

Dam Safety Section 2021-2023 Priorities & Projects

Tony Janicek PhD, PE

State Engineer for Water Resources

Dam Safety Program Manager



Item A, Attachment 4

Dam Safety Section 2021-23 Biennium Work Priorities and Projects

The Dam Safety Section within the [Oregon Water Resources Department \(WRD\)](#) regulates over 950 dams throughout Oregon. The work of the Dam Safety Section ensures the safety of dams, insofar as dams may affect possible loss of life, damage to property, and damage to public infrastructure as outlined in Statute¹, Administrative Rule², and WRD's [Integrated Water Resources Strategy](#) and [2019-24 Strategic Plan](#). The purpose of this document is to highlight Dam Safety Section priorities and projects for the 2021-23 biennium. We would like to transparently communicate what we are doing and what we will not be able to do this biennium.

Ongoing Operations - Day-to-day work and standard section business that spans the biennium

- **Dam Inspections** - Inspect dams checking for signs which indicate that maintenance or corrective action is needed to prevent dam failure.
- **Inspection Correspondence** - Provide customer service by communicating the results to dam owners via an inspection summary letter and offer opportunity to meet and discuss.
- **Maintenance/Corrective Actions** - Implement Dam Safety Rules by assigning maintenance and corrective actions as needed. *IWR5 7C*
- **Training** - Build a strong Dam Safety team with technical excellence by providing training to Department staff and Oregon Department of Agriculture staff who conduct dam safety inspections.
- **Inspection Review** - Review dam inspections and correspondence completed by field staff and provide feedback to maintain program consistency.
- **Contracts** - Develop and administer contract work for engineering analyses for \$1M in General Fund and \$4M in ARPA funds provided by the Oregon Legislature for the 2021-2023 biennium. *IWR5 5.5B & 5.5C*
- **National Dam Safety Program (NDSP) Grant** - Develop the FEMA NDSP grant annual application and track work funded by the grant on a quarterly basis.
- **High Hazard Potential Dam (HHPD) Grants** - Complete risk analysis, flood plain management plans, and administer contracts for the FEMA HHPD grants awarded to Dam safety for funding years 2019, 2020, 2021 and prepare quarterly progress reports. Develop grant applications for funding year 2022 and 2023. *IWR5 5.5B & 7A*
- **Design Review** - Review designs for new dams and modifications to existing dams to provide a high level of protection to life, public infrastructure, and property. Coordinate with dam owners/engineers to ensure timely approval of design submittals. *IWR5 7C*
- **Emergency Action Plans** - Coordinate with dam owners on plan updates and exercises. *IWR5 7C*
- **Program Administration** - Perform Dam Safety Program administrative functions including updating the dam safety database and responding to dam safety fee inquiries and public records requests, modernizing the dam safety filing system, and destroying old files that have exceeded record retention time limits.

Work on Hold - Efforts put on hold due to lack of capacity and other priorities

- **Dam Hazard Rating** - Re-assess hazard ratings for Low and Significant hazard dams to ensure the anticipated risk to public safety is correct. *IWR5 5.5B*
- **Engineering Analyses** - Perform dam safety engineering analyses including analysis of spillway capacity, probable maximum precipitation/probable maximum flood, and seismic stability. *IWR5 5.5B & 5.5C*
- **Levee Assessment** - Assessing the location and risk of non-Federally regulated levees. *IWR5 7A*
- **Conduit Condition Assessment** - Assessing the condition of aging conduits that are past the design life and increase the risk of dam failure.

¹ Oregon Revised Statute 540.443 through 540.491 and ORS 540.995, as well as applicable sections of ORS 536.050 and ORS 537.400

² Oregon Administrative Rule 690-020-0000 through 690-020-0600

DRAFT

November 2022

2021-2023 Dam Safety Projects

The following are Dam Safety projects planned for the 2021-23 biennium to be done in coordination with others in the Department and external partners. Please note all timelines are tentative and will likely change, given the need to adaptively manage projects and workloads.

	Project	Tentative Timeframe
Dam Inspections	Inspect 77 High hazard dams and 30-50 Significant hazard dams	Mar-Dec (annually)
	Write dam safety inspection summary letters	Within 30 days of inspection
	Review Significant hazard dam inspection letters and coordinate with field staff	Within 14 days of receipt
	Document and file Low hazard dam inspection letters and coordinate with field staff	Jan-Dec (annually)
	Develop current year inspection plan	Jan-Feb of each year
Contract & Grant Administration	Assign maintenance and corrective actions as needed and track progress	Jul 2021-Jul 2023
	Develop, award, and administer contracts for \$1M General Fund authorized by SB 5545	Jul 2021-Jul 2023
	Develop, award, and administer contracts for \$4M ARPA funds authorized by HB 5006	Jan 2022-July 2023
	Develop, award, and administer contracts for FEMA HHPD grant FY2021	Nov 2021-Jul 2023
	Quarterly and annual reports for FEMA HHPD FY2019, 2020, 2021	Jan, Mar, Jul, Oct-annually
	Quarterly and annual reports for FEMA NDSP FY2020, 2021, 2022	
	Develop application for FEMA HHPD FY2022 and 2023	
Develop application for FEMA NDSP FY2022 and 2023	May/Jun annually	
Engineering	Review designs for new dams and modifications to existing dams and coordinate with dam owners/engineers	Complete review within 4, 6, or 12 weeks of complete submittal depending on hazard rating
	Geotechnical and Hydrologic/Hydraulic Risk Analysis for FEMA HHPD FY2019 and 2020	Jul 2021-Jul 2023
	Flood Plan Management Plans for FEMA HHPD FY2019 and 2020	
	Re-asses dam hazard ratings for Low and Significant hazard dams	
	Spillway capacity analyses	On hold until July 2023
	Probable maximum precipitation/probable maximum flood analyses	
	Seismic stability analyses	
Assess the location and risk of non-Federally regulated levees	On hold*	
Condition assessment of aging conduits	On hold*	
Administration	Coordinate with dam owners on emergency action plan updates and exercises	Jan-Dec (annually)
	Modernize Dam Safety files - scanning dam safety physical files, organizing electronic files, and destroying old files that have exceeded the records retention time limits	Jul 2021-Jul 2023
	Professional Engineer 1 recruitment	Mar 2023
	Update the dam safety database/date entry Stakeholder/public coordination - responding to dam safety fee inquiries, requests from dam owners, and public records requests	Jul 2021-Jul 2023 as needed

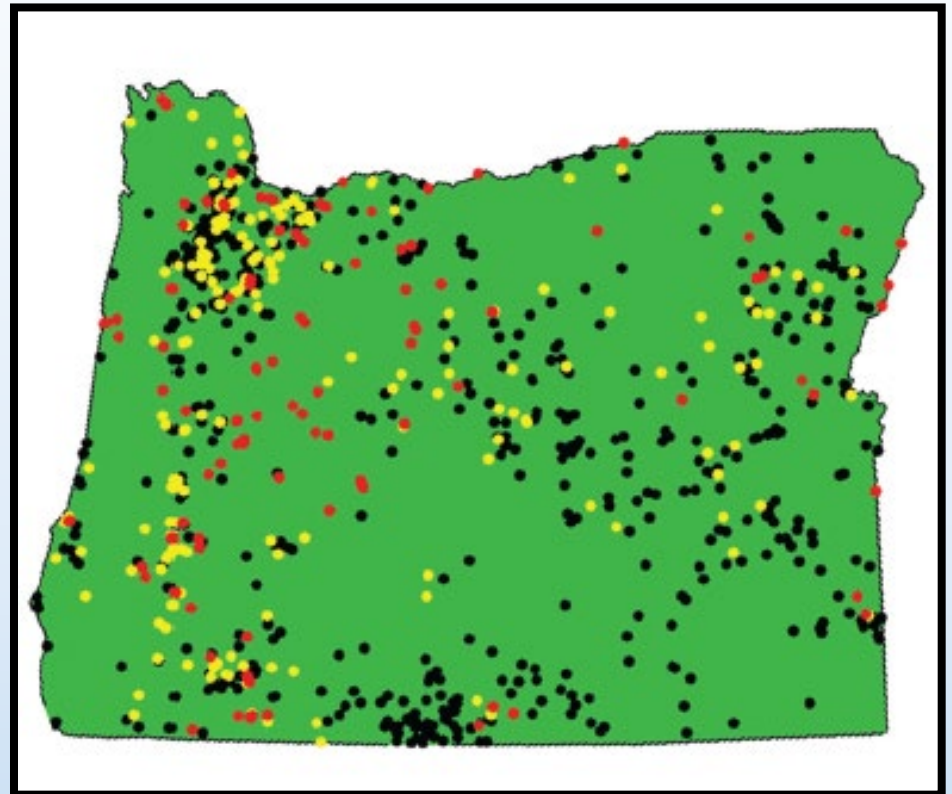
*Pending funding for additional resources

DRAFT

November 2022

Section Overview

- 944 State Regulated Dams
- Statutory Requirements for Regulation:
 - Storage: 9.2 acre-feet
 - Height: 10 ft
- Hazard Rating
 - 76 **High** Hazard ●
 - 154 **Significant** Hazard ●
 - 714 **Low** Hazard ●



Total Staff:

- 4 Professional Engineers
- 1 Engineer-in-Training
- Most staff since 1970s



Dam Inspections

- Identify/document safety issues
- ~250-300 inspections/year
- Engineer Inspections
 - 76 High Hazard
 - ~30 Significant Hazard
- Field Staff Inspections
 - Low/Significant Hazard
 - ~150-200 annually
- Inspection Training and Review



- Contract funding
 - Funds provided by 2021 Legislature
 - \$1M General Fund
 - \$4M ARPA Funds (public water supply dams)
- FEMA Grants
 - National Dam Safety Program (NDSP) Grant
 - High Hazard Potential Dam (HHPD) Grant
 - 2019-2022
 - \$184k - \$1.27M

Contract Work

Dam	Contract Description	Issue Addressed by Work	State Amount	Federal Amount	Status
All dams	Extreme Precipitation/Atmospheric River Analysis	Improve understanding of flooding	\$ 400,000	—	Awarded
Morgan Lake Dam	Mitigation Analysis and Plan	Redirect dam breach	\$ 67,347	\$ 44,378	Awarded
Walch Dam	Spillway Analysis and Design	Undersized emergency spillway	\$ 50,000	—	Awarded
Ferry Creek Dam	Dam Removal Plan	Known dam safety issues/City wants to remove the dam	\$ 34,985	\$ 64,970	Awarded
Pole Creek Dam	Probable Maximum Flood Analysis & Spillway Design	No emergency spillway	\$ 47,297	\$ 87,830	Awarded
Willow #3 (Malheur) Dam	Probable Maximum Flood Analysis & Spillway Design	Undersized emergency spillway	\$ 47,297	\$ 87,830	Awarded
Wagman Dam	Conduit Alternatives Analysis	Conduit deterioration/internal erosion potential	\$ 24,617	\$ 45,716	Awarded
Barnes Butte Dam	Probable Maximum Flood Analysis & Spillway Design	Undersized emergency spillway	\$ 165,164	—	Awarded
McMullen Dam Phase 1	Conduit Analysis & Design	Conduit deterioration/internal erosion potential	\$ 71,966	—	Awarded
Bear Creek Dam Phase 1	Erodibility Analysis	Spillway and abutment erosion potential	\$ 31,383	\$58,284	Awarded
Mays Dam	Conduit Analysis	Conduit condition unknown	\$8,910	—	Awarded
Morgan Lake Dam Phase 2	Mitigation Design	Redirect dam breach	\$ 25,521 *	—	On Hold
McMullen Dam Phase 2	TBD	Conduit deterioration/internal erosion potential/seismic	\$ 25,521 *	—	On Hold
* The cost is an estimate. The work is phased and will not be awarded until previous phase is complete			\$ 1,000,000	\$ 389,008	

Design Reviews

- New dams
- Modifications to existing dams
- 5-8 reviews per year
- 8 reviews to date



Emergency Action Plans (EAPs)

Emergency Action Plan (EAP)
For
Jubilee Lake Dam (J-16)

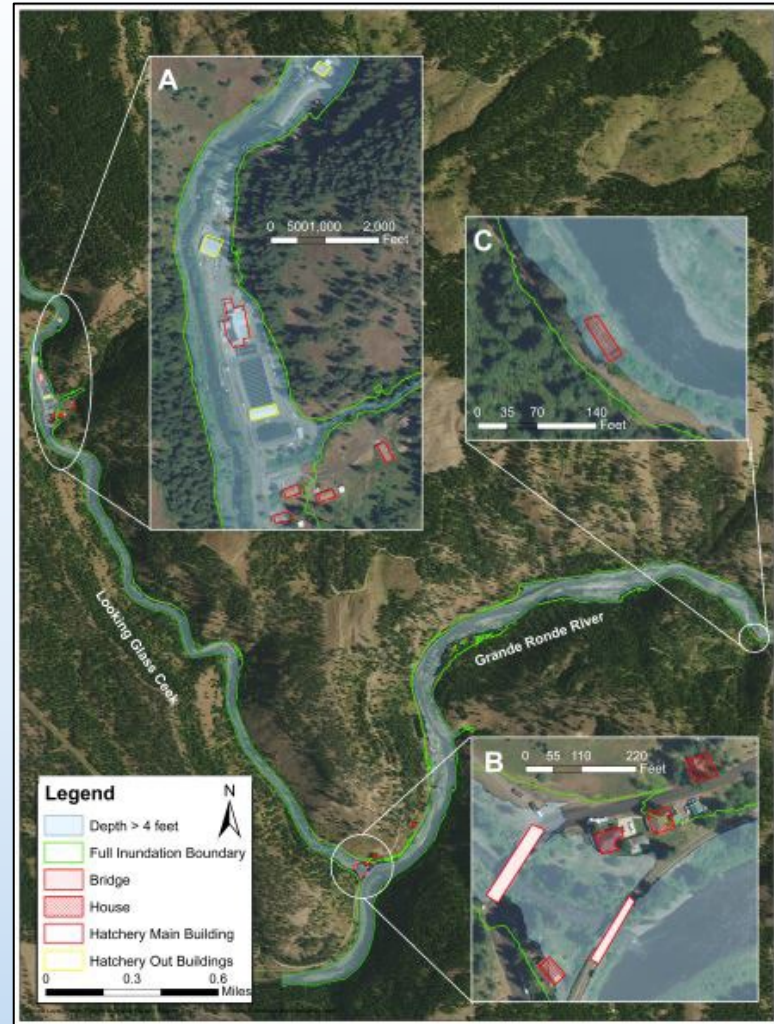
Located in
Union County

June 8, 2020


EAP Organization

Page 1 Emergency Notification Messages
Page 2 Dam Information and Directions
Page 3 Emergency Detection
Page 4 Emergency Level Determination
Page 4 Unusual condition – non-emergency
Page 5 Potential failure
Page 6 Failure imminent or in progress
Page 6 Notification and Communication
Page 7 Contact Information
Page 8 Preventing Failure/Reducing Effects
Page 9 Sources of Materials and Equipment
Page 10 Information for Emergency Responders
Page 11 Inundation Maps
Page 12 Termination of Emergency
Page 12 EAP Upkeep and Exercises
Page 13 Holders of the EAP

- All High Hazard Dams
- Coordination
 - EAP updates
 - EAP Exercises



- Dam Safety Database
- Dam Safety Fee
- Public Records Request
- Modernizing Filing System


Oregon Water Resources Department
Dam Inventory Query

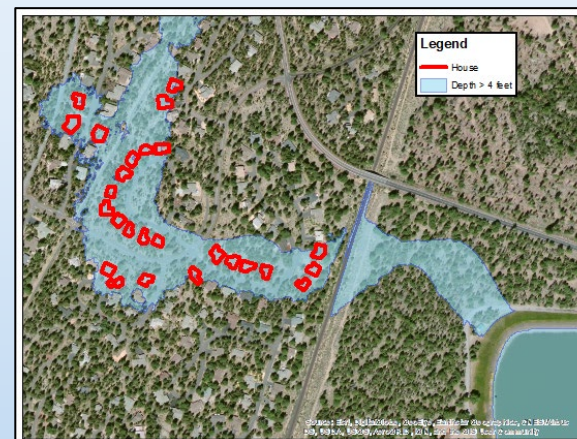
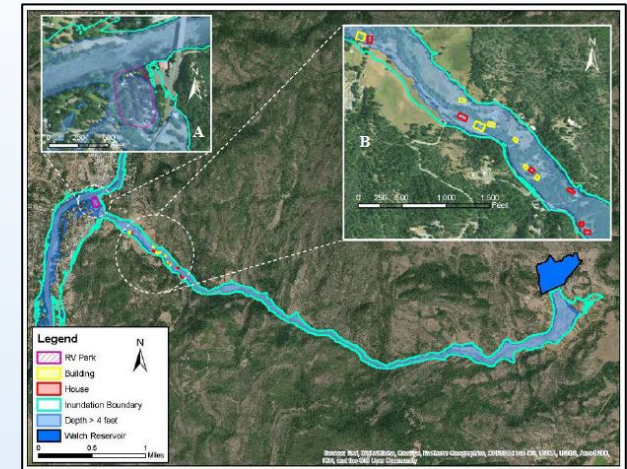
Instructions:
Clicking search with no search criteria will return information for all dams and reservoirs in our database. Query results can be limited by selecting search criteria such as county or watermaster district. Records can be sorted by clicking on column headers below.

Note: This inventory only includes dams regulated by the State of Oregon. It does not include federally owned or regulated dams. For a complete list of dams in Oregon refer to the [National Inventory of Dams](#).

Identify	Location	Status and Inspection
File Nbr: <input type="text"/> NIDID: <input type="text"/> Dam Name: <input type="text"/> Hazard: <input type="text"/>	Watermaster Dist: <input type="text"/> Region: <input type="text"/> County: <input type="text"/> Basin: <input type="text"/>	Last Inspection Start Date: <input type="text"/> Last Inspection End Date: <input type="text"/>
Records/Page: <input type="text"/> <input type="button" value="Search"/> <input type="button" value="Reset"/>		

Work on Hold

- Engineering analyses
- Reassessing dam hazard ratings
- Assessing conduit condition
- Levee assessments





Questions

