Assessment of Flood Risk Management Services in Sonoma County
Conversation for a Better Flood Future

Date:	Monday, January 08, 2024	
Subject:	Partner Workshop	
Attendees:	Aaron Fulton, Sonoma Water Adriane Garayalde, Public Infrastructure Brianna Steel, City of Cotati Claire Myers, City of Santa Rosa Curt Bates, City of Healdsburg Dale Roberts, Sonoma Water Dave Avila, City of Santa Rosa Flannery Banks, City of Santa Rosa Garrett Broughton, Town of Windsor Gina Benedetti-Petnic, City of Petaluma Jay Jasperse, Sonoma Water Jeanette Pantoja, COAD	Lauren Rodriguez, City of Cloverdale Marquez Monroe, DEM Michael Makdisi, CARD Molly Oshun, Sonoma Water Nick Malasavage, USACE Pamela Tuft, City of Petaluma Patrick Sing, USACE Sasha Ponomareva, Sonoma Water Sean McNeil, City of Santa Rosa Steven Lee, Sonoma Ecology Center Susan Haydon, Sonoma Water
Consultant Team:	Avery Livengood, HDR Betty Andrews, Workshop Convenor Hannah Karlsson, HDR	Michael Konieczki, HDR Trishna Patel, HDR

Workshop Summary

Welcome and Introductions

- Betty Andrews welcomed participants to the meeting, noting that the workshop is an opportunity to collectively consider what steps in the coming years will help to improve our effectiveness as a region.
- Sasha Ponomareva, Climate Resiliency Program Manager at Sonoma Water, Jay Jasperse, Former Head of Engineering at Sonoma Water, and Marquez Monroe, Water Hazard Manager at Sonoma County Department of Emergency Management (DEM) provided welcoming remarks on behalf of their respective agencies. Sonoma Water and DEM have partnered on this project, with funding provided by the County of Sonoma's Climate Resiliency Fund and Water Security Fund.
- Sasha provided a refresher on the project objectives and timeline.
    - The project objectives are to:
        - Clarify flood management responsibilities and opportunities.
        - Improve interagency and inter-jurisdictional coordination.
        - Improve positioning for state and federal funding.
        - Reduce risk to life safety and property via enhanced organizational effectiveness.
        - Enhance environmental protection.
    - A virtual kick-off meeting was held in August, followed by a survey process in Fall of 2023. The results of the survey will be shared and discussed at the January 8,

2024, workshop. The workshop discussion will inform the draft Recommendations Report, planned for review in March.

- Betty provided an overview of the workshop objectives and agenda.
    - The workshop objectives are to:
        - Build relationships and a sense of common purpose in Sonoma County flood risk management.
        - Identify potential coordinated regional actions to improve flood resilience.
    - To carry this out, the workshop agenda has four major sections:
        - A presentation to review findings from the survey that was carried out last fall;
        - A breakout session to brainstorm potential priority coordinated actions;
        - Time for the group to identify the top priority coordinated actions; and
        - Discussion of some of the actions with the greatest group interest.
    - This process will inform a Recommendations Report that all participants will have an opportunity to review and comment on when it is released in March 2024.

Presentation on Survey Findings

Avery Livengood, Senior Water Resources Planner at HDR, and Trishna Patel, Water Resources EIT at HDR, presented high-level findings from the survey that was distributed to the partner organizations in September 2023. The purpose of the survey was to collect input from each organization on potential gaps, overlaps, and challenges in providing flood risk management services in Sonoma County and to identify opportunities to address gaps, overlaps, and challenges through improved regional coordination. Survey responses were received from 17 different agencies and organizations.

A copy of the presentation will be provided to everyone who was invited to the workshop.

Opportunity Areas

Drawing on the survey findings, eight opportunity areas were identified for further discussion in breakout groups:

- **Coordinated messaging and communication**: the chain of communication among and between the agencies and organizations that provide flood risk management services, as well as the messages and tools used to inform the public – including hard to reach groups.
- **Floodplain management standards**: the policies, regulations, and submittal requirements that govern how land is developed, how infrastructure is sized, what types of encroachments are allowed in floodplains, and the areas in which those standards apply.
- **Stream channel maintenance**: the ongoing, seasonal work to clear stream channels of debris, sediment, and vegetation and/or to address erosion and stream bank stability.
- **Forecasting and event modeling**: the use of forecasting, monitoring, and modeling technology to prepare for flooding that is expected from near-term weather events.

- **Local disaster recovery assistance**: the support provided to residents and workers who are affected by floods, and the manner in which that support is funded and made available to people.
- **Evacuation routes and emergency operations centers (EOCs)**: the vulnerability or resilience of major transportation routes, emergency services, and EOCs to flooding, and ability to provide for continuity of operations.
- **Sediment and water management:** the upstream activities to manage runoff or reduce erosion, and downstream activities to remove sediment or to enable more dynamic river processes.
- **Climate change data and future conditions modeling**: the use of climate change projections and modeling technology to plan for long-term changes in precipitation and flooding.

A document providing more detailed information about each opportunity area was attached to the workshop invitation and printed copies will be available during the breakout session.

Breakout Session

The breakout session was divided into two "rounds" of breakout groups. In each round, participants self-selected into four groups, with each group covering a different opportunity area. Within the breakout groups, participants discussed gaps, overlaps, and challenges and identified potential coordinated regional actions to improve flood resilience. The following guidelines were provided for identifying coordinated regional actions:

- Actions should be inter-jurisdictional and involve at least three organizations.
- Actions can apply to any geographic scale within the region.
- Actions do not have to be well-defined, for example, if there is a need to fill knowledge gaps or "explore something more."
- If possible, actions can identify a champion to lead implementation.

Photographs of the flip charts from each breakout session are provided as **Attachments: Breakout Session Flip Chart Notes** to this summary. The summaries below are intended to capture both the handwritten notes taken on the flip charts, as well as additional points raised during the breakout group discussions.

Coordinated Messaging and Communication

- There is a need for consistent, coordinated, pre-flood messaging.
- Partners should form an interagency working group to define a set of "sure bet" messages in advance of an emergency, translate the messages into multiple languages in writing, interpret the messages into multiple languages via audio and video recordings, and distribute them to partners so they are ready to use when needed.
    - "Sure bet" messages are not specific to a particular situation or event. They are messages that can be re-used for different situations and events whenever they apply. An example is, "Turn Around, Don't Drown."
    - This approach would be especially helpful for situations when multiple agencies are likely to be fielding questions from the media and the public

about a situation – so that everyone can be consistent (e.g., bridge closures or removals).
    - Partners should develop a glossary of terms with consistent scripts and translations.
- Partners should form an interagency working group to organize and seek funding for an arts campaign to build situational awareness of flood risk among the public.
    - There are many precedents for arts campaigns that communicate flood risk creatively, including the FEMA high water mark initiative.
    - There is local expertise in Sonoma County that could be leveraged, with many examples of flood landmarks in businesses and within the community.
- Partners should designate a staff lead to coordinate with 2-1-1 so that 2-1-1 can access the information it needs to field calls from the public, while agency and organization staff can direct the public to call 2-1-1 for answers to their questions.
- Partners should develop a directory so that each partner has trusted contacts to help identify resources and information when needed.
- State law requires disclosures of flood hazards and prior flood damage in leases, but there does not appear to be an accountability mechanism. Perhaps such a mechanism can be developed. In the Central Valley, residents living behind levees receive mailers each year to notify them of flood risk and the availability of insurance.

Floodplain Management Standards

- Different agencies should provide consistent direction on design.
- City and County agencies should coordinate at a watershed-level to develop and implement clear, consistent standards.
    - It may be appropriate for urban areas to have higher standards than rural areas, but the standards should be consistent across jurisdictions (e.g., consistent freeboard standards).
    - An annual meeting should be held to coordinate on drainage standards.
- City and county agencies should provide courtesy referrals to jurisdictions that are downstream of a proposed development/encroachment, or agencies whose infrastructure may be affected by a proposed development/encroachment.
- The future land use plan in the Sonoma County General Plan update should align with the future land use plans of cities within the county.
- Watershed-level coordination is also needed for stream channel maintenance, including coordination with property owners. Coordination could include:
    - Developing an information campaign to educate property owners about their responsibilities related to stream channel maintenance.
    - Sonoma Water providing status updates to cities on the Stream Maintenance Program.
    - City and County agencies teaming up on permitting/Biological Opinions.

Stream Channel Maintenance

- There is a need to consider ecosystem processes while addressing flood risk (for example, beaver activity can provide for natural stream channel maintenance, but there may be trade-offs with flood risk).
- In Sonoma County, responsibilities for stream channel maintenance are spread across various agencies and jurisdictions (cities and the County).
    - Partners should clarify their responsibilities and ownership of infrastructure (such as channel reaches/banks, outfalls).
    - Stream channel maintenance responsibilities extend to private property owners.
        - The Rutherford Reach Restoration Project on the Napa River is a precedent for stream channel restoration and maintenance on private property, led by private property owners.
        - Provide education to property owners who have responsibilities for stream channel maintenance delegated by the city/county.
- Stream channel maintenance is challenging due to a lack of funding, resulting in having to prioritize certain projects over others. Potential actions to increase funding include:
    - Activating more/all flood control zones;
    - Forming sub-basin assessment districts; and
    - Creating a Countywide entity to raise funds.
- Coordinate to identify regional goals, apply for programmatic (proactive) permits, and implement stream channel maintenance.
- Create a library of resources and tools, including information about flood risk for all of Sonoma County
- FEMA should allow upsizing replacement infrastructure.

Forecasting and Event Modeling

- New monitoring sites are needed:
    - Data coverage and forecasting on the Russian River is good (there is stream elevation and NWS data available), but additional gages are needed on Dry Creek and at the confluence of Dry Creek and the Russian River (to help understand backwater effects at Foss Creek).
    - Along Santa Rosa Creek and its tributaries (e.g., Roseland Creek) there are areas with a lower density of data because they were formerly unincorporated. This presents an equity consideration, as forecasting relies on the existing stream gage network, and the data is not as accurate in areas without gages.
- There is a need for an integrated website, GIS map, or tool that synthesizes forecasting data and makes it accessible to field crews.
    - Note that Sonoma Water provides a synthesis of forecast information on its Real-time Rainfall, River-Stream and Reservoir Data website (Sonoma OneRain).

Local Disaster Recovery Assistance

- There is a need for consistent, coordinated messaging to educate the public about biohazards after a flood event. Many people do not realize that any fabrics or appliances that have touched contaminated water need to be disposed of, and agencies do not have a good way to distribute that information after a flood. The State of Florida has a good example of messaging about biohazards.
- There is a need for greater coordination on the siting of sandbag stations and messaging around where residents should go to access preparation materials before a storm.
    - Coordinating around the messaging of whether residents will need to show ID to get preparation materials, and whether their information is recorded could help mitigate privacy concerns and increase the accessibility of these resources.
    - Technically, sandbags and other preparation materials are for residents of the jurisdiction that is providing the materials. However, residents will often go to the location that is nearest, whether it is in the city or county where they live – or not.
    - Coordinating the siting of these stations might help avoid county residents using city stations, or vis-a-versa.
- Partners should advocate for statewide insurance pool for hourly outdoor workers.
    - Most public agencies have a government or legislative affairs representative whose role is to coordinate on state legislation/policy.
    - There are lessons-learned from efforts to change wildfire insurance, though those efforts have been focused on homeowners' insurance – not unemployment.
- Organizations and agencies within Sonoma County are currently competing for the same grant programs to fund the Recovery Support Centers and local Community Resilience Centers. Partners should form a Task Force to coordinate the location and funding of these centers.
- Gap funding is needed to cover costs while agencies and organizations wait for reimbursement.

Evacuation Routes and EOCs

- Partners should develop a single map that shows all potential road closures during floods, so that emergency managers can identify effects on evacuation, emergency services, and supply chains and develop contingency plans.
    - Santa Rosa Creek study is indicating that key routes and city/county emergency operations centers may be affected by flooding.
    - DEM is currently developing a "flood island" map to identify areas that will be isolated/inaccessible during floods.
    - Contingency plans could be scaled for different recurrence events (5-year, 10-year).

- Data sharing agreements are needed between cities, the County, Caltrans, etc. (Caltrans and CHP also need to be involved in evacuation route mapping).
- Explore the potential to create a public interface that can be used to inform the public, so people do not need to reference multiple jurisdictions' websites for road closure information.

Sediment and Water Management

- Update flood models to account for changes in estimated water surface elevations and extents.
  - Much of the mapping data is outdated, for example Russian River Flood Insurance Rate Maps were developed in 2008 and 2010. Significant sediment deposits have occurred since then.
  - A coordinated effort is required to update maps. For example, the City of Petaluma converted their flood model to HEC-RAS 2D, consistent with Sonoma Water's Flood Management Design Manual standards. Updating the model also required field visits to gather accurate roughness coefficient data.
  - Having models separated by watershed does not always properly demonstrate how the system operates.
  - It would be beneficial to model sediment transport countywide.
- Create a regional sediment monitoring program.
  - There is potential for relocation of sediment for environmental benefit. There is an ongoing effort with USACE and Sonoma Water to study beneficial reuse of sediment for salmon habitat.
  - Provide more funding for studies and modeling.
  - Use latest modeling technology and include climate change projections, as was done for the Central Sonoma Watershed Project H&H Study.
  - Sedimentation in the Russian River is impacting Cloverdale. Monitoring what is occurring upstream can allow for action before an emergency.
  - Gravel is no longer being harvested from Green Valley Creek, which is resulting in flooding.
- It would be beneficial to have a single organization willing to take on liability to ensure that the whole watershed is modeled accurately.
- Coordinate efforts by creating a mechanism for better information sharing.
  - Develop a list of projects going out to bid and make it available to partners. (Could be similar to a construction management bid list, but specific to floodplain management projects.) This would allow for other agencies to become involved and share costs.
  - Could be shared as a library of information or through a coordinating group (e.g, Sonoma Water or RRWA).

Climate Change and Future Conditions Modeling

- Sonoma Water is developing a geodatabase of downscaled climate projections for 24-hour rainfall depths under a variety of future time periods, emissions scenarios,

and recurrence intervals. These data rely on LOCA2 downscaling products, developed by Scripps Institute of Oceanography for the 5th CA Climate Assessment. Sonoma Water plans to share these data with partners and the public and is currently exploring data sharing platforms via County ISD. Sonoma Water is also in the process of developing an internal User Guidance Report that will support Sonoma Water staff in the consistent application of these data.

- This information could be very useful to other agencies and organizations' climate adaptation planning, but there is a need to coordinate messaging and risk communication with others who are developing climate change data and information.
    - Coordination is needed with flood risk managers, wastewater utilities. Wastewater considerations could be a layer on inundation maps.
    - USACE National Inventory of Dams provides dam failure inundation data online.
    - Central Valley Flood Protection Plan (CVFPP) is a coordinated, long-term flood management plan that accounts for climate change. This model would translate well to help prioritize projects and funding in the Russian River watershed, or Sonoma County more broadly.

Group Discussion

Participants were asked to review the coordinated regional actions developed by other groups, and to use stickers to "vote" for actions that would most improve flood resilience and that are most effectively addressed through regional coordinated action. Once the voting was complete, Betty facilitated a group discussion, focusing on the items that received a large number of "votes." During the group discussion, participants also clarified and provided additional context about the proposed actions, and proposed cross-cutting actions that did not apply to a single opportunity area.

Top-voted actions and concepts

- **Watershed coordination on floodplain management standards.**
    - Different jurisdictions have different development standards, but floodplain management needs to be watershed-based.
    - City of Santa Rosa has some unincorporated pockets and would like to receive plan sets for a cursory review because development in these areas can affect the City's infrastructure.
    - A working group could be formed to come up with more consistent policies for the watershed.
- **Collaboration on funding.**
    - As a chronically underfunded agency, City of Santa Rosa's creeks program is always interested in grant funding and outside sources of funding. Regional collaboration on that front is useful.
    - Collaboration can help make funding applications more competitive.
    - It would be helpful to have a notification list to let everyone know when new grants are available, or an open invitation to collaborate on applications.
- **Forming an interagency working group to develop consistent messaging**.

- There is a need for consistent messaging and clear communication with the public among jurisdictions.
- Flood is different from fire. Many things can be done in advance rather than being reactionary.
- Having pre-developed and standardized messaging creates an opportunity to translate the messages into different languages and record interpretation into non-written languages that can be circulated to community networks.

- **Increased resources for stream maintenance.**
  - The resources that are needed are primarily funding, but also legal input.
  - Los Angeles County voters passed a property tax (Measure W) to raise $30M per year for stormwater management to meet TMDL requirements. Sonoma County could explore something similar to raise funds for flood risk management.
  - Between Prop 218 and changes in permitting, there are far fewer resources and the resources that remain are going primarily to permitting for stream channel maintenance. Prop 218 constrains efforts to raise revenue because you have to be able to show how much benefit each individual property or area will receive, and there is always a way to challenge that calculation.
  - City agencies are constrained to focus funding on what is required, what they are obligated to do. City Council gets to prioritize and choose what to do when the actions are discretionary.
  - A working group would be a good first step to coordinate.
- **Sediment monitoring and management program.**
  - When sediment is removed, it becomes a waste product and needs to be disposed of or relocated. However, there is also local demand for sediment for wetland restoration and other needs.
    - Gravel appropriate for salmonid habitat restoration could be stockpiled after it is removed.
    - Fines that are not appropriate for salmonids could still be useful for wetlands that are sediment starved.
  - Being able to model sediment transport at a watershed level and show where sediment can be placed beneficially would help with beneficial use.
- **Collaboration on permitting.**
  - Streambed alteration agreements can end up costing more than a project itself. Administering a Request for Proposals (RFP) to do permitting is very expensive, especially for smaller communities.
  - Sonoma Water does most sediment management and stream channel maintenance in the county. If there were opportunities to participate on an RFP and share resources to get permits, it would be more efficient. Town of Windsor was invited to collaborate with Sonoma Water in one instance and it was very helpful.
  - A working group with the resource/permitting agencies would be helpful.
- **New gaging and forecasting tools.**
  - There are locations where more monitoring information is needed. The Russian River and Santa Rosa came up due to who was in the breakout group

discussion, but there are likely other waterways in the county that would benefit from increased monitoring.
    - The Forecast-Informed Reservoir Operations (FIRO) initiative is focused on supplementing monitoring information within the watershed, along with USGS data. There are a lot of agencies involved.
    - There is also a need to figure out how to use the data that is available. Many agencies are still relying on field crews' knowledge of areas that tend to flood, rather than using forecasts and models to predict where flooding is likely. Data needs to be synthesized and presented in a way for action to be taken proactively.

Cross-cutting actions and concepts

- Many of the breakout groups identified the need for a working group or a task force to come to agreement and flesh out the specific actions that need to be taken.
    - There could be a benefit to a single interagency task force that coordinates everyone, with subcommittees or working groups focused on particular issues or topics.
- Some of the breakout groups suggested coordinating at a watershed level, while others suggested coordinating at a countywide level. What is an appropriate scale for coordination?
    - Some participants felt that coordination and implementation could be at the county level; it does not necessarily need to be on a watershed level.
    - Some issues require more refined data than generic countywide data and are better coordinated at the watershed level.
- Some actions appear to be longer-term, whereas some coordinated actions may be needed during an event (e.g., public messaging and communications). Is there a need to have two separate groups coordinating at different time scales?
    - There is already a clear and effective emergency operations protocol during storm events, so any working group or task force formed under this project should not attempt to duplicate that protocol. This project should focus on regular and longer-term coordination needs.
    - In EOCs, watershed managers are not looped into discussions very well, or they do and there is a short notice request to join a call. Perhaps there is still a need to coordinate with emergency operations groups to set up better coordination with watershed managers.
- Representation on an interagency task force:
    - It would be helpful to create a format in which multiple representatives from a single organization can attend meetings or receive updates, so that more than one role is represented (e.g., emergency management, engineering, stormwater, maintenance).
    - NGOs and smaller organizations may not have staff capacity or funding to attend a new, recurring series of meetings. This could be a challenge to get representation on a task force.
        - Explore funding or stipends to enable participation.

        - Consider ways to keep interested parties updated, even if they are unable to participate in meetings.
- Who can serve as a champion to coordinate an interagency task force?
    - If formal agreements are involved, it is easier for individual cities to sign MOUs with Sonoma Water or Sonoma County than to sign MOUs with other cities.
    - MOUs are generally difficult and can take a long time to get approved.
    - Coordination could begin with a more informal approach and build towards something more formal.
    - Sonoma Water is willing to take the lead to organize and convene an initial meeting of an interagency task force.
    - Depending on the focus, DEM may be a more appropriate lead than Sonoma Water – for example, if the focus is on communication and messaging to the public about emergencies.

Next Steps

- A workshop summary will be sent out to all participants.
- A draft Recommendations Report will be prepared and shared for review and comment in March 2024 with . Comments will be addressed in the final Recommendations Report.
    - A request was made to use precise language in the Recommendations Report, so that the affected/covered entities are clearly identified (e.g., homeowners, property owners, tenants, residents, workers).
    - A request was made to allow four weeks for review and/or to provide two weeks' advance notice of the review period.

Attachments: Breakout Session Flip Chart Notes

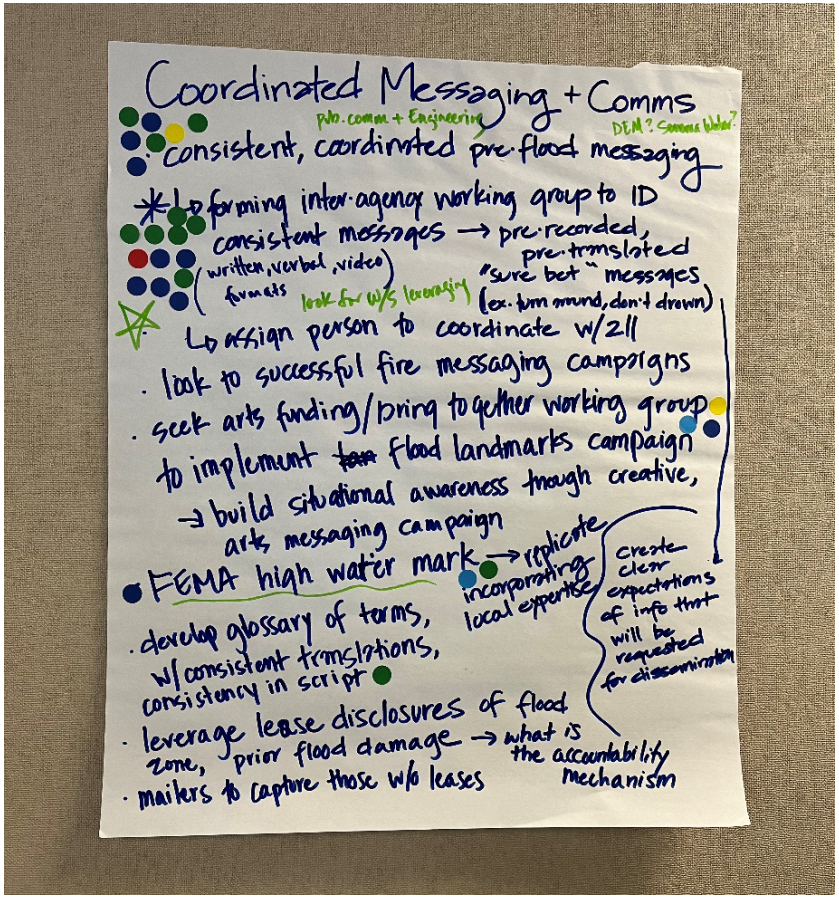


Figure 1. Coordinated Messaging and Communication Breakout Group Notes

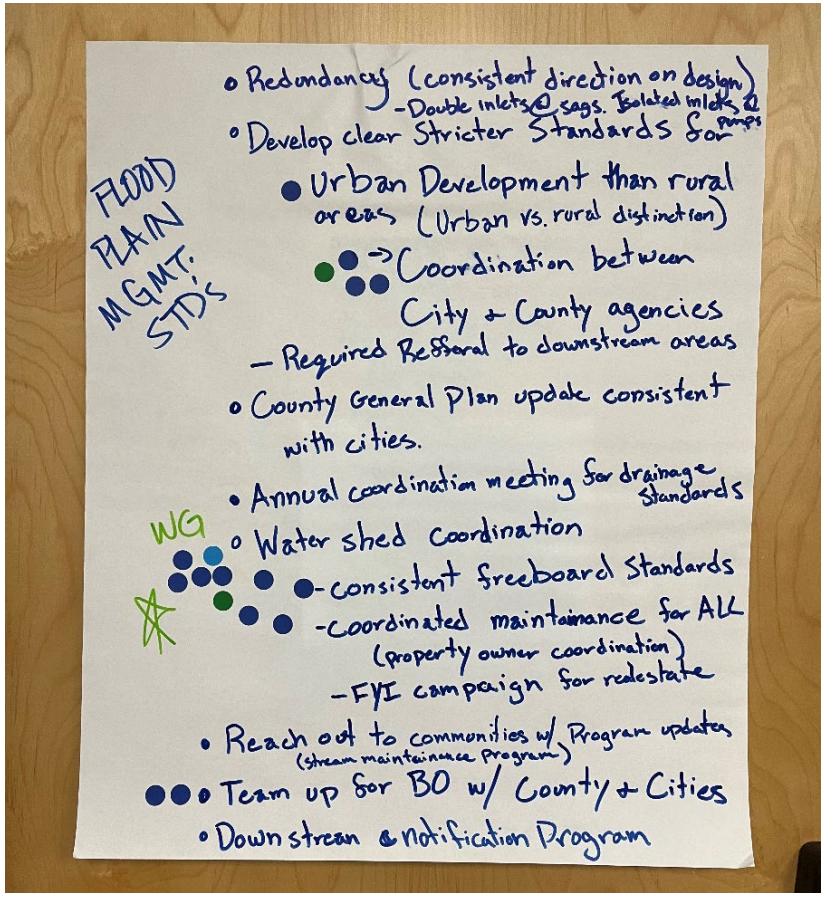
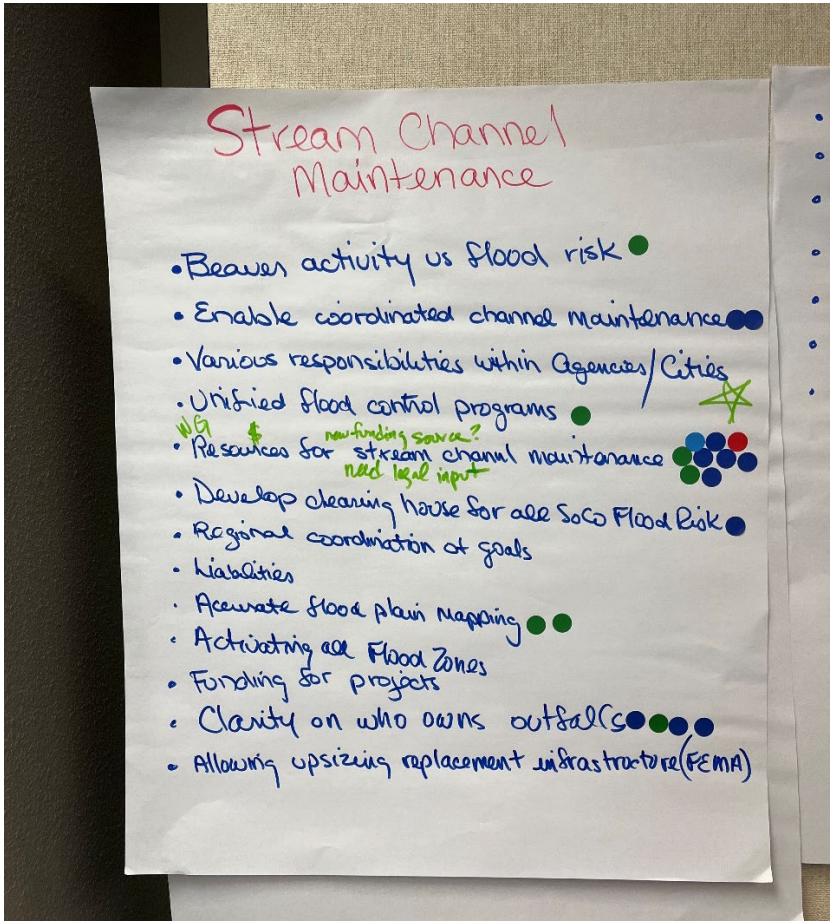


Figure 2. Floodplain Management Standards Breakout Group Notes



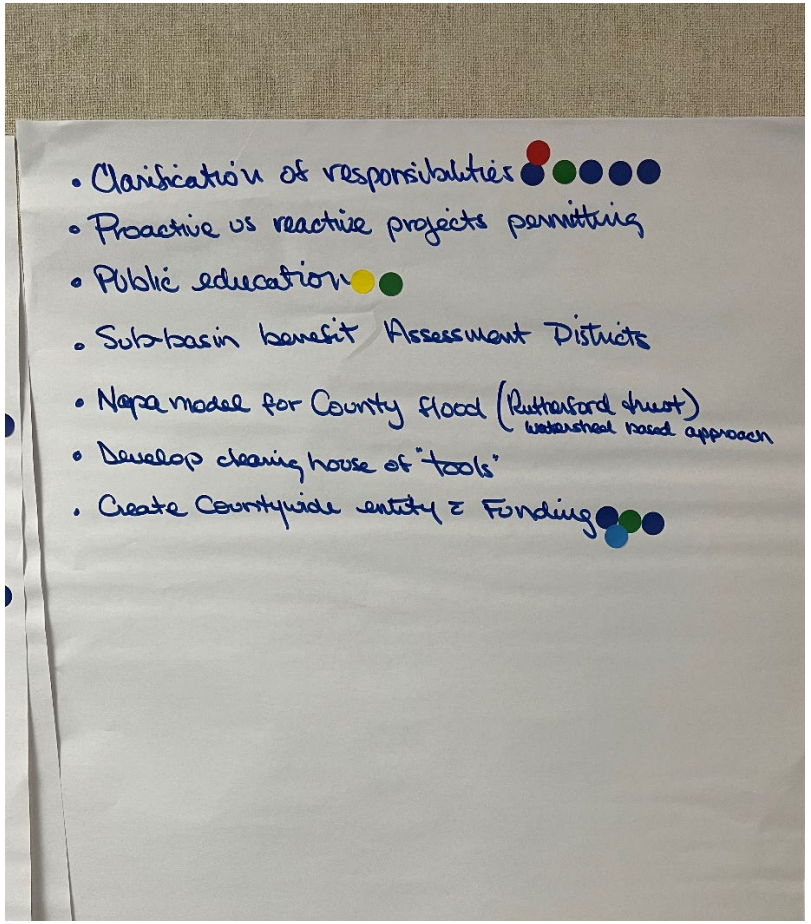
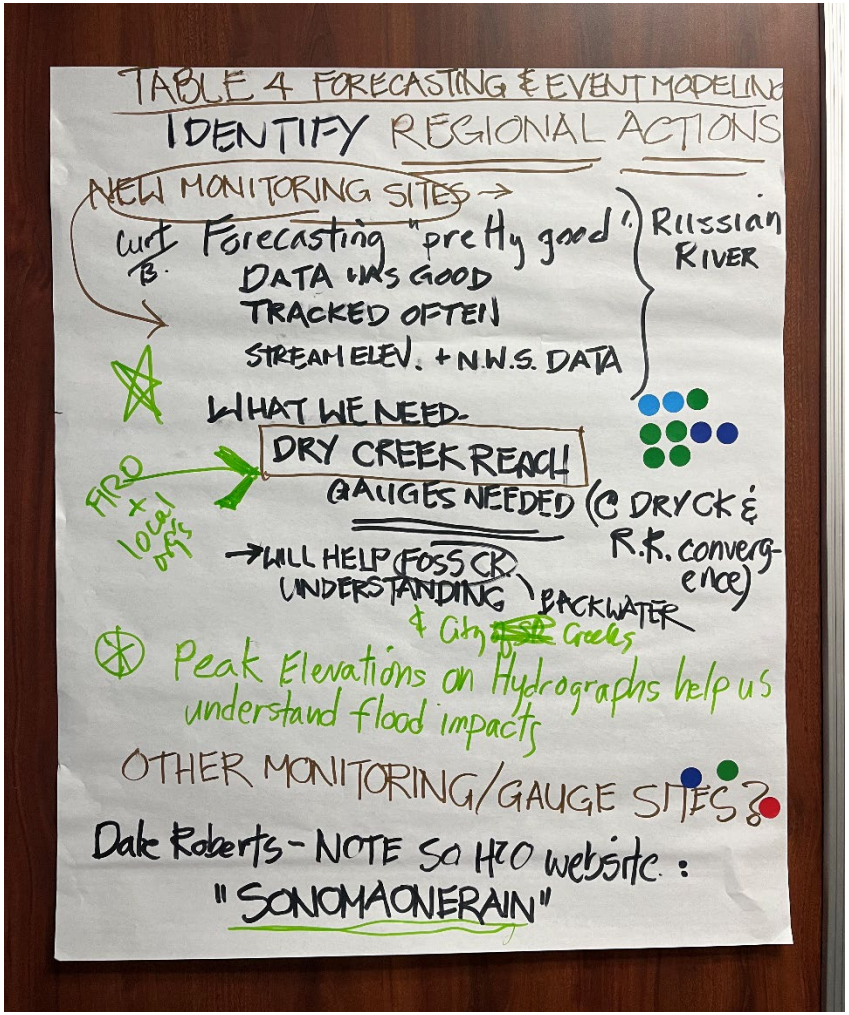


Figure 3. Stream Channel Maintenance Breakout Group Notes



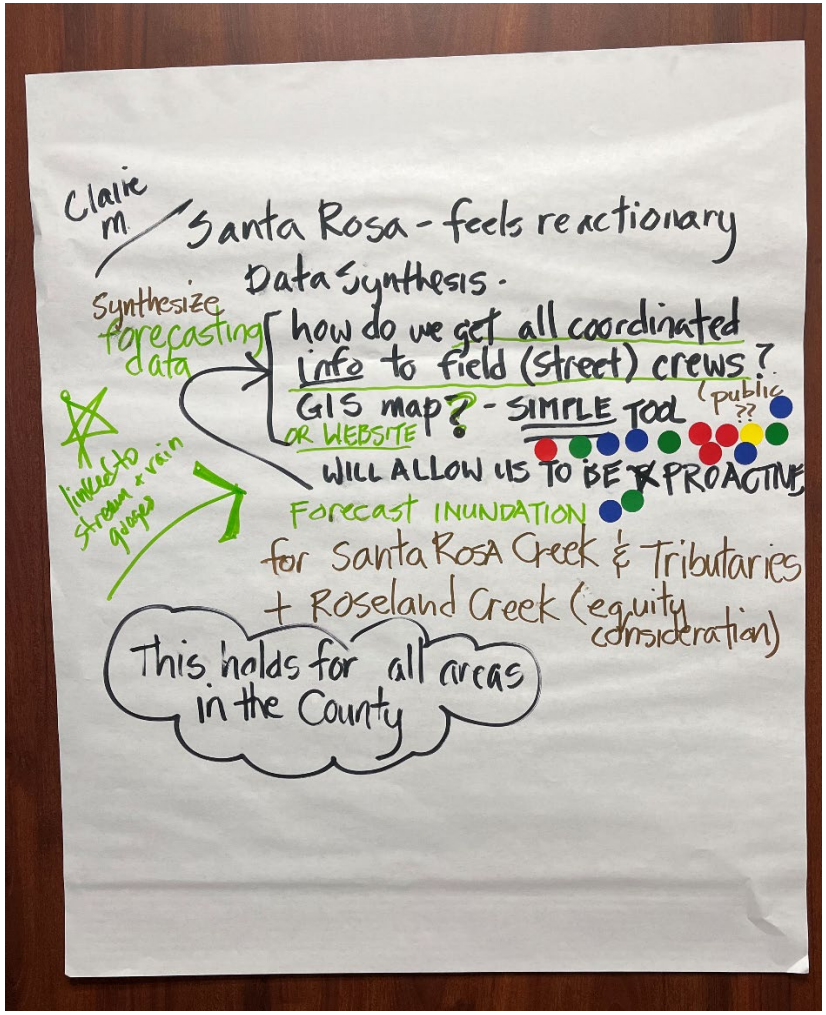


Figure 4. Forecasting and Event Modeling Breakout Group Notes

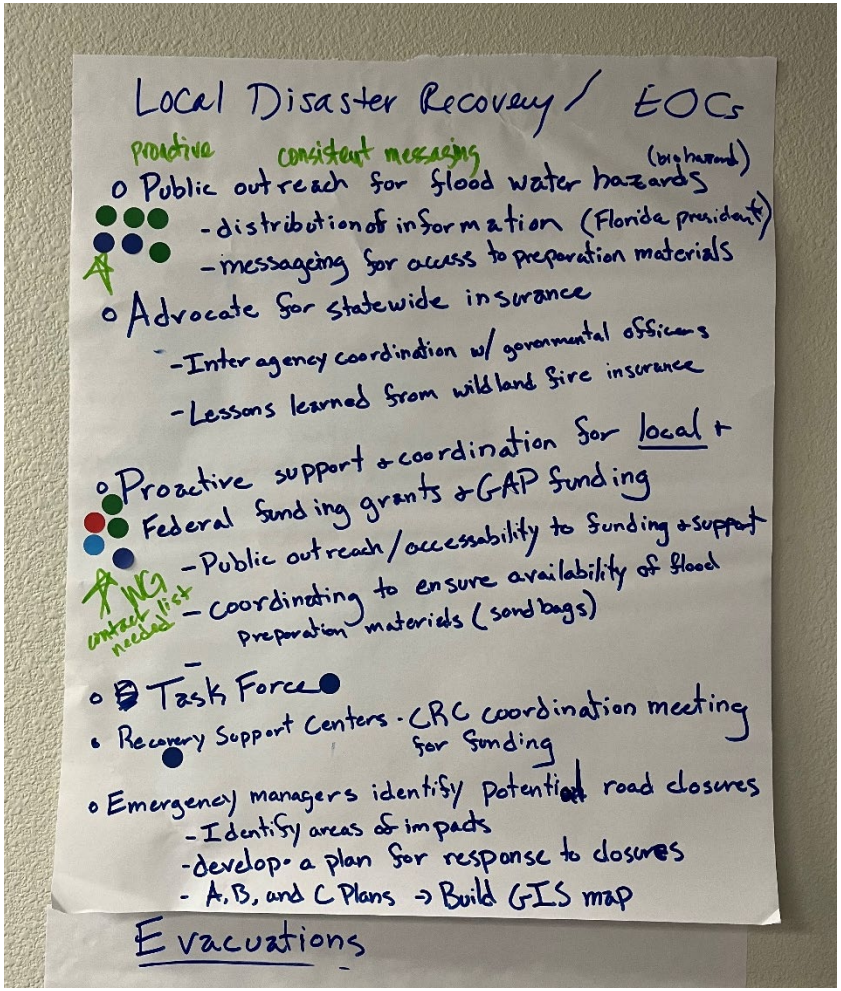


Figure 5. Local Disaster Recovery Assistance and Evacuation Routes and EOCs Breakout Group Notes

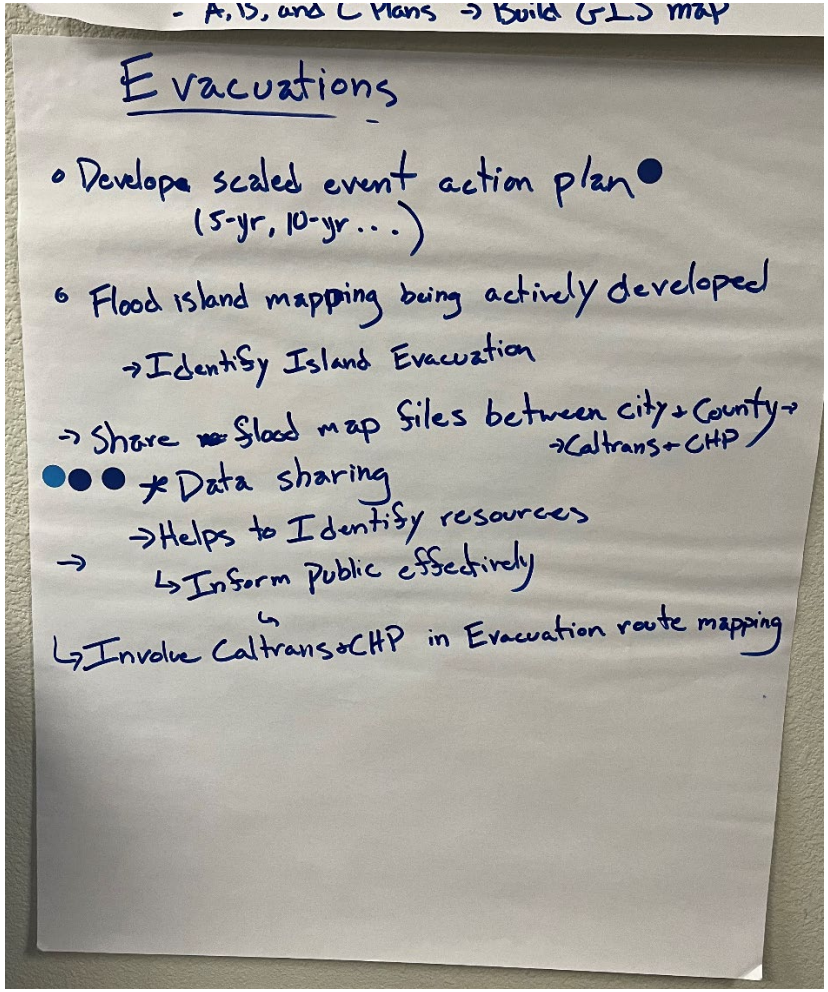


Figure 6. Evacuation Routes and EOCs Breakout Group Notes (continued)

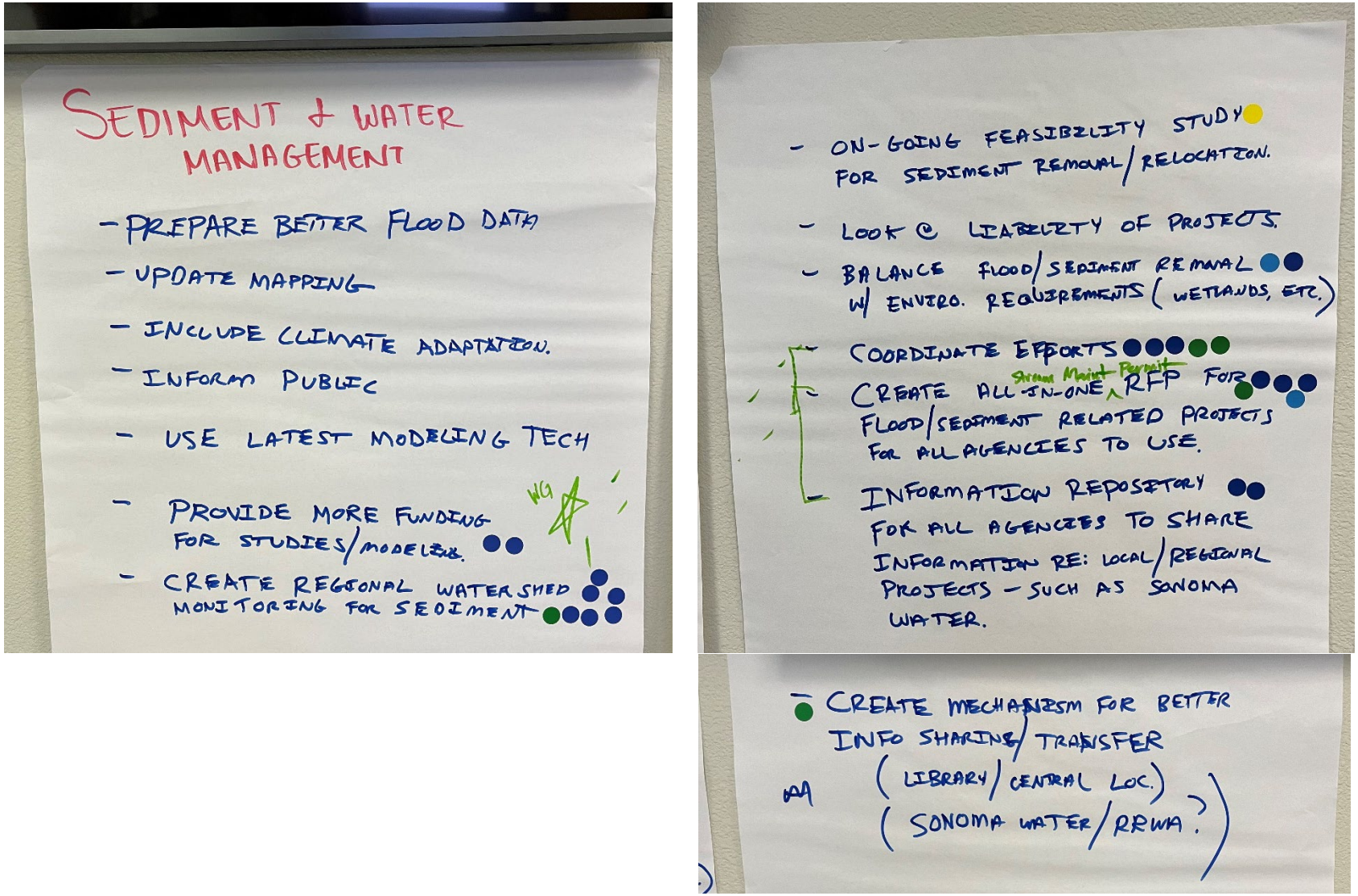


Figure 7. Sediment and Water Management Breakout Group Notes

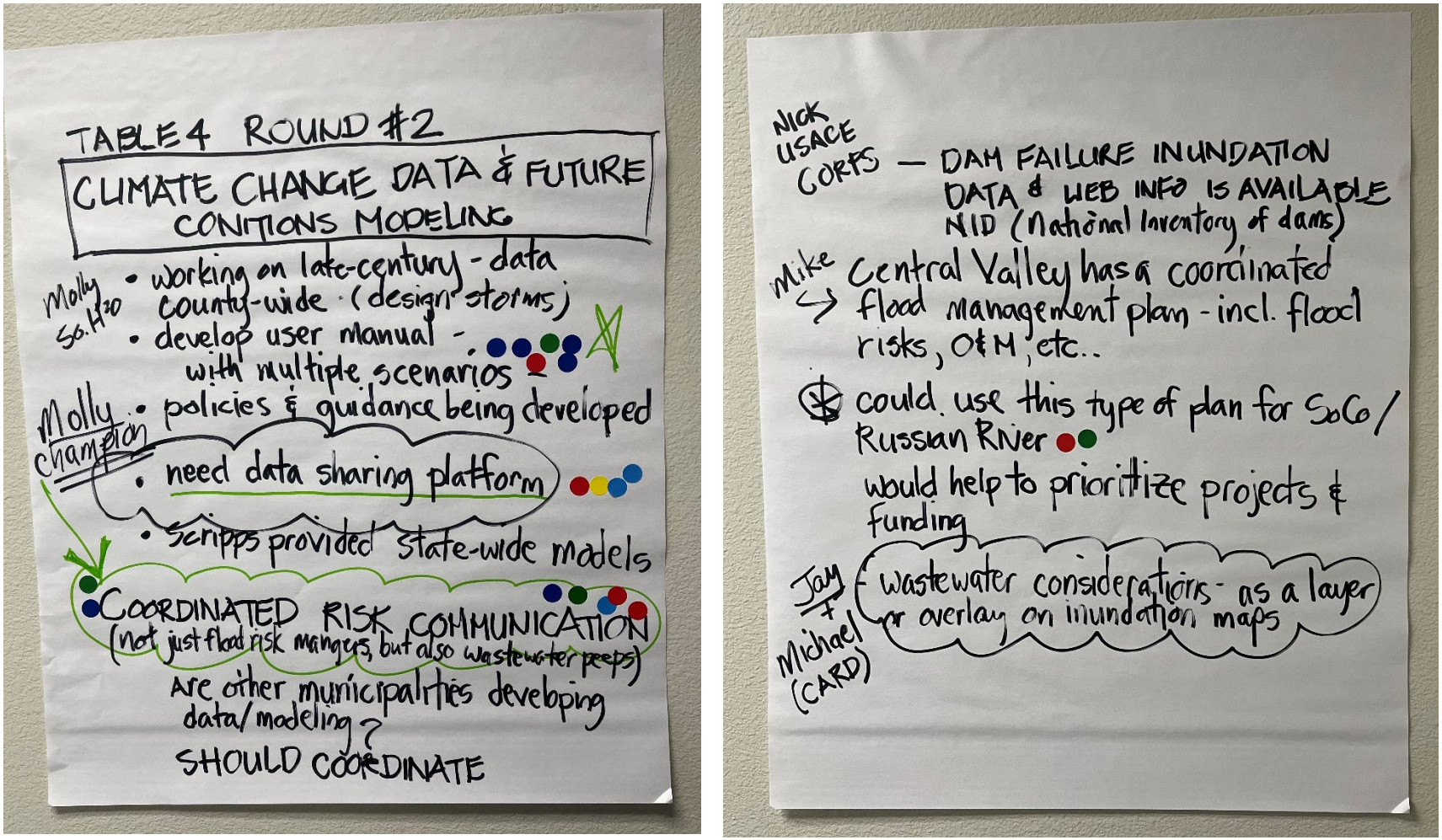


Figure 8. Climate Change Data and Future Conditions Modeling Breakout Group Notes