**Basin Study Work Group: Crooked River Subgroup Meeting**

February 18, 2015, 11:00 am to 2:00 pm
Prineville Police Department, 400 Northeast 3rd Street, Prineville, Oregon 97754

**ATTENDING**

Dan Bruce, Terrebonne Water District
Doug DeFlitch, U.S. Bureau of Reclamation
Chris Gannon, Crooked River Watershed Council
Brett Golden, Deschutes River Conservancy
Kyle Gorman, Oregon Water Resources Department
Mike Kasberger, Ochoco Irrigation District
Kimberly Priestley, WaterWatch of Oregon (by telephone)
Betty Roppe, City of Prineville
Garry Sanders, Crooked River Watershed Council
Bob Spateholts, Portland General Electric
Rob Tanner, U.S. Forest Service
Mike Tripp, Trout Unlimited (by telephone)

Kate Fitzpatrick of the Deschutes River Conservancy attended as the BSWG Process Co-Coordinator. Mary Orton of The Mary Orton Company facilitated the meeting. Anne George from TMOC also attended and took notes.

**AGENDA**

The purpose of the Subgroup meeting was to develop a recommendation to the BSWG Steering Committee on what should be included in the Plan of Study with regard to the Crooked River Basin. The group used the following agenda as a guide during the meeting:

1. Welcome, Introductions and Overview and Approval of the Agenda
2. Overview of Task Table and Budget
3. Crooked Task Table
4. Next Steps
5. Meeting Evaluation

**WELCOME, INTRODUCTIONS, AND OVERVIEW AND APPROVAL OF AGENDA**

Betty welcomed everyone and asked for self-introductions. Mary reviewed the agenda; no changes were made.

Betty announced that she had asked Chris Gannon to serve as the representative to the Budget Balancing Committee (BBC) for the Crooked River Subgroup.

**OVERVIEW OF TASK TABLE AND BUDGET**

Kate said the entire BWSG non-federal cost share budget was 28% over budget. She reviewed the Crooked River Subgroup (CRS) Task Table and budget (see Attachment 1) and noted that the far right column showed a 28% decrease, for reference purposes. Kate explained that today, the group needed to finalize a recommendation for the non-federal cost share partner portion of the budget for the CRS Task Table and any clarifications to the Task Table. She suggested the group discuss each task and prioritize them, as needed.

Kate explained that the group was not required to reduce the CRS Task Table by 28% across all of their tasks, as the Deschutes Subgroup had done, nor were they tied to a 28% reduction. The group could forward a different budget recommendation with an explanation for the BBC and BSC to consider. A draft budget, including the recommendation from this meeting for the Crooked budget,
would be presented to the BSWG Steering Committee (BSC) at their next meeting on March 3. Following that meeting a final draft Plan of Study (POS) would be provided before the BSC meeting scheduled for April 7, with the goal of BSC agreement on the POS at that meeting.

Kate noted that the group had provisional agreement on the task list two meetings prior, but that it could still change, particularly in light of the budget overage. Kate said Reclamation would provide the team with additional information regarding their portion of the budget later in the week, so that side could also change.

In answer to a question about whether the BSC would reduce the over-arching tasks by 28%, Mary replied that no decisions had been made and the budget numbers were still soft.

Kyle proposed that 70% of the overall budget be allocated to Deschutes tasks, 20% to Crooked tasks, and 10% to Whychus tasks.

**CROOKED TASK TABLE**

To aid in the prioritization process, members were asked to discuss the following questions for each Crooked-specific task:

- Why would anyone think this task is important for BSWG investment, compared to other CRS tasks in the table?
- Why would anyone think this task is NOT important for BSWG investment, compared to other CRS tasks in the table?
- What is the minimum level of investment we should recommend to the Steering Committee for this task?

Mary suggested that if the group decided a task was less important than others, members could recommend that funding be found elsewhere. Individuals were welcome to suggest changes that did not necessarily represent their position.

Mary also noted that some members who were unable to be present today had sent her their comments, and she would present them to the group at the appropriate time.

Task 1.2: Evaluate, and update as necessary, water supply modeling to be consistent with input from the sub-basin stakeholders. (This will be re-evaluated if Reclamation is completing this task elsewhere.)

Kate reminded the group that they had wanted a water supply model, and that Reclamation would study this under Task 2.4 (Apply climate change analysis to projected future demands) as an over-arching task. She suggested the group did not need to repeat the work under Task 1.2. Removing this task would result in a $2,000 savings in the CRS budget.

Kate said the RiverWare model (with its daily time step) could be used in lieu of MODSIM, which only provided a monthly time step. She said according to Kyle, Jonathan LaMarche of OWRD had said this model would work well. She said it would be important in Task 2.4 to use the model that was most helpful in each basin and that the CRS needed to decide if they were comfortable with RiverWare.

Comments from the CRS included:
- I am concerned about $180,000 for climate change modeling (Tasks 1.3, 1.4, and 2.4).
- If you think the amount in Task 2.4 is sufficient, even when it includes Task 1.2, then do not add more. Otherwise, add additional funding in Task 2.4 for Task 1.2.
- A member asked if the money would be used for DRC coordination. Kyle replied that the funds would pay for an OWRD consultant's review, and OWRD would not charge for its work on this project. Kate said that the future BSWG structure was not finalized, but she thought the subgroups would become technical teams working with the consultants. Members from the CRS would sit on that team, for example a climate change technical team, and ensure that CRS views were well represented.
- I propose $1,000 on the non-federal cost share partner side for Task 1.2.
- Task 1.2 will be done by Reclamation in the Basin Study. Take the money out of this and add $1,000 to Task 1.4 (Apply climate change analysis to current supplies), where this work will go. It is important that it gets put into the legwork portion of climate change analysis.
- Task 1.2 will be accomplished in Tasks 1.3, 1.4, and 2.4.
- Put $500 in Task 1.3 and $500 in Task 1.4 because they are similar to Task 1.2 in that they are future projections and supplies, and then eliminate Task 1.2.

**Agreement:** The group agreed by consensus to remove Task 1.2 with a notation that the work will be completed in Task 1.3 or 1.4. Add $500 to the budget for Tasks 1.3 and 1.4, if necessary per Reclamation feedback.

**Task 2.2:** To help refine instream demand, identify and apply an approach to evaluate year-round flow-temperature relationships in the Crooked River from Bowman Dam (river mile 72.8) to Osborne Canyon (14.1) and in Ochoco Creek from Ochoco Reservoir (10.4) to the mouth (0.0). (This will be re-evaluated if Reclamation is completing this task elsewhere.)

Kate reminded the group that they had decided by consensus to create a technical group that would provide the group with a recommendation regarding Task 2.2. The technical group recommended that a consultant work on this task, and that $40,000 be budgeted on the non-federal side and $2,000 for Reclamation for this task.

**Why is this important?**
- We also wanted a flow-habitat study. We reached our budget target by cutting that study. I do not think we should cut the budget and be penalized because we made cuts early.
- There is some consensus that instream flow affects temperature and flow-habitat relationships. We do not have good data on either. Regarding the non-municipal and agricultural demands these are probably the more important demands.
- Temperature is a limiting factor for threatened Mid-Columbia Steelhead, Chinook, Redband Trout, and other species. This study, general aquatic ecological work, will guide solutions for these sensitive species. I think the budget should be $60,000 to $80,000.
- The Crooked River legislation is about managing the release of water. I think we should go to the Northwest Power Council, who is supposed to do this, to find funding to do this. The agencies have a responsibility to do this work because of their management obligations.
- I would really like the information because it would help the people implementing the legislation to do their work.
- It could solve temperature and flow questions for a decade or more. We need the right vehicle to address longstanding issues for the fish.
Mary reported from Bonnie Lamb, ODEQ: This is a top priority for Oregon Department of Environmental Quality and I continue to support this. I am not sure if it should fall under Reclamation or the non-federal cost share partner.

Mary reported from Amy Stuart, Native Reintroduction network: There is a lot of skepticism about previous instream flow studies. This task should get funding so everyone could have a study they could be a part of and trust. This could add broader support for study outcomes.

Identifying opportunities and priorities would make it important. It would help you if other water outside the legislation became available; then it would help you know your options.
  - Kate noted that it could also be important for the Ochoco Irrigation District diversion switch.

Why is this NOT important?

- Maybe it is not important because it may not feed into the legislation. The agencies can choose to use the data or not.
- I heard $40,000 is not enough and that we should not cut our budget. Are we throwing a band-aid on something that really needs to be done? If there note enough funding, should it be funded elsewhere? (Kate noted that the $40,000 figure had been vetted.)
- This study will probably not change how water is released below the reservoir. I do not know to what end you can change the temperature in the river to any significance.
  - That is precisely why this study is important. If you need a certain amount of water to cool the river by a certain number of degrees for the fish, you will find it with additional storage.
  - The operation of the dam—the release of the instream flow—is in the hands of the federal agencies. Without them weighing in on that point, I would be cautious.
  - Doug DeFlitch (Reclamation) said that from his perspective, changing the operation of the dam would be difficult. The legislation says “to the maximum extent possible.” He said the wording made it difficult to know what could be done.

- The “maximum extent possible” language is tied to the legal directive that it benefits the fish downstream. This will be the federal agency decision, but from my perspective, the more information they have the better it will help inform the decision.
- We have reached out to two consultants involved with temperature modeling. They were both in agreement that it would likely cost the budgeted $40,000, and that the budget was highly dependent on the amount of detail and modeling software that would be used. These are soft numbers so it is right in the ballpark. We were operating under the constraints we understood and we have already done our cutting. We wanted to come in under budget.
  - Mary asked what the target budget number had been and how it was developed. A member replied that it had been $60,000 and Kate said it had been a guiding number.
- We are really missing out because this study could look at habitat changes from flow. We could consider seeking outside funds for this work.
- Regarding changes in the operations of the dam, we sat in the technical committee and we asked Peter how he was going to do this and he said did not know. We do not have much data on the benefits and if temperature has been our big issue then that needs to be addressed.
- The timing of fish and migration are things we should look at with regards to instream flow demands. But we did not. If you take the suggestion to divide the BSWG budget with 70% to Deschutes, 20% to Crooked, and 10% to Whychus, the Crooked budget actually goes up.
  - Doug said that Reclamation had cautioned about collecting data in the study.
- We are not the ones doing the work and we do not have an idea of cost. Let’s move ahead.
$40,000 was budgeted for Task 2.2. One suggestion was to keep it at $40,000, and other was to fund it at $10,000 and explore whether the funding could be augmented elsewhere.

Task 4.1 Identify viable options for meeting the water supply needs for irrigation, instream, and municipal/water suppliers. Identify legal and administrative requirements for option implementation.

Task 4.1.a: Evaluate the feasibility and cost/benefit of phased piping in OID.

Why important?
- I think it is worth evaluating the cost benefit and feasibility. There is potential for future water management if availability and supplies change. If the entire system is not piped, then the operation surplus is not going to be saved.
- This could increase flows in Ochoco Creek.

Why NOT important?
- I am not sure this task belongs in the study it will happen anyway.
  - Kate replied that Reclamation was assessing the cost and value of the whole system. She said those costs existed and that potential water could be saved by doing the work in Task 4.1.a. She said the work would be done in phases if needed.
- This task appeared to be about doing feasibility level work rather than appraisal level. (The Basin Study is supposed to mostly be at appraisal level.)
  - Doug replied that it could be either. He asked what the group thought about getting much more defined information on the availability of water to meet future demands.
  - The study may not result in enough detail to help with project implementation.
- Ochoco Irrigation District spent over $300,000 to study what they needed for piping, and the funding was not sufficient. I don’t think you are going to get much more information with $7,000.
- We have an automobile and the transmission is failing but we want to spend money on the stereo. We need information on the use of water, conservation, and storage. These are key components for responding to climate change. I think that applies to all of the tasks in Task 4.1.
- The inefficiency of the irrigation districts on the Crooked River is not the leading flow issue. The bulk of the water used in the summer on the Crooked River is from stored water. We need to fix the storage issue. Irrigation district inefficiencies contribute to Prineville groundwater recharge.

Level of investment?
Kate said that similar work was being considered for Tumalo Creek, and the DRC had been able to negotiate a bid of $55,000 for the work. The task could be moved from new information into existing information data and it could be captured as a water supply option.

Agreement: Document existing data and water supply options, and drop Task 4.1.a into Task 4.1.c (Document cost-benefit of the following projects: McKay Creek Switch, OID diversion switch, and North Unit Water Supply Program).

Tasks 4.1.b, 4.1.c, and 4.1.d
Kate noted that Tasks 4.1.b, 4.1.c, and 4.1.d only required someone (e.g., the project manager) to collect existing information and create a report. She said she anticipated that the budget for these
tasks zeroed out, with the DRC performing the tasks for the project. Kate added the DRC would need help from the City of Prineville to document the City of Prineville wetlands project and associated water quality and quantity benefits from Task 4.1.d.

A member asked who would pay the project manager for this work and Kate replied either the non-federal cost share partner or Reclamation could cover this cost.

A member suggested deleting the word “quality” on Task 4.1.d. Mary suggested bringing that up again when the members who had suggested that word were present.

**Why important?**
- We wanted to document water supply options that could help meet the imbalance between supply and demand and improve water quality. I like keeping these in.

**Agreement:** The group agreed by consensus to bundle Tasks 4.1.a, 4.1.b, 4.1.c, and 4.1.d, budget $5,000, and keep the detail in the task table.

**Task 4.1.e.: Evaluate non-structural storage opportunities.**
Kate said this work would focus on improving conditions right off of the river by adding wetlands and allowing the water to restore itself through natural processes. She said that the last time the group had discussed the topic, there was an understanding that evaluation of non-structural storage opportunities meant no new water rights would be involved. There was a suggestion to remove “non-structural” from the task language because it did not include new water rights, but others felt that the language needed to remain because there were no new water rights available.

Initial discussion included the following points:
- If we are looking at new storage, that water would be stored and flow later in the season. If you do not even have the information, how can you write it off or say non-structural storage should be studied?
- I thought our geological boundary was the reservoir.

**Why important?**
- It is possible to change the time of the year that water is released so more water could be available later in the summer. It is possible to slow water down as it moves through the floodplain. An example of this is the beaver work that has been done.
  - Coarse calculations on the beaver re-occupation in a different basin, based on a number of conditions, found it could supply 25,000 to 100,000 acre-feet of water.
- If the study will consider structural storage or adding structure to the dams, it would be important to consider more natural solutions such as beaver re-occupation or floodplain restoration through private landowner easements.
- Mary reported from Amy Stuart: This task was very important to her.
- This one might lend itself to documenting versus evaluating. We cannot really evaluate this for $10,000, but we could document information and generalize potential. I think it is important to the study because it is a supply feature. If we do not spend a lot of money then this task is fine.
- I agree that on the mainstem it would be difficult; however, on Ochoco Creek and McKay Creek you would have benefits.
I think we need to change the focus to documentation at this point. The potential is quite large so we should keep it in.

- What would be the different outcomes if you document versus evaluate?
- I think you evaluate at a very coarse scale. Find out how much water would become available.
- Kate said she was taking off her Process Co-Coordinator hat, and putting on her DRC advocate’s hat. She said that she would support that nuance because the term “document” would mean to document the numbers that existed. It might be all information gathering, she said, but it would be a new evaluation of that information. She was hearing that more water was needed in the Crooked, and given that there was no water now and building a dam was so expensive, this work was equally worthy of evaluation as the evaluation of construction of a dam.

Why not important?

- I think you are off by a factor of 10 on this budget item. You are talking about changing the hydrograph by 200%. Let’s say we do fix the whole thing, although that is out of the realm of possibility for the next 300 years, and spend a quarter of our entire budget on this minimal project. This is not in line with what we should be spending the money on. Our priorities should be on smaller reservoirs and building dams where you are going to get the bang for the buck.
- Does the group want to put 2% of its dollars into this one option? That level of funding would indicate that this option was two or three times more important than any other option.
  - I believe that the cost of a task does not make it more or less important. Some items might be less expensive because a good deal of information already existed for that task.
- We would not have the funding to implement anything like this.

The budget estimate for Task 4.1.e as written was $10,000, and the group did not propose any change to the budget for the task.

Task 4.1.f.: Evaluate off-channel storage opportunities (identify legal constraints first to guide analysis).

Initial discussion included the following points:

- You are limiting yourself by current water standards. They are not set in stone and you can do other things.
- The State has a practice that we look at 50% availability of new water available. Under this Basin Study, we are not supposed to limit ourselves to existing policy; we need to look at the bigger picture. Maybe we need to reevaluate water availability. Task 4.1.f is such a limiting view; we are constraining ourselves unnecessarily.
- I propose we re-write the task to read, “Evaluate legal constraints to additional or new storage opportunities.” The constraints are real and thwart our ability to do things.
- I know storage is important to other partners. As a result, I have not opposed it, but looking at the numbers is important. I understand the suggestion that the 50% could be changed, but I do not think that is realistic. The State has been solidly behind Division 33 and the 50% rule. Those are significant factors. In addition, the State has done an assessment of existing storage available sites, so some of this has been done.
- New storage is important to some. Whether it is possible or not is not clear. The future hydrograph may be very different and current law and standards may be very different.
- We also wanted to be evaluating the potential storage and potential costs and to compare apples to apples.
- I want to be clear on the difference between Tasks 4.1.e and 4.1.f. Can we eliminate the words “off-channel” and can add the word “structural” so we can be clear on those differences?

**Agreement:** The group agreed by consensus to replace the word “off-channel” with “structural” in Task 4.1.f.

**Why important?**
- It is the number one tool to combat climate change.
- It provides a potential supply for instream and all other demands.
- If we are going to evaluate non-structural storage, then it is important to be able to compare cost and benefits.

**Why NOT important?**
- It is challenging to put new storage in place, so it will be hard to implement.
- It may not prove to be feasible.

**Level of investment?**
Mary reported that Mike Relf said Reclamation could complete appraisal level work for about $25,000.

- The DRC thought they could do this work; however, if the task consists of a deeper appraisal of storage, perhaps the work should be done by Reclamation.
- I propose is that we add the $8,000 in savings so far today and add it to the proposed $6,000 for a total budget of $14,000 on the non-federal cost share partner budget. Let negotiations on whether Reclamation should do the work happen later.
- I think Reclamation will ultimately be tasked with the work.
- I propose that the budget include $1,000 for the non-federal cost share partner budget and $25,000 for Reclamation, with the assumption that Reclamation would complete most of the work in Task 4.1.f.
- I think we should have $2,000 on the non-federal cost share partner side of the budget. I am not saying there is anything wrong with the lawyers at Reclamation, but I would just rather have our lawyers on this.

**Agreement:** The group agreed by consensus to recommend $25,000 in budget for Reclamation and $2,000 in budget for the non-federal cost share partner for Task 4.1.f.

**Task 4.1.g: Evaluate upland management as water supply opportunities (e.g., juniper thinning).**

**Why important?**
- Junipers encroachment uses a large amount of water and it is widespread across this basin. There is substantial potential to produce a lot of water through cutting.
  - Timber cutting will require riparian studies and their impacts; maybe we need to keep track of those studies.
  - There exists research on the water yield from juniper cutting in small subbasin watersheds. However, we do not have land coverage data, specifically how many juniper trees exist and what would be the cost and benefit of such a project (how many acres,
how much water reproduced, at what cost). The data is all there and we are going to have to pay someone to put it all together.

Why NOT important?

- It might be outside of the scope of the study.
- We could get this information without spending money on it.
- The Forest Service could do some work on this effort.

Level of investment?

- I think we should change the task from evaluate to document.
- We have some existing information, but we do not know what the potential is for this line item.
- Are there were upland management options other than juniper thinning?
  - Kate said that Amy had said that invasives were equally important to consider.
- Is there opportunity for gains from juniper thinning below the reservoirs?
  - Kate replied that there were not.
  - A member suggested that the task was therefore outside the Basin Study scope.
- These activities mostly exist above the reservoirs. Irrigators above the reservoir will take out any gains.

Agreement: The group agreed that Task 4.1.g is outside the scope of the study and it will be removed.

Tasks 4.1.h: Evaluate structural modifications to better manage reservoir releases and
4.1.i: Evaluate structural modifications to improve forecasting (SNOTEL sites, gages).
Agreement: Given time constraints, the group agreed the funding level for the two tasks ($500 each) did not warrant discussion at the meeting.

Task 4.1.j: Evaluate opportunities to increase on-farm efficiencies (district and non-district).

Why important?

- If you are able to save water, it can be used elsewhere.
- I like that “non-district” is included here because non-district on-farm efficiencies have never been the focus when evaluating how water is used on farms.
- Mary reported that the US Fish and Wildlife folks said this was an important task.

Why NOT important?

- Users are already efficient.
- We are not going to collect new data. The farmers already know how to do this.

Level of investment?

- This seems similar to Task 4.1.a. It will be done anyway outside of the study.
  - Kate replied that the Deschutes Subgroup views this task as an opportunity to meet needs. She said she was not sure this would be valid on the Crooked. Generally, on-farm efficiency is a good thing, but she was not sure if it merited a lot of resources.
- North Unit farmers have done substantial work with on-farm efficiencies. Perhaps education about these efforts would be important.
Non-district on-farm efficiencies above the project could impact the flows going into the project. I am confused about where the group landed because it seems it would be in the scope because if it affects the reservoir and downstream flow.

- Kate replied that if it affected flows in and below the reservoir the work was within the scope. She said what she understood about juniper cutting was that water savings would be unlikely to make it to the reservoir or downstream.

I have heard rumors that farmers in Paulina and above the reservoir use more water than they are allotted.

- Kyle replied that this could be determined and it just depended on the availability of people to work on the project.

I think we should stick with $5,000 for the budget and focus on non-district efficiencies below the reservoir.

I would expand that to non-district on-farm efficiencies above the reservoir.

If we are talking above the reservoir I think the budget should be between $7,500 and $10,000.

Kate asked Kyle if there was a lot of efficiency work done above the reservoir, which she said was much less regulated and less likely return water to the river. He replied that he was not sure. She also asked if stricter regulation above the reservoir would result in realized gains. Kyle responded that it was not clear.

Agreement: The group agreed by consensus to retain $5,000 for Task 4.1.j and focus on non-district on-farm efficiencies below the reservoir.

Task 4.1.k: Develop a plan for water measurement at all points of diversion.
Initial discussion included the following points:

- I do not think you can do this for $5,000 ($1,000 for Reclamation and $4,000 for the non-federal cost share partner.) People want to know how to improve infills into Prineville Reservoir.
- We are not proposing that implementation is paid for by this study. This would create a planning mechanism.
- Doug asked if the group was proposing that Reclamation physically go to the upper parts of the basin to conduct this work.
  - Kate replied that what the group meant was water measurement. The work would be below the reservoir and would include inventorying the current gaging, prioritizing high impact sites, and creating a long term development plan.
  - Doug replied that he did not think it was within Reclamation’s authority to address this for non-Reclamation project irrigators.
  - A member asked Kyle if OWRD had maps of all of the diversions and he indicated they did.

- We were looking at water measurement at all points of diversion on the Crooked. The group kind of balked at it and said why not consider the whole watershed. I am not advocating for or against this. My initial proposal was not landowner communication, but what would be the possibilities to put water measurements in. I wanted to know how much of each of these would cost and if we would have the funds to accomplish this. We can change this task.
- If it were a choice between measurements or on-farm efficiency above the reservoir, I would prioritize measurement.

Why important?
• In various streams around the state where water measurement has been studied or a strategy has been put in place, an increase in water supply has occurred. This happens because it ensures people operate within their water rights.

• Maybe the task should be to investigate opportunities of increasing flows into Prineville Reservoir by, for example, retiring poor water rights lands, buying a reservoir, or on-farm efficiencies.

Why NOT important?

• It will not yield supply.

Agreement: The group agreed that Task 4.1.k was important, but that more discussion was needed with Reclamation and OWRD to develop the correct plan and budget.

Section 5 Tasks: Conduct Evaluation & Trade-Off Analysis of Options Identified

Kate said the trade-off analysis of Section 5 included identifying benefits and costs of various scenarios to see which best meet the goals of the three sectors: agricultural, instream flow, and municipalities. She noted that the Crooked basin had not yet identified and agreed to instream flow goals. Implementation of the Crooked River legislation would consider how to meet the needs of the three sectors. She said that she believed that this trade-off analysis would not be the primary tool for the CRS, and that CRS Section 5 tasks could be accomplished for $20,000 or less. This would pay a contractor to do an analysis on options, development, and refining the demand.

A member commented that what was needed was to understand what the instream demands were because no one knew what the flows were going to be as a result of the legislation. Targets for the scenarios did not exist.

Agreement: The group agreed by consensus to recommend $20,000 for the non-federal cost share budget for the group of tasks in Task 5.

It appeared that the group had cut $24,000 from its budget, representing a 22% cut from the Task Table budget. Many members of the group said that, because they had already cut their budget considerably, they should not recommend a $24,000 cut to the BSC.

MEETING EVALUATION

Members were provided forms on which to write one piece of feedback about what they liked about the meeting, indicated below with a plus symbol (+), and one piece of feedback about what they would like to change for the next meeting, indicated with a delta symbol (Δ). Each check mark (✓) indicates that someone endorsed a previously mentioned item. The following were received.
| + | Good discussion – all viewpoints represented. |
| + | Robust discussion. |
| + | Liked that we are getting more serious about study details; less emotion and politics as we have gone on through time. |
| + | Lots of hard work. |
| + | Mostly finished the agenda. |
| + | Well run meeting. |
| + | Good organization – nametags are helpful. |
| + | Name cards. |
| + | Good snacks and coffee! |
| + | (Nothing noted.) |
| Δ | Need to be more clear on whether agreements are made. |
| Δ | More time for discussion. |
| Δ | More time to vet discussion. |
| Δ | Better call-in option. |
| Δ | Need the whole group here. |
| Δ | Too much deference for attendees on the phone. We need to “protect” the limited time we have been allocated. Disjointed call-in attendees due to technical difficulties takes too much time. |
| Δ | (Nothing noted.) |

The meeting adjourned.
## Attachment 1: Crooked Sub-Group Task Table Reviewed February 18, 2015

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
<th>Budget Estimate - Reclamation and IDIQ Contractor</th>
<th>Budget Estimate - Non-Federal Cost Share Partner</th>
<th>Non-Federal Estimate Reduced by 28%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Summarize existing information on current water supply</td>
<td>1.1 $1,000</td>
<td>1.1 $7,500</td>
<td>1.1 $5,400</td>
</tr>
<tr>
<td>1.2</td>
<td>Evaluate, and update as necessary, water supply modeling to be consistent with input from the sub-basin stakeholders.</td>
<td>1.2 $10,000</td>
<td>1.2 $2,000</td>
<td>1.2 $1,440</td>
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<tr>
<td>1.3</td>
<td>Develop climate change analysis projections.</td>
<td>1.3 $60,000</td>
<td>1.3 $1,800</td>
<td>1.3 $1,296</td>
</tr>
<tr>
<td>1.4</td>
<td>Apply climate change analysis to current supplies.</td>
<td>1.4 $65,000</td>
<td>1.4 $1,800</td>
<td>1.4 $1,296</td>
</tr>
<tr>
<td>1.5</td>
<td>Write Summary Report #1</td>
<td>1.5 $3,000</td>
<td>1.5 $5,500</td>
<td>1.5 $3,960</td>
</tr>
<tr>
<td>2.1</td>
<td>Summarize existing information on current and future water demand (instream and out of stream).</td>
<td>2.1 $1,000</td>
<td>2.1 $7,500</td>
<td>2.1 $5,400</td>
</tr>
<tr>
<td>2.2</td>
<td>To help refine instream demand, identify and apply an approach to evaluate year-round flow-temperature relationships in the Crooked River from Bowman Dam (river mile 72.8) to Osborne Canyon (14.1) and in Ochoco Creek from Ochoco Reservoir (10.4) to the mouth (0.0).</td>
<td>2.2 $2,000</td>
<td>2.2 $40,000</td>
<td>2.2 $28,800</td>
</tr>
<tr>
<td>2.3</td>
<td>Evaluate current and future groundwater/mitigation demand.</td>
<td>2.3 $2,000</td>
<td>2.3 $5,000</td>
<td>2.3 $3,600</td>
</tr>
<tr>
<td>2.4</td>
<td>Apply climate change analysis to projected future demands.</td>
<td>2.4 $60,000</td>
<td>2.4 $1,800</td>
<td>2.4 $1,296</td>
</tr>
<tr>
<td>2.5</td>
<td>Write Summary Report #2</td>
<td>2.5 $3,000</td>
<td>2.5 $5,500</td>
<td>2.5 $3,960</td>
</tr>
<tr>
<td>3.1</td>
<td>Identify and evaluate current water and power infrastructure in the basin, and develop metrics of measuring baseline system reliability.</td>
<td>3.1 $5,000</td>
<td>3.1 $20,000</td>
<td>3.1 $14,400</td>
</tr>
<tr>
<td>Task</td>
<td>Description</td>
<td>Budget Estimate - Reclamation and IDIQ Contractor</td>
<td>Budget Estimate - Non-Federal Cost Share Partner</td>
<td>Non-Federal Estimate Reduced by 28%</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>--------------------------------------------------</td>
<td>--------------------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Infrastructure will Perform in the Face of Changing Water Realities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.2</td>
<td>Characterize projected water and power infrastructure performance based on climate change projections</td>
<td>$25,000</td>
<td>$25,000</td>
<td>$18,000</td>
</tr>
<tr>
<td>3.3</td>
<td>Write Summary Report #3</td>
<td>$3,000</td>
<td>$5,500</td>
<td>$3,960</td>
</tr>
<tr>
<td>Develop Options to Meet Future Water Supply Needs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>Identify viable options for meeting the water supply needs for irrigation, instream, and municipal/water suppliers. Identify legal and administrative requirements for option implementation. <em>(Budget at right is sum of all 4.1 items.)</em></td>
<td>$29,500</td>
<td>$39,000</td>
<td>$28,080</td>
</tr>
<tr>
<td>4.1a</td>
<td>Evaluate the feasibility and cost/benefit of phased piping in OID.</td>
<td>$1,000</td>
<td>$7,000</td>
<td>$5,040</td>
</tr>
<tr>
<td>4.1b</td>
<td>Document the existing instream leasing program and potential improvements as a supply option in the Basin Study.</td>
<td>$500</td>
<td>$2,000</td>
<td>$1,440</td>
</tr>
<tr>
<td>4.1c</td>
<td>Document cost-benefit of the following projects: McKay Creek Switch, OID diversion switch, and North Unit Water Supply Program.</td>
<td>$1,500</td>
<td>$3,000</td>
<td>$2,160</td>
</tr>
<tr>
<td>4.1d</td>
<td>Document City of Prineville wetlands project and associated water quality/quantity benefits.</td>
<td>$500</td>
<td>$1,000</td>
<td>$720</td>
</tr>
<tr>
<td>4.1e</td>
<td>Evaluate non-structural storage opportunities.</td>
<td>$10,000</td>
<td>$10,000</td>
<td>$7,200</td>
</tr>
<tr>
<td>4.1f</td>
<td>Evaluate off-channel storage opportunities (identify legal constraints first to guide analysis).</td>
<td>$1,000</td>
<td>$6,000</td>
<td>$4,320</td>
</tr>
<tr>
<td>4.1g</td>
<td>Evaluate upland management as water supply opportunities (e.g., juniper thinning).</td>
<td>$500</td>
<td>$2,500</td>
<td>$1,800</td>
</tr>
<tr>
<td>4.1h</td>
<td>Evaluate structural modifications to better manage reservoir releases.</td>
<td>$2,000</td>
<td>$500</td>
<td>$360</td>
</tr>
<tr>
<td>4.1i</td>
<td>Evaluate structural modifications to improve forecasting (SNOTEL sites, gages).</td>
<td>$2,000</td>
<td>$500</td>
<td>$360</td>
</tr>
<tr>
<td>Task</td>
<td>Description</td>
<td>Budget Estimate - Reclamation and IDIQ Contractor</td>
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<td>--------------------------------------------------</td>
<td>-------------------------------------</td>
</tr>
<tr>
<td>4.1j</td>
<td>Evaluate opportunities to increase on-farm efficiencies (district and non-district).</td>
<td>$500</td>
<td>$5,000</td>
<td>$3,600</td>
</tr>
<tr>
<td>4.1k</td>
<td>Develop a plan for water measurement at all points of diversion.</td>
<td>$4,000</td>
<td>$1,000</td>
<td>$720</td>
</tr>
<tr>
<td>4.1l</td>
<td>Evaluate addition legal constraints not addressed under other options (e.g., modifying rule curves).</td>
<td>$6,000</td>
<td>$500</td>
<td>$360</td>
</tr>
<tr>
<td>4.2</td>
<td>Write Summary Report #4</td>
<td>$3,000</td>
<td>$5,500</td>
<td>$3,960</td>
</tr>
<tr>
<td>5.1</td>
<td>Develop scenarios to meet water supply and demand imbalances based on future near-term and long-term projections, district conservation and management plans, and opportunities identified in prior tasks (Two sets of scenarios - one with &quot;new&quot; storage, the other without).</td>
<td>$15,000</td>
<td>$30,000</td>
<td>$21,600</td>
</tr>
<tr>
<td>5.2</td>
<td>Identify cost and funding options, for both near-term (lower cost) and long-term (higher cost) projects, associated with each scenario.</td>
<td>$5,2</td>
<td>$25,000</td>
<td>$0</td>
</tr>
<tr>
<td>5.3</td>
<td>Model outcomes of identified scenarios.</td>
<td>$5,3</td>
<td>$20,000</td>
<td>$0</td>
</tr>
<tr>
<td>5.4</td>
<td>Evaluate changes in supply and demand imbalance with each near-term and long-term scenario.</td>
<td>$5,4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.5</td>
<td>Conduct trade-off analysis of options accounting for costs, environmental impact, risk, stakeholder response, and other potential attributes.</td>
<td>$5,5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.6</td>
<td>Write Summary Report #5</td>
<td>$5,6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.1</td>
<td>Incorporate Summary Reports, technical memoranda, and comments into a consolidated Draft Basin Study Report: upon review of the draft, Prepare and Publish Final Basin Study.</td>
<td>$30,000</td>
<td>$40,000</td>
<td>$28,800</td>
</tr>
<tr>
<td>6.2</td>
<td>Technical Sufficiency Review</td>
<td>$25,000</td>
<td>$0</td>
<td>$0</td>
</tr>
<tr>
<td>Task</td>
<td>Description</td>
<td>Budget Estimate - Reclamation and IDIQ Contractor</td>
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<td>--------------------------------------------------</td>
<td>-------------------------------------------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>TOTALS</td>
<td></td>
<td>$56,500</td>
<td>$111,000</td>
<td>$79,920</td>
</tr>
</tbody>
</table>

Notes:

*Sub-basin sub-totals account only for task budget that is specific to the sub-basin. Overarching task budgets (in bold) are not included.*

*Tasks and budget numbers in bold represent items tasks that run across all sub-basins.*

¹ This will be re-evaluated if Reclamation is completing this task elsewhere.