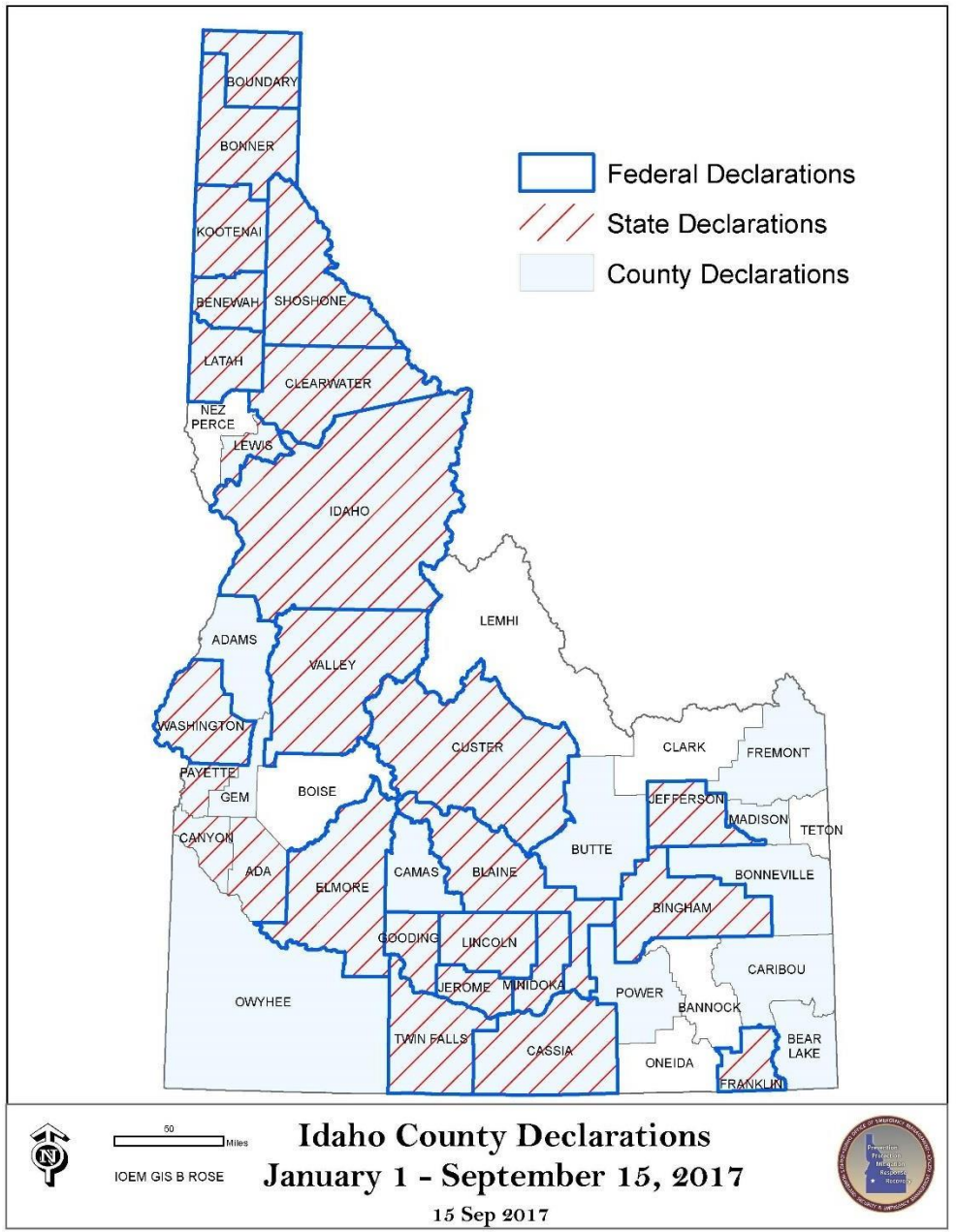
Flood Management Grant Program

&

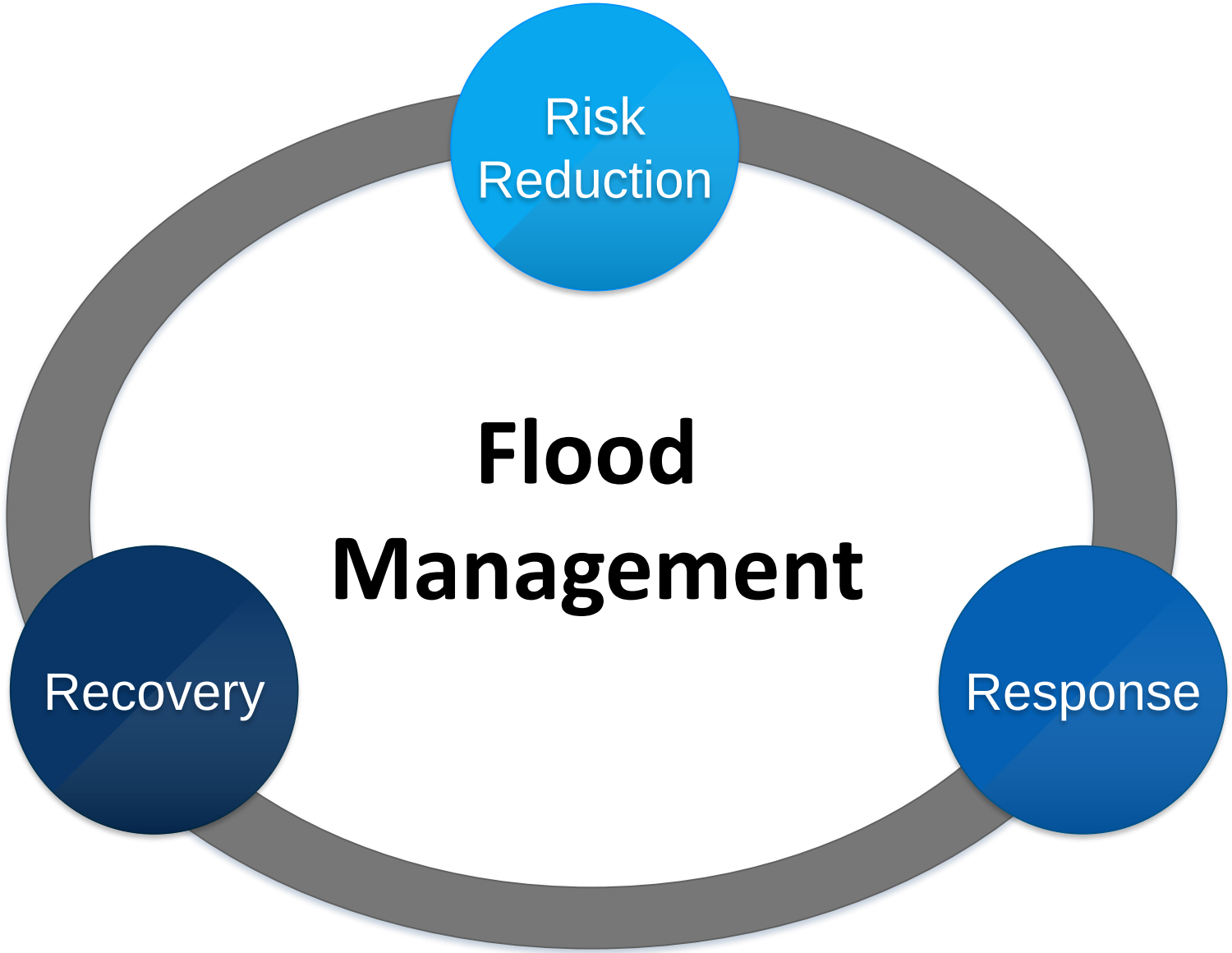
Boise River Management Tool

- Mike Dimmick, District Manager
- Mike Schubert, HDR Engineering

Flooding - A State-Wide Issue



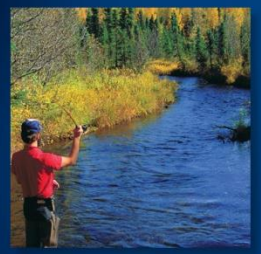
Flood Management is On-Going



IDAHO
Water Resource Board

Flood Management Grant Program Update

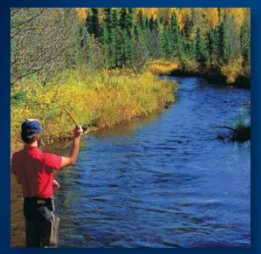
IDAHO
Water Resource Board

Grant Program Funding & Authority:
H 712 (2018), H 285 (2019), H 646 (2020)

- One-time appropriations from general fund to IDWR Water Management Fund:
  - 2018 - $1,000,000
  - 2019 - $ 800,000
  - 2020 - $ 800,000
- grant program administered by the Water Resource Board
- fifty percent (50%) match required
- statewide competitive grants for:
  - flood-damaged stream channel repair
  - stream channel improvement
  - flood risk reduction
  - flood prevention projects

IDAHO
Water Resource Board



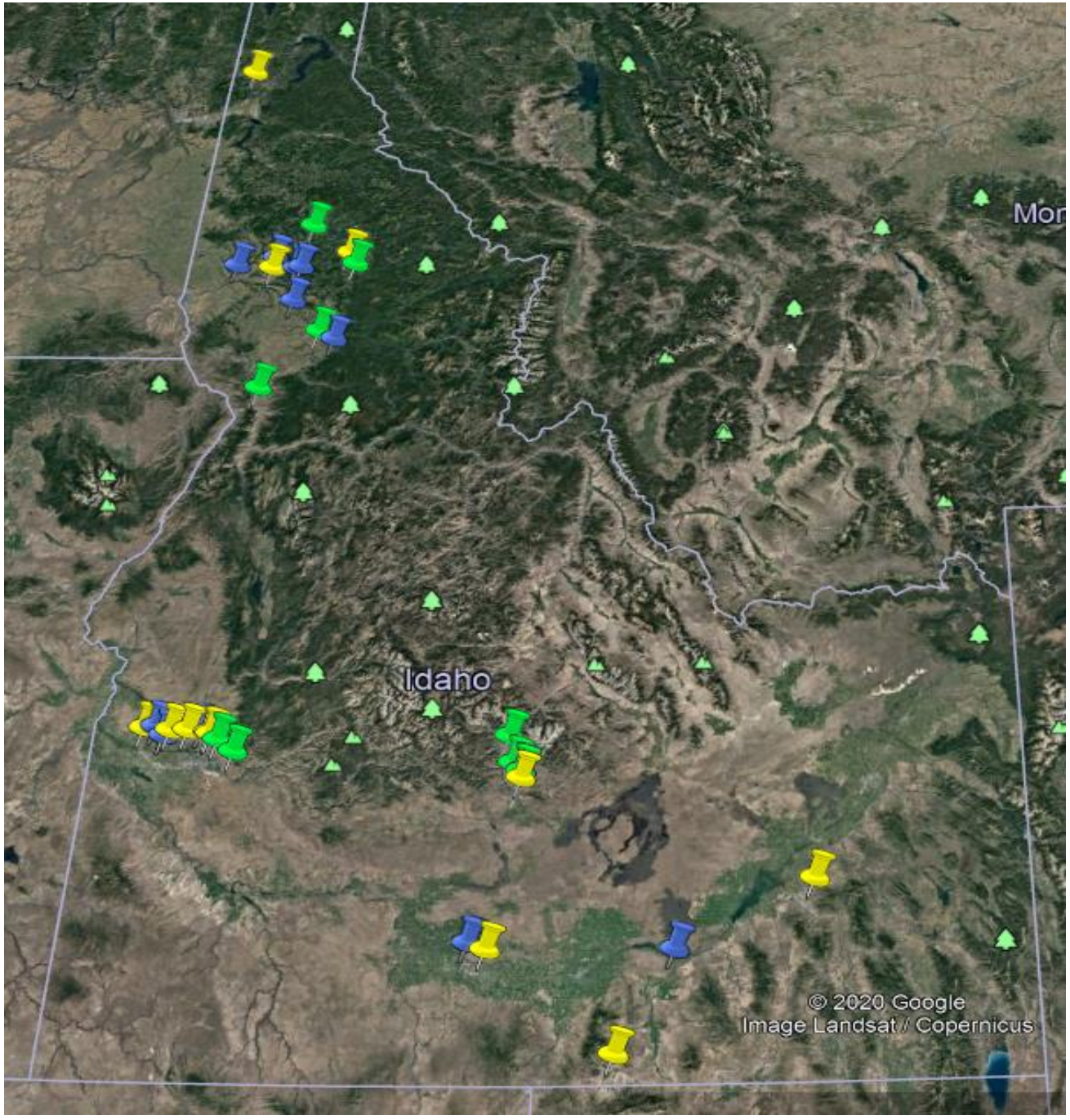
Grants Leverage Funding & Participation

	Grants	Cost Share	Project Cost
2018:	$1,000,000	$1,925,282	$2,925,282
2019:	$ 869,696	$1,851,329	$2,721,025
2020:	$ 860,983	$1,706,465	$2,567,448
	$2,730,679 (***33%***)	$5,483,075 (***67%***)	$8,213,755

Grantees & Other Project Contributors

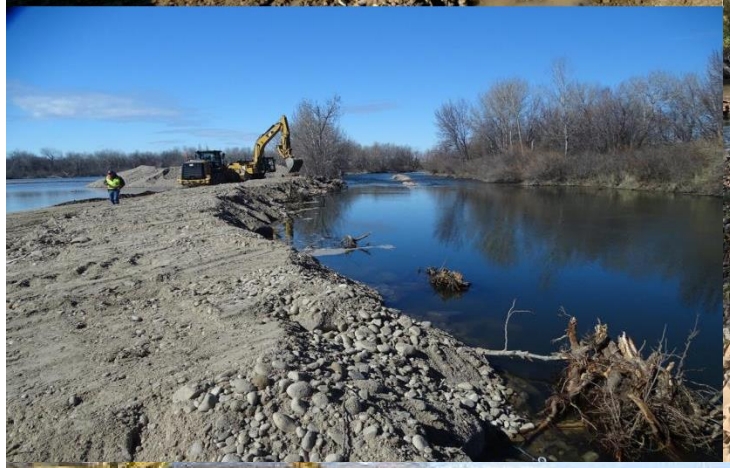
1. Grantee
2. Stakeholders
3. FEMA
4. NRCS
5. Corps of Engineers
6. Bureau of Reclamation
7. 319 Grants
8. Local Governments & Agencies

Flood Management Grant Program: Statewide Projects



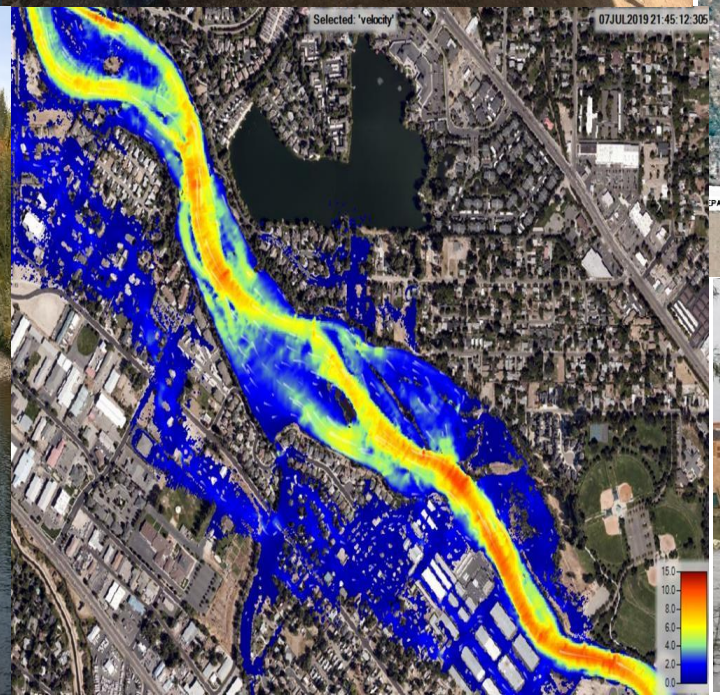
Flood Response – During the Flood

Flood Recovery – After the Flood



Flood Risk Reduction – Before the Flood

(an ounce of prevention is worth a pound of cure)



Boise River Management Tool (BRMT)

Purpose:

1. 2-D hydraulic model for Boise River management (Diversion Dam to Snake River)
2. Demonstration for use in other watersheds

Steps:

1. ***LiDAR data acquisition, processing & reporting***
2. ***Model Development, Calibration & Documentation***
3. ***Boise River Management Plan***
4. ***BRMP/BRMT Deployment &Training***

Multiple Water Management Uses:

1. Flood Management & Land Use Planning
2. Instream Structure Assessment & protection
3. Water Quality Management
4. Aquatic Habitat and Management
5. Plan, Manage, and Maintain Recreational River Uses
6. Groundwater-Surface Water Interactions

BRMT Need: River Hydraulics Drive Flood Risk

Sustainable, cost-efficient river management requires an in-depth scientific understanding of river hydrodynamics and the impacts of natural and manmade changes in the riverine environment

BRMT Need: Flood Risk Challenges

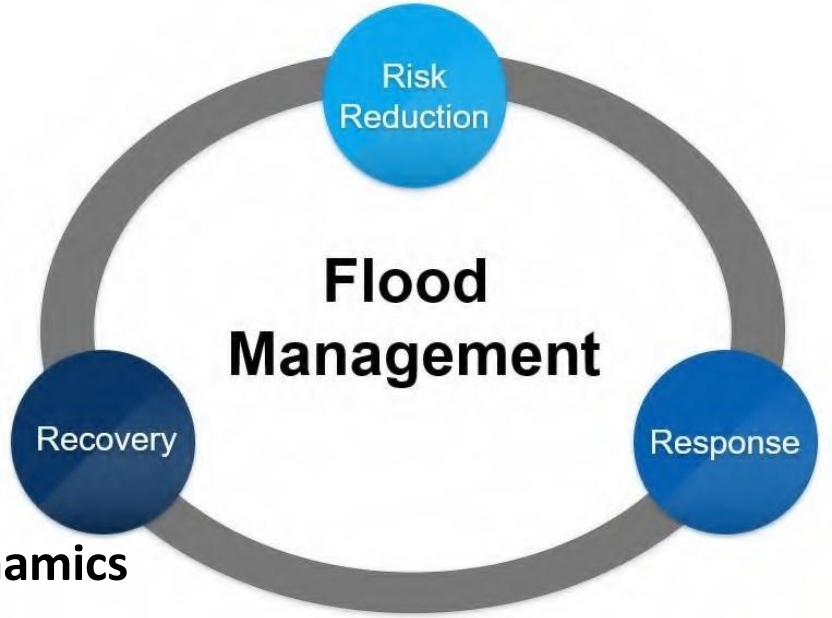
BRMT Participants/Contributors

1.	Flood Control District #10	$ 100,000
2.	Idaho Water Resource Board	$ 160,000
3.	U.S. Army Corps of Engineers	$ 333,996
4.	USDA – NRCS	$ 34,500
5.	City of Boise	$ 25,000
6.	City of Caldwell	$ 18,000
7.	City of Eagle	$ 25,000
8.	Garden City	$ 10,000
9.	City of Middleton	$ 5,000
10.	Eagle Sewer District	$ 25,000
11.	Ada County Highway District	$ 50,000
12.	Treasure Valley Water Users Assoc.	$ 10,000
13.	Pioneer Irrigation District	$ 3,000
	TOTAL TO DATE:	**$ 799,496**

BRMT: Boise River Management Plan (BRMP)

Goals

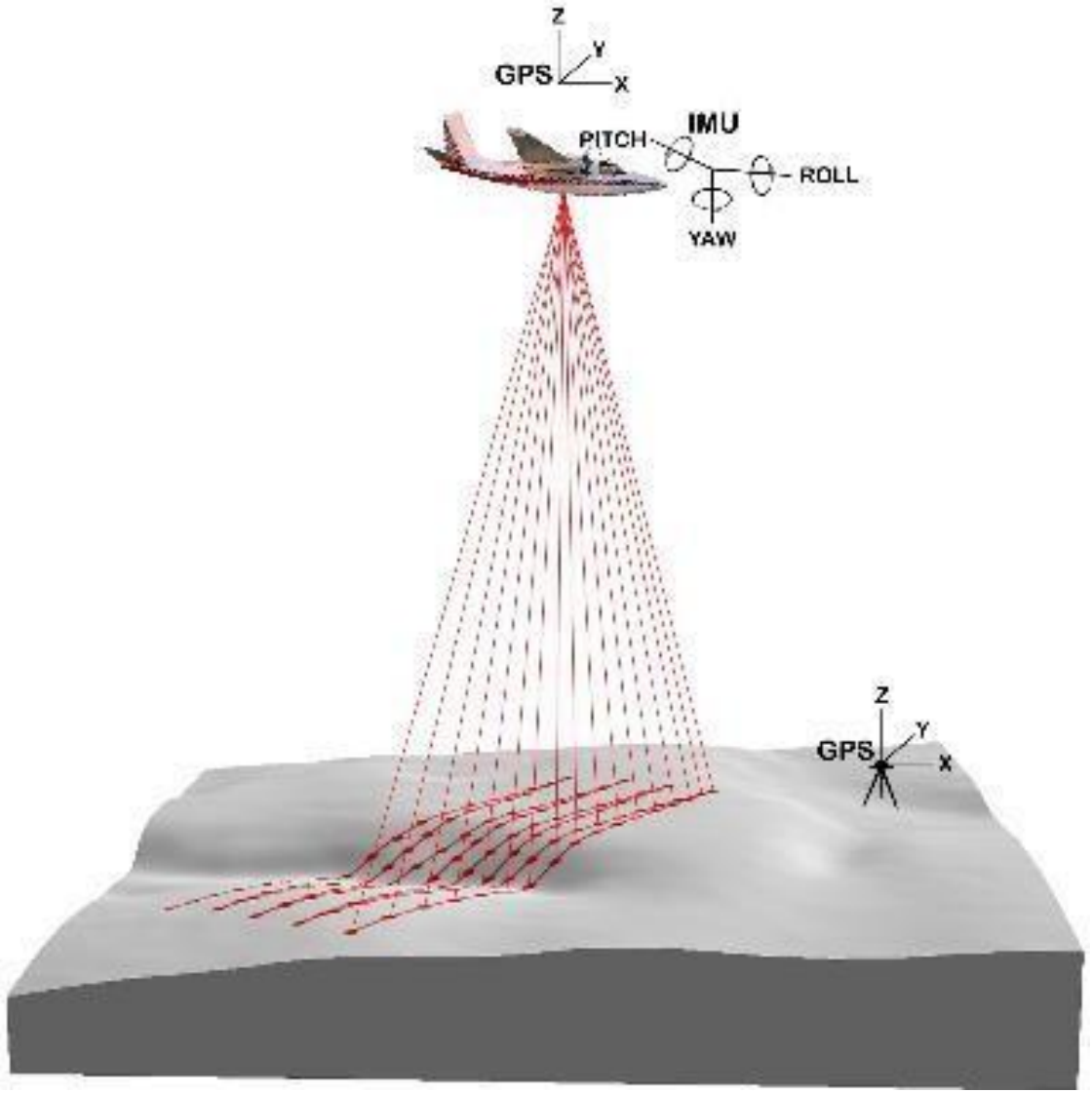
- **Promote Public Access to Boise River LiDAR & BRMT**
- **Coordinate use of BRMT for River Management & Land Use Planning**
- **Flood Management:**
  1. Flood Risk Reduction. Reduce/mitigate the risk of flooding in the Boise River Valley.
  2. Flood Response. Enhance flood response to minimize flood damage.
  3. Flood Recovery. Increase long-term benefits from flood recovery projects
- **Promote Public Awareness of Boise River Geomorphology & Hydrodynamics**

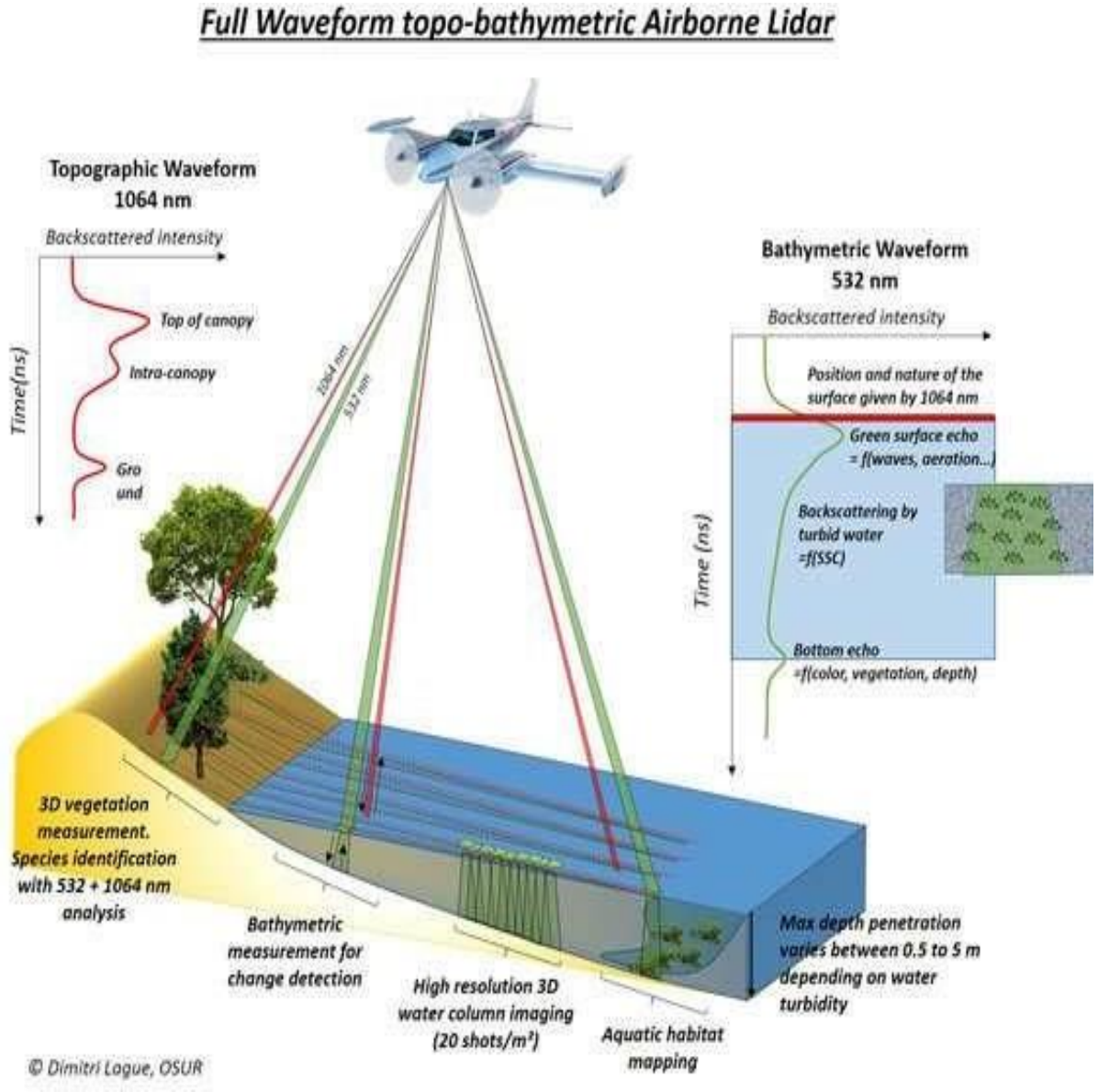


BRMT/BRMP Implementation

- **Deployment**: availability of BRMT (LiDAR data & 2-D Model)
- **Training**: train stakeholders to use BRMT
- **Interagency Use**: coordinated use of BRMT in river management & land use planning
- **BRMT Maintenance:** continue development & updating

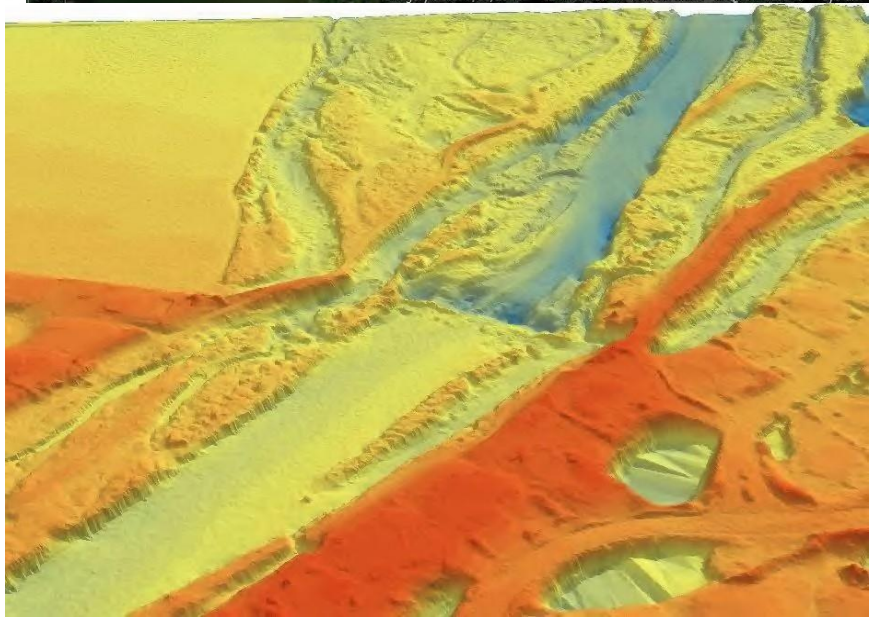
BRMT Step 1: Bathymetric (Green) LiDAR



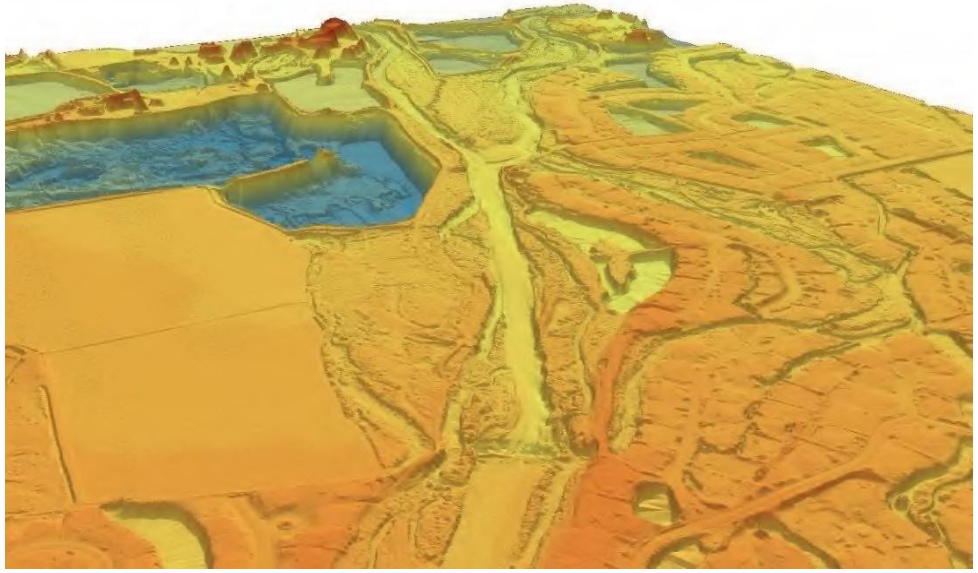


BRMT: Bathymetric (Green) LiDAR

New Dry Creek Diversion



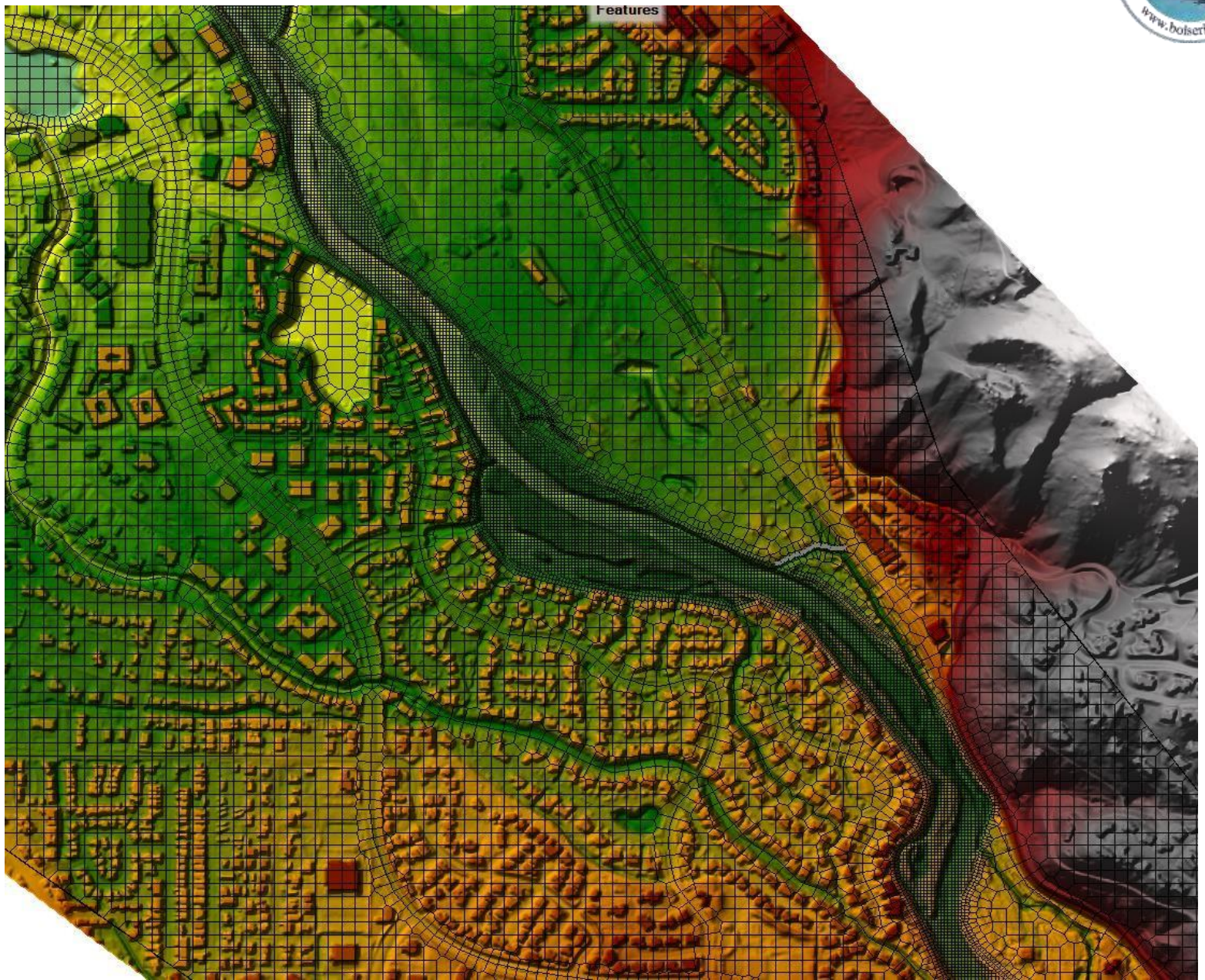
Sunroc Mine Site



BRMT Step 2: 2-D Hydraulic Model

Building a 2D Hydraulic Model

1. Create terrain (LiDAR)
2. Develop mesh
3. Apply terrain, roughness, and structures to mesh
4. Simulate flooding across the mesh



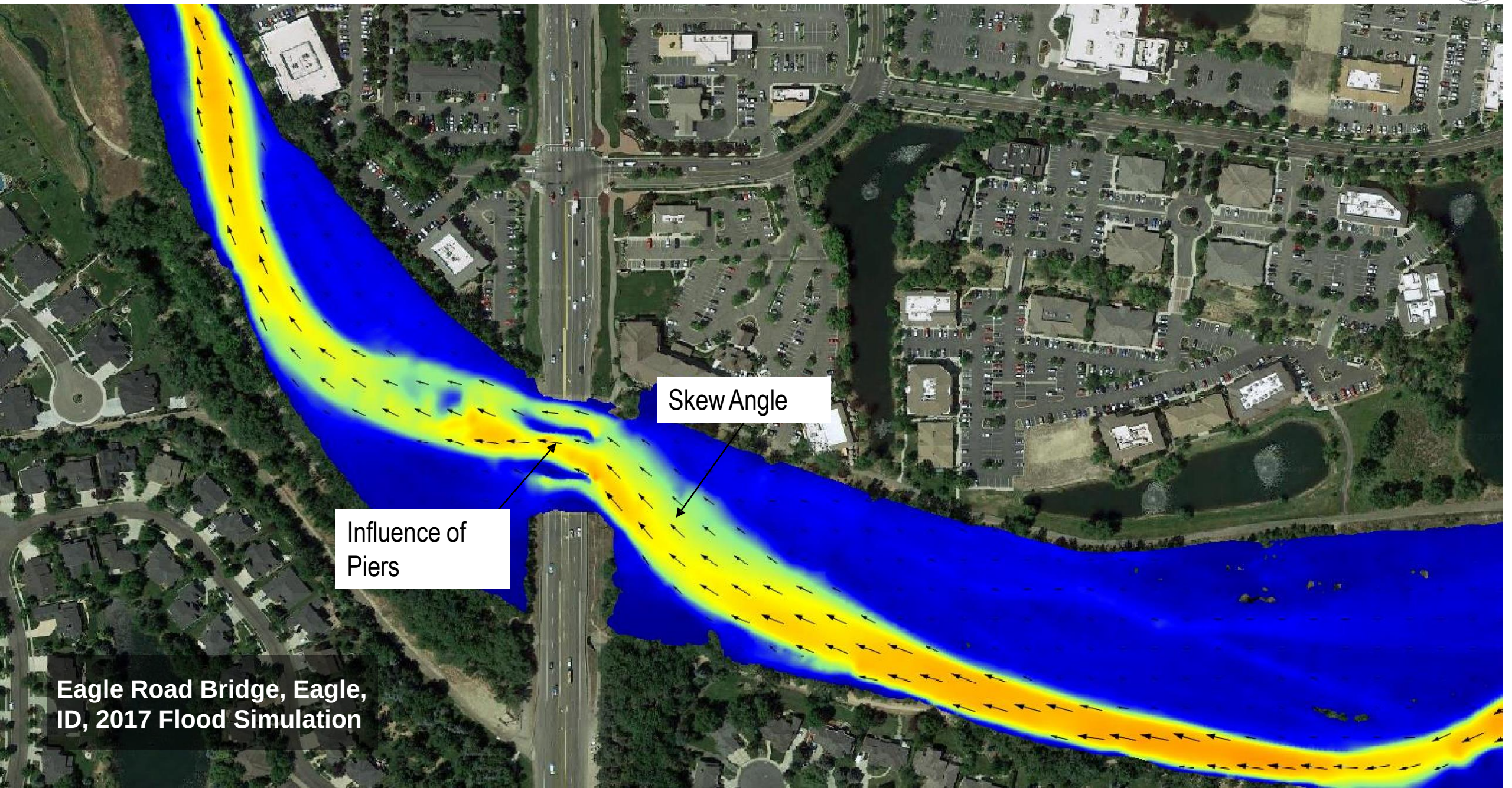
Flood Risk at Diversion Structures

- Simulate flooding impacts
  - Past floods
  - Future flooding
- Quantify risk to structures
  - Frequency of overtopping
  - Consequence- inundation, scour, deposition
  - Short-term vs Long-term inundations
  - Bank breach or avulsion risk
- Design or develop measures and procedures to address flood risk
- Demonstrate compliance with Floodplain Regulations

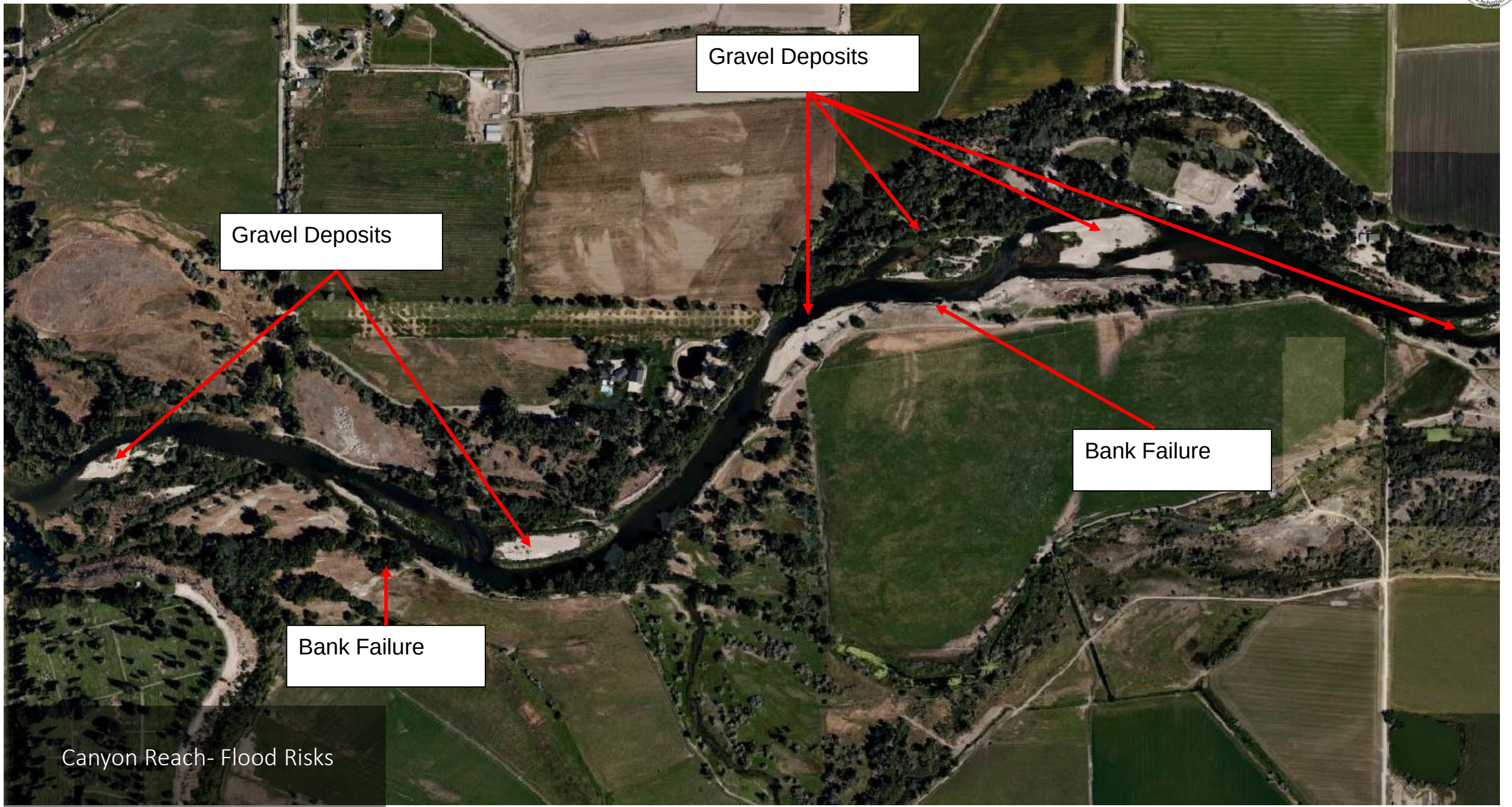
BRMT: FCD 10 2020 Lidar Uses & Modeling – Glenwood St.

BRMT: FCD 10 2020 Lidar Uses & Modeling – Eagle Rd.

BRMT: FCD 10 2020 Lidar Uses & Modeling – Eagle Rd.



BRMT: FCD 10 2020 Lidar Uses & Modeling – Canyon Reach 1



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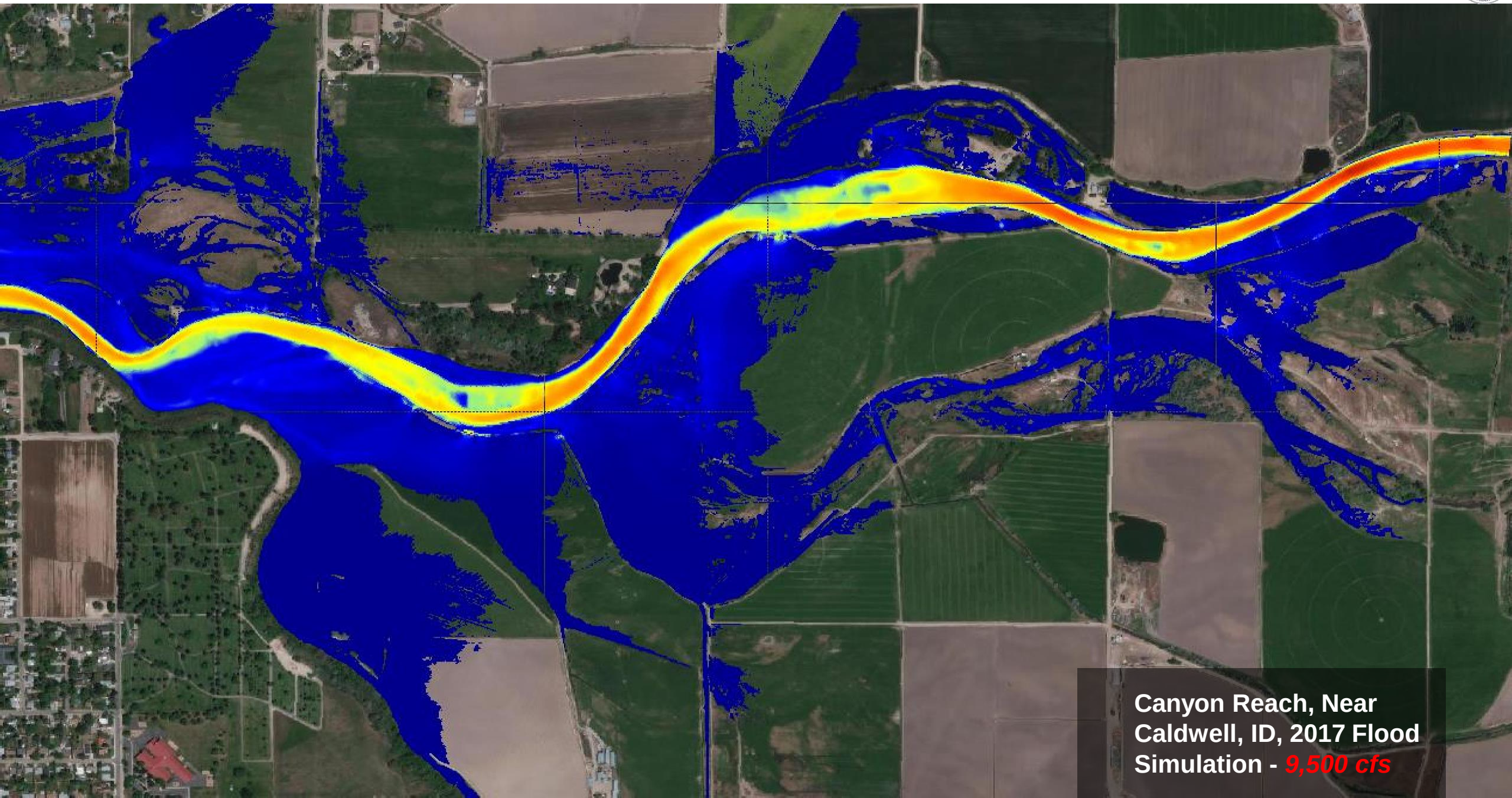
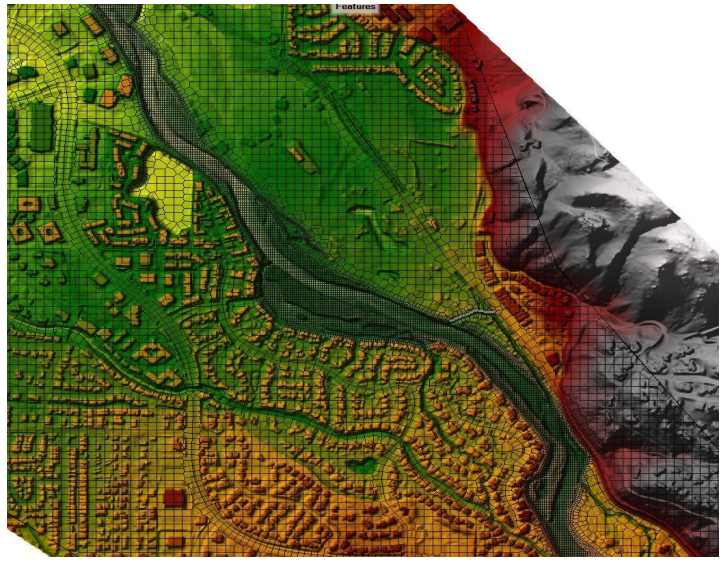


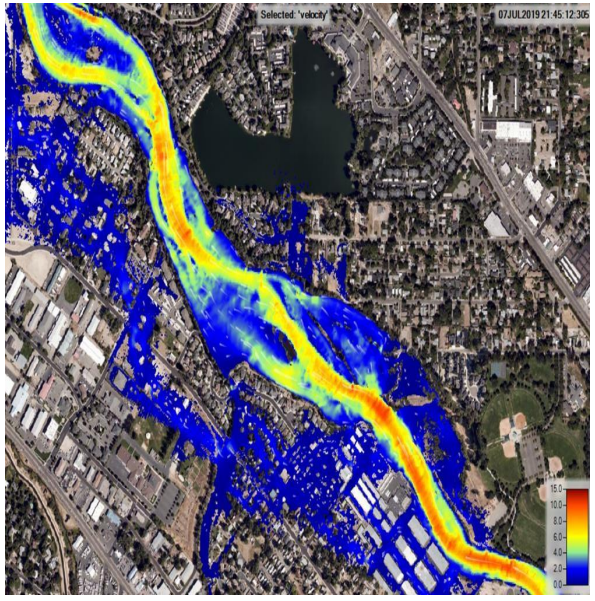
BRMT Management Uses

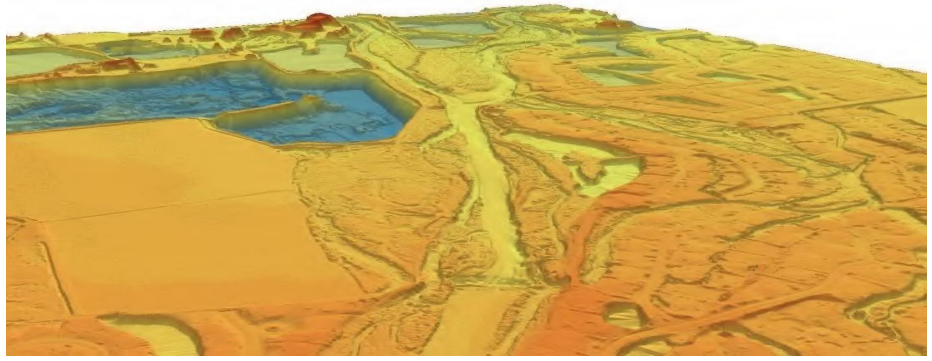
- Flood Management & Land Use Planning
- Instream Structure Assessment & protection
- Plan, Manage, and Maintain Recreational River Uses
- Groundwater-Surface Water Interactions
- Water Quality Management
- Aquatic Habitat and Management

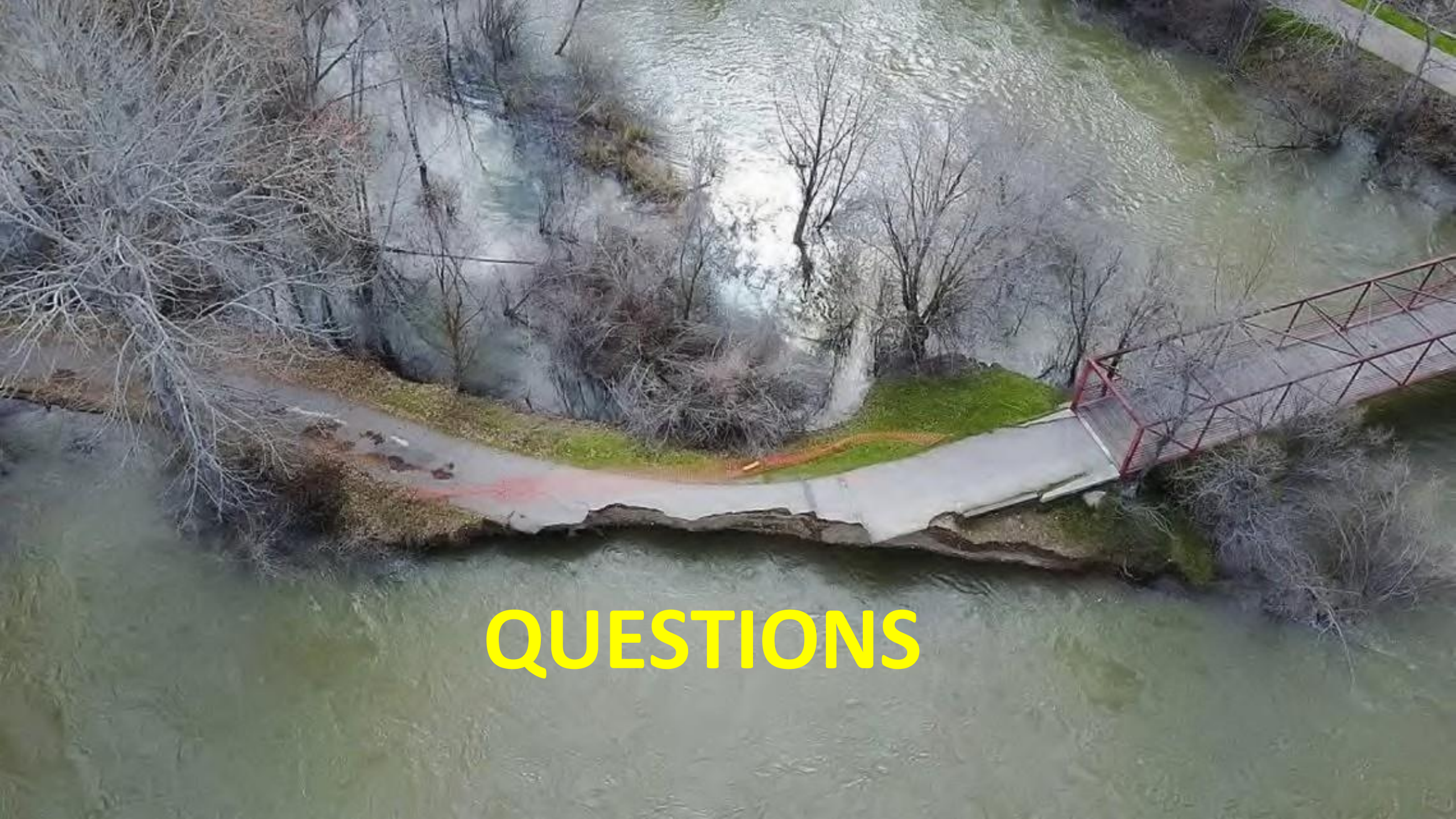
Developing a Similar Tool for Your Waters

1. *Engage multiple stakeholders and develop funding plan*
2. *Collect LiDAR and other data*
3. *Model Development, Calibration & Documentation*
4. *Management Plan*
5. *Deployment & Training*








QUESTIONS