

## **Minutes for Cardno's Big Wood River Study Meeting #2; Blaine County Courthouse August 7, 2019**

### Meeting Participants –

Kristine Hilt (KH)- Blaine County Floodplain Manager  
Jon Ambrose (JS)- Lead Consultant (CARDNO)  
Zach Hill (ZH)- Sub-consultant (Ecosystem Sciences)  
Brian Yeager- City of Hailey Engineer  
Jeff Loomis (JL)- Blaine County Engineer  
Dick Fosbury (DF)- Blaine County Commissioner  
Scott Boettger (SB)/ Ryan Santo (RS)- Wood River Land Trust  
Brittany Skelton (BS)- City of Ketchum Senior Planner  
Bryan Dilworth (BD)- Flood Control District #9 Commissioner  
Larry Schoen (LS)/Alan Reynolds (AR)- Former Blaine County Commissioner  
Kate Crane (KC)- Twin Falls BLM Office  
Keri York (KY)- Trout Unlimited  
Jim Phillips (JP)- Hiawatha Canal Company  
Patti Lousen/Nick Miller (NM)– Trout Unlimited  
Mike Peterson - Idaho Dept. of Fish and Game  
Forrest Maclean – Galena Engineering  
Mark Dee – Idaho Mountain Express  
Mike Choat – City of Bellevue  
Erika Phillips – The Nature Conservancy  
Aaron Golart/Tim Luke (TL) – Idaho Dept of Water Resources

### Proceedings:

KH- Meeting introductions and presented the meeting agenda. Meeting purpose is to solicit feedback from all stakeholders about the current status of the work and envisioned content of the Atlas. Discussed the availability of Atlases produced by Ecosystem Sciences are on the project website for stakeholders to view.

JA- Provided a power point presentation, an overview of the agenda and a status update on the project work:

- Currently 18 river reaches. The composition of an example reaches, the amount of data and the complexity involved was presented and discussed.
- Developing a quantitative analysis of the river and flooding risks. Change in hydrologic regime of the river through time, with increased flows, flooding and intervals.
- Utilizing flood boundary from both the 2006 and 2017 aerial imagery captured at approximately 5,000 cfs. Delineating the limits of the flood water area and are relating that to FEMA mapped boundaries.
- Utilized Lidar to ascertain depth of water below the FEMA surface

- Described the preliminary ranking of the flood hazard zones with a hierarchical ranking of zones from I-IV. This may change and we would like to know how valuable or important this type of delineation will be to the stakeholders. The delineation could be symbolized rather than ranked.

DF - It is important to note that this type of delineation should not replace any regulatory definitions or descriptions.

JA – FEMA flood delineation mapping is dated and is based on a 1D model. This analysis utilizes a 2D model approach. However, this analysis would not supersede FEMA designations.

LS – This type of information should help the County and all the stakeholders to better manage expectations. I like the zones I-IV designation. Would like to know more about historic channels and changes. Can we look at specific places on the river where these changes are happening or have happened in the past? How can we explain it to the greater public?

ZH – We have discussed the possibility of using change pairs or sets of imagery from the past and present, to illustrate specific examples of channel change, or geomorphic processes that are occurring.

JA – The atlas needs to describe the river function. It needs to that this is a dynamic landscape that changes through time.

LS/DF – We need to be cognizant of the FEMA 100-year designation and the legal authority of FEMA.

AR – How is gradient accounted for in these analyses?

JA – From the Lidar and the thalweg and cross channel sections.

KH - Broadly discussed the FEMA setting, context and standards and how the County works with in them. FEMA Flood Insurance Rate Maps need to be updated, but they are the minimum for planning considerations.

JA – Discussed and presented flooding as another layer of analyses. It is important to understand that we are not doing hydraulic modeling.

- Used historic flood area from 2006 and 2017 imagery.
- Delineated channel migration and movement zones; Hazard Delineation
- If available, we could look at historic GLO maps for the area if available (ZH – they are available but would need to be acquired and georeferenced).
- Delineated bank modification areas and bank armoring.
- Performed Lidar comparisons between the 2016 and the 2017 data sets. Subtracted DEM surfaces to arrive at a fill and cut comparison. However, the raw output from this analysis will require some post processing to clean up small inconsistencies.
- Will next compare with the aerial images to evaluate Lidar differencing to arrive at bank loss.
- Channel Migration Zone mapping or a Risk map could potentially be symbolized as a high, moderate, low type of designation.
- This step in the analyses adds up to showing channel trends; erosion, meandering; and a possible migration and erosion hazard delineation.

- Will also produce a HAS map, or Height Above Water Surface.
- The analyses will work from flood history, and channel migration zones and eventually arrive at project opportunity areas. These could include projects addressing habitat, flood mitigation, flood plain restoration, etc.

LS – The Lidar comparison maybe to ephemeral. Maybe that information could be in an appendix, or available as data from the County GIS site versus trying to show that in the Atlas. The CMZ is also ephemeral and changes annually; it is a dynamic system.

JA – some reaches are more dynamic than others. It is a changing landscape. Lidar is not basin wide for comparable years.

KH – one of the big topics of conversation and discussion for policy and management decisions is the amount of deposition in the south of the river basin versus the amount of erosion in the north. IT would help to discuss this process and would add to the larger picture of the river basin.

ZH– That type of information, along with the analyses we have been discussing today illustrates the challenge of how we bring the data together. Complexity is the challenge, and how we show or illustrate the sequencing of data into a final composition.

KH – it is important to keep in mind the audience for this Atlas. It is a large group of stakeholders and it need to be inclusive in its reach and communication.

ZH – Presented the Draft outline of the Atlas (available in a separate document). The outline sets the content and overall organization envisioned for the Atlas. Also, presented a draft of the Vision, Goals and Objectives for the Atlas project (available in a separate document). These statements form the purpose, need and outcomes for the project to help balance the outcomes and manage expectation on what the Atlas intends to achieve and what the limitation of it may be.

DF – a goal beyond this Atlas will be that it serves as a basis for continued understanding and learning and can foster community engagement.

NM – Regarding the opportunity mapping component, it may be worth looking at past studies and outcomes and integrate any high need projects (e.g. the bridge to bridge project).

JA – the opportunity mapping will work to highlight dominant process and constraints. We will use CMZ, flooding history and hydrology to highlight opportunities that may include conservation, acquisition and high value sites. The process will be additive. It may not prioritize the opportunities but point up valuable areas for consideration by managers and policy makers. It could be a good communication tool for funding opportunities on a project basis.

JA – the latter part of the Atlas will include a project assessment framework for stream alterations, etc. It will employ a guiding principles approach, in concert with the overall Vision, Goals and Objective of the project. It will provide a framework that will be consistent with standards of care for stream projects and engineering. It will provide examples of Best Management Principle, or Guidance in standards of care. We can include examples and ‘case studies’ of different stream alteration project types.

KH – there have been many discussions from past project outcomes, and we are starting to see cumulative impacts from past projects. The framework will help to determine how a project fits into the overall context of the river and particular reach. The river is not uniform and changes its natural function from north to south.

JA – Stakeholders should be able to see some of the outputs for the project assessment framework in the next two months.

RS – Land use and development have had a large effect on the CMZ. Will there be a way to describe how development overtime has encroached on the floodplain and river?

ZH – we could look at potential case study examples on a particular reach of the river through time as a means to explain the process and the impacts. For example, we could utilize an indicator of change for a particular reach over the past 25 years and show the increase in development or percent change and how that may have impacted the river function.

SB – It may be valuable to point out where the underdeveloped or undeveloped landscapes are that offer opportunities for acquisition and conservation for river function.

TL – Obviously all of the data that goes into the analyses cannot be shown in the Atlas. How will all of the data be available at the end of the project?

KH – We are working with the County GIS to determine the best way to make data available for viewing. This is being worked on. Story maps and making data available for downloading and viewing are possibilities.

BS – The City of Ketchum really likes the map zone concept and the availability of historic imagery for use in planning.

KY – Detailed analyses and maps with details are very useful.

JA – it will be difficult to show all of the information and detail in the Atlas. We will be designing a way to show a comprehensive analysis of the reaches. The reach scale will be important to determine. Right now, there are 20 reaches of about 1 to 2 miles per reach. Symbology, scale all need to be considered along with the data complexity.

ZH – we may design a legend that displays each factor that went into the composition of the analyses so that the reader can refer back to the legend to better understand each of the components that was layered into the final reach composition. It will be a considerable amount of data that will need to be distilled so that we maintain clarity and understanding to communicate to a broad audience.

KY – In the section on BMPs will there be a discussion of risks for each type of project and maintenance recommendations? Sustainability of different BMPs, including maintenance and monitoring, are required in stream alteration permits.

JA – the BMPs generally define the life of typical projects and the established design criteria for a particular stream project. It sets a methodology for the design criteria and standards of care. Maintenances and risk depend on the project type. You should have a monitoring component for each

stream project, establish the life of a project, and certification of the project needs to be based on the accepted design criteria.

NM – Maybe the lessons learned section from past projects could be included in the project assessment section? Describe what worked and what did not work?

JA – It could be problematic if the document starts to point finger fingers at failure projects. It may be best to move forward from here by describing superior stream projects types for future planning and management direction.

JA – In the initial setting and overview section of the Atlas we may illustrate and discuss topics like percent of river channel armored, and leveed; the percent change of incising and latera movement of the river. We would like to use graphs as indicators of overall function and change through time of the river to help describe the issues and problems faced.

? – the excavation of gravels is a topic that has been discussed a lot. Is there a way to discuss this and address it?

JA -there are pros and conc, and there are persuasive arguments on both sides of this topic. I don't think the Atlas should take a stand on the excavation of gravel as it is a highly charged area of concern.

DF – The Atlas will be good for education of the community. The digital availability of the data will be helpful in design review and for practitioners preparing for stream alteration permits. It is clear to me that this project will be useful to the County and the cities of Hailey, Bellevue and Ketchum, and you are on the right track.

KH - From the county's perspective it's important that the final document applies to all communities up and down the valley—irrigators, engineers and the public at large. It's a balance. We're starting to see the cumulative impacts of individual projects that have taken place on the river over time. It's not all about individual details on a certain site. We need to step back. We need to understand what's driving these changes. Hopefully this can guide us. I think the information that we can get here will be drivers of policy in the future. We can regulate above minimum standards, if we have the information to support it. And this information I see as much better and more reliable than what you'll get from FEMA right now.