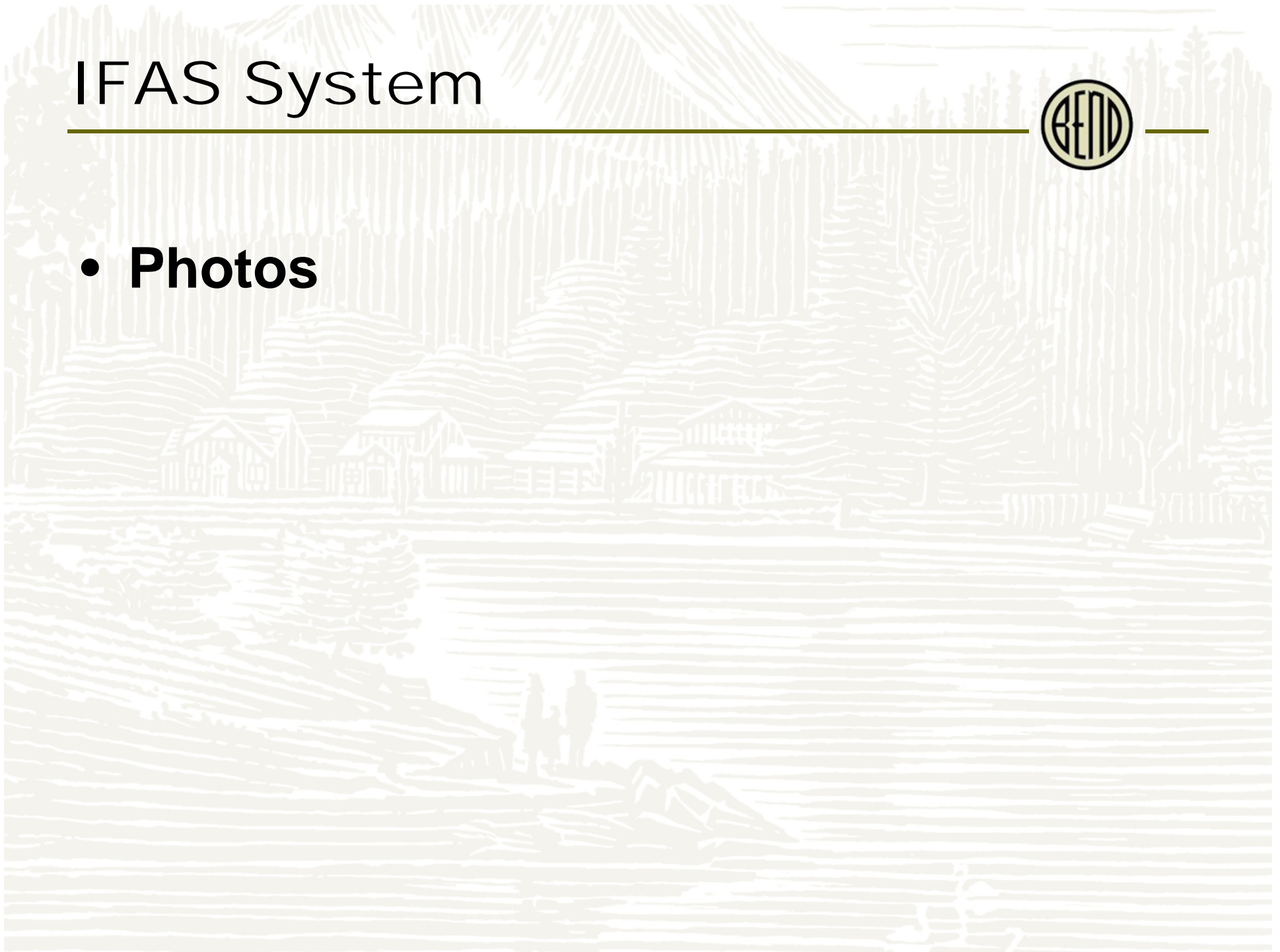


- Staff scoring tabulated
- Consultant completed WRF Process Evaluation technical memorandum
- Staff and consultant unanimously agreed on technology direction
- Integrated Fixed-Film Activated Sludge (IFAS) system selected

IFAS System



- **Photos**









IFAS Media In Action



Conclusions



- IFAS system found to be best option for the City of Bend – in terms of least project life costs & reduced ease of process operation
- Easily adapted to current system
- Capacity for industrial / commercial / residential flow can be added incrementally and efficiently in future
- Allows a phased approach to defer capital costs to match WRF Capacity requirements to City Population Growth
- Selection process chosen for presentation at October 2010 PNCWA Conference in Bend