HOOD RIVER BASIN STUDY STATUS UPDATE

September 9, 2013

CONTENTS

1 INTRODUCTION 2

2 SCHEDULE 3

3 OVERALL CONSIDERATIONS 4

4 GROUNDWATER MODELING 4

5 DHSVM AND CLIMATE CHANGE ANALYSIS 5

6 WATER STORAGE ASSESSMENT 6

7 WATER RESOURCE MODELING 6

8 REPORT WRITING 7

9 WATER NEEDS ASSESSMENT 7

10 INTERACTIVE MAP OF HOOD RIVER BASIN 7

11 WATER CONSERVATION ASSESSMENT 8

12 IN-STREAM FLOW ASSESSMENT 8

13 GROUNDWATER MONITORING PROGRAM 8

1 INTRODUCTION

This document provides an update for the month of August of the Hood River Water Planning Group's (HRWPG) efforts associated with the Bureau of Reclamation's (Reclamation) Hood River Basin Study and the Oregon Department of Water Resources (OWRD) Hood River Basin Surface Water Storage Feasibility Study. The objectives outlined for this effort are:

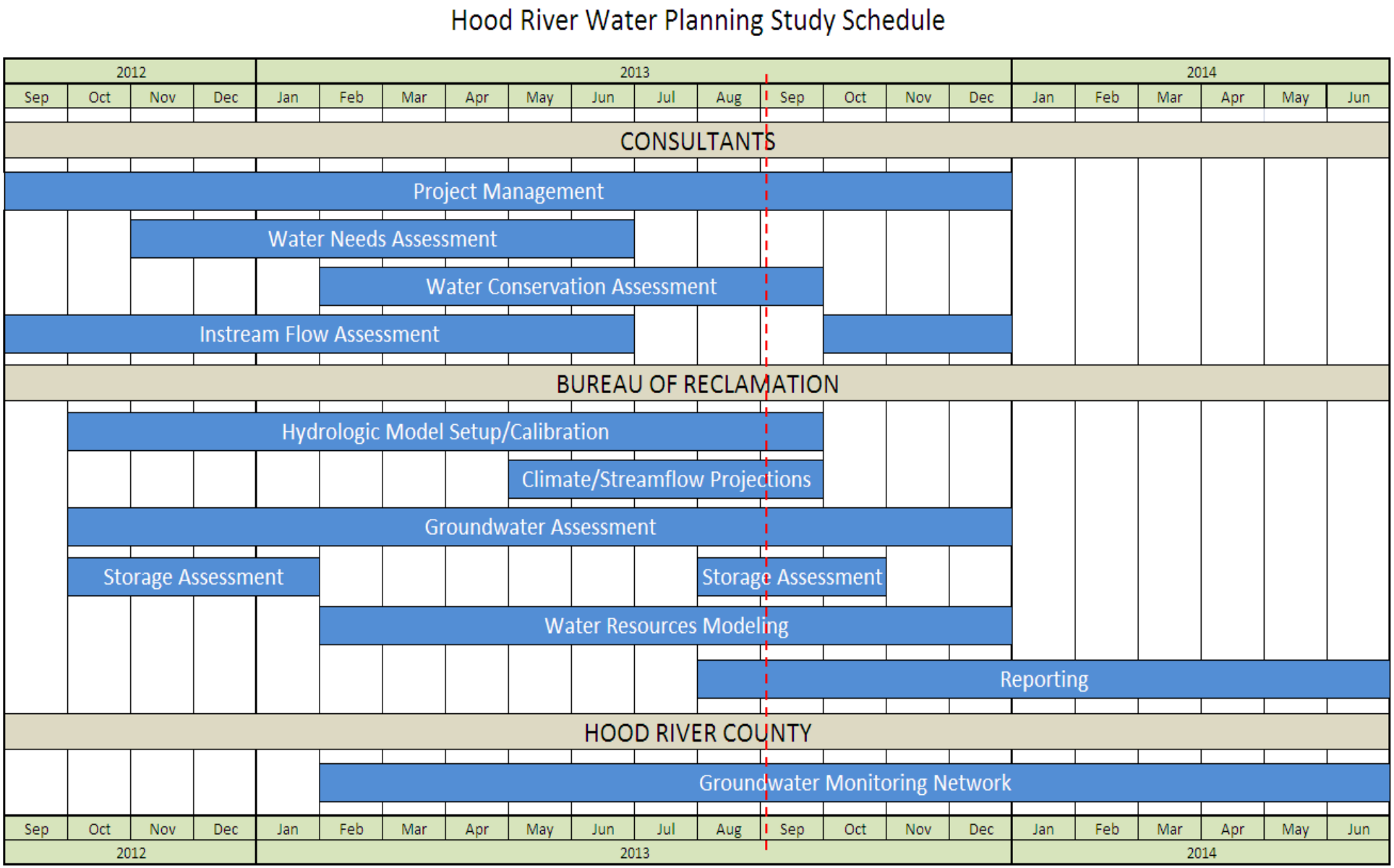
1. Define current and future water supply and demands;
2. Evaluate potential potable and irrigation water conservation opportunities;
3. Determine the potential impacts of climate change on the performance of current water delivery systems;
4. Develop options to maintain viable water delivery systems for adequate water supplies in the future;
5. Evaluate minimum instream flow needs and the impact of climate change and water management alternatives on them; and
6. Conduct an analysis of the options developed, summarize findings and make recommendations on preferred options.

The Hood River Basin Study is conducted with Reclamation and Hood River County (HRC) through in-kind services and the OWRD study was contracted to Watershed Professionals Network (WPN) and Normandeau with coordination of the two studies by HRC and WPN. The studies have similar objectives and the key tasks from these studies overlap so Table 1 clarifies each task and the parties involved with completing each task. In the following sections, each task is briefly defined and the to-date progress associated with each task is described.

Table 1. Key tasks associated with the Reclamation and OWRD studies and the responsible parties associated with each.

Key Task	Responsible Party
Groundwater Modeling	Reclamation with assistance by HRC
Climate Change Analysis	Reclamation and WPN
Water Storage Assessment	Reclamation, WPN with assistance by HRC
Instream Flow Assessment	Normandeau
Water Needs Assessment	WPN
Water Conservation Assessment	WPN
Water Resources Modeling	Reclamation

2 SCHEDULE


Hood River Water Planning Study Schedule
2012
2013
2014
Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun
CONSULTANTS
Project Management
Water Needs Assessment
Water Conservation Assessment
Instream Flow Assessment
BUREAU OF RECLAMATION
Hydrologic Model Setup/Calibration
Climate/Streamflow Projections
Groundwater Assessment
Storage Assessment
Storage Assessment
Water Resources Modeling
Reporting
HOOD RIVER COUNTY
Groundwater Monitoring Network

3 OVERALL CONSIDERATIONS

1. Reclamation and WPN staff developed a draft of potential alternatives to consider for analysis in the water resources model. These alternatives include water conservation, water supply changes, and storage. Reclamation will present these scenarios at the September 12th meeting for the WPG to review and recommend what alternatives they would prefer for modeling. Modeling of approved alternatives will commence in September through October.
2. Reclamation developed an outline of the climate change decision process they will use. A summary of this was provided to the WPG with the August Status Update. Key points from this will be reviewed at the September WPG meeting. This includes decisions related to uncertainty in climate modeling and the selection of climate change scenarios.
3. There are issues with the glacier model in DHSVM working correctly. Reclamation is working with UW to see if this can be fixed and will update the group at the September WPG meeting.
4. The deadline for the project is being moved from April 2013 to June 2013. Toni Turner (Reclamation) confirmed this change with Mattie and a draft memorandum will be provided to HRC in early September for review and approval.

4 GROUNDWATER MODELING

(Jennifer Johnson and Jon Rocha, Reclamation)

Jennifer and Jon have completed the majority of the Groundwater Assessment and have completed developing scenarios to model in MODFLOW.

COMPLETED

1. Jennifer is working through the Steady State and Transient models as well as incorporating precipitation changes from climate change projections that Reclamation/WPG are selecting.
2. Jennifer and Jon met with USGS on August 27th to go over the calibrations for the Steady State and Transient model as well as the implementation of climate data into the MODFLOW model.
3. Jennifer and Jon are currently working on a document describing the limitations related to the scenario output.

NEXT STEPS

1. Jennifer and Jon will continue calibration of the precipitation data into the MODFLOW model and documenting their process.

5 DHSVM AND CLIMATE CHANGE ANALYSIS

(Bob Lounsbury, Jon Rocha, Toni Turner, Taylor Dixon, Reclamation)

Taylor and Bob are currently updating DSVHM streamflow locations to mesh with MODSIM and working on calibration issues with the dynamic glacier extension component of the model.

COMPLETED

1. Refined output streamflow locations to: 1) capture all flows needed in regulated MODSIM model, 2) capture flows in watersheds with similar physical characteristics to gaged watersheds (i.e. for potential bias correction purposes), and 3) capture flows in locations that, cumulatively, encompass the spatial variability of the Hood River basin (i.e. for potential bias correction purposes based on USGS flow statistics for ungaged watersheds). Reclamation has sub-daily and daily time series of flows at new locations.
2. The dynamic glacier extension in DHSVM is not performing correctly. Model output shows the watershed glacial-covered area is not changing through course of ~100 year model run (i.e. 1915 - 2012). Might indicate that glacial melt is not contributing to stream flows in current model configuration. Ted Bohn indicated that he did not look at the glacier component of the model when calibrations were performed. We will be discussing this issue with UW to determine if this can be corrected
3. Generated climate change projections (projection selection, uncertainty, climate characterization) for use in DHSVM to generate future flow data for the climate change projections.

NEXT STEPS

1. Bob and Taylor will continue to process climate change data.
2. Bob and Taylor will bias correct simulated historical natural flows, using the future flow generated in DHSVM as input to the MODSIM model to analyze change scenarios to be finalized in September/October.
3. Bob and Taylor will provide a presentation of this climate change selection process at the September 12th WPG meeting and continue working on documentation.

6 WATER STORAGE ASSESSMENT

(Doug Bennett and Roger Wright, Reclamation)

Reclamation submitted their Water Storage Assessment to HRC in December 2012. Once preliminary water resource modeling results are evaluated, this assessment will be used to inform potential storage sites to evaluate in MODSIM.

7 WATER RESOURCE MODELING

(Taylor Dixon, Toni Turner, Reclamation)

The majority of the model framework for MODSIM has been completed and Reclamation is in the beginning stages of developing water resource alternatives.

COMPLETED

1. Due to a limited number of gages with long period of records, Reclamation is investigating developing flows using gages with good records from similar basins and applying to other locations within the Hood River Basin.
2. Reclamation and Niklas reviewed the baseline MODSIM model in August. Adjustments to the model were completed and adjustments to the baseline scenario will be on-going.
3. Reclamation redesigned the unregulated MODSIM model to reflect the updated DHSVM streamflow locations. Reclamation performed trial daily runs with new DHSVM streamflow data to ensure correct structure and data output.

NEXT STEPS

1. Reclamation will generate updated gains/losses based on bias-corrected DHSVM flows. Bias corrections will be applied if deemed necessary.
2. Reclamation will run baseline model and compare to existing conditions as well as address and note any differences.
3. Reclamation will revise the model to incorporate water management alternatives agreed to by the team.
4. Reclamation will continue working on documentation.

8 REPORT WRITING

(Reclamation)

As Reclamation has completed analyses on different portions of the Basin Study, they have also documented their work in preparation for their Basin Study Final Report.

COMPLETED

1. Reclamation is developing a detailed schedule for completion of draft, final draft, and final reports of the main report document and all of the technical memos.

NEXT STEPS

1. Reclamation will present their schedule for when they expect to complete their documents and present this schedule to HRC in September.
2. Reclamation will continue working on documentation.

9 WATER USE ASSESSMENT

(Niklas Christensen, WPN)

Final review of the document is being performed by Les Perkins. He has completed an initial review and will finalize his review soon. It is not believed that any of the data in the report will change so Reclamation is using data in the report as is for the MODSIM model. A draft of the report is available at: http://watershednet.com/projects/hood_river_basin_study/reports/.

10 INTERACTIVE MAP OF HOOD RIVER BASIN

(Niklas Christensen, WPN and Mike Shrankel, HRC)

HRC did not receive their new server until the last week of August and therefore were delayed in posting the water map to the web. It should take a few weeks to configure the server and then the map should be live. I'll send an email to the WPG when this happens.

11 WATER CONSERVATION ASSESSMENT

(Niklas Christensen, WPN)

A draft of the Water Conservation Assessment was sent to HRC, CTWS, Bob Wood and all potable and irrigation districts for review. Comments came back the week of September 3rd and are in the process of being incorporated. Once all comments are incorporated it will be sent to Les Perkins for final review.

We will be going over results from the report at the September 12th meeting, however the current working version of the report can be found at: http://watershednet.com/projects/hood_river_basin_study/reports/. Note that this version will change. Comments from DID, FID, and MFID have been incorporated but comments from Bob Wood, CTWS, and HRC have not yet been addressed.

12 IN-STREAM FLOW ASSESSMENT

(Thomas Gast, Normandeau)

At the June 17th Instream Committee meeting the committee rejected the Area Weighted Suitability (AWS) curves for the East Fork Hood River. As such, Tom reevaluated these curves and sent updated curves to the Instream Committee. Tim Hardin, Chris Brun, and Rod French are in the process of discussing the updated curves. Once the curves are accepted and Reclamation has completed the water resource modeling streamflows will be sent to Normandeau to complete the Instream Flow Assessment.

13 GROUNDWATER MONITORING PROGRAM

(Mattie Bossler, HRC)

The two main priorities for the monitoring program are recruiting more wells to increase the monitoring network to 60 wells and completing a report documenting the expansion of the monitoring program.

COMPLETED

Mattie has focused the majority of her time with tasks associated with EFID in August and has no new updates on work she has completed for the Groundwater Monitoring Program.

NEXT STEPS

Mattie will continue working on completing a report that will explore different alternatives to continue the monitoring network and document work Mattie has done so far in establishing the monitoring network. Mattie had originally anticipated completing the report by the end of July, but is mainly working for East Fork Irrigation District from the beginning of July to the end of September. With this shift in work, Mattie will expect to complete the report in late fall when more time can be dedicated to preparing a more detailed report.