



TRI SAGE CONSULTING
Monthly Report
Carson Truckee Water Conservancy District

January 5, 2014

MONTHLY ACTIVITIES- December 2014

- 1) Submit reports for 4th Quarter NDEP General Working in Waterways Permit including the 2014 Debris Removal Project report and the Box Culvert Removal report.
- 2) Inspect removal work completed by Waste Management at the Recycle America facility on Commercial Row.
- 3) Enlist Reno Tahoe Construction to remove trees at Sutro Bridge downed in the wind storm and monitor the tree removal work; pursue City of Reno Entry Authorization for the removal work.
- 4) Discuss CTWCD/USACE Encroachment Permit next steps for Virginia Street Bridge with City of Reno Staff.
- 5) Continued development of updated model sections along Riverside Drive near Keystone Bridge to evaluate model outcomes and water elevations.

UPCOMING ACTIVITIES

- 1) Survey Booth Street Bridge and run model and review outcomes for areas downstream of Keystone Avenue bridge problem area where water leaves the channel at 14,000cfs; evaluate options for containment.
- 2) Evaluate additional needs for model updates upstream of Keystone Avenue to State Line and downstream of Lake Street to Glendale Bridge.
- 3) Run 14,000cfs steady state HEC-RAS flow model to establish water surface elevations along key river locations to evaluate issues; complete sections upstream and downstream of downtown.
- 4) Schedule a meeting and with USACE regarding inspection issues, West Street Plaza, 14,000cfs model outcomes and evaluation of channel walls in downtown Reno and appropriate application/confirmation of SWIF process eligibility.
- 5) Continued coordination with City of Reno for 1) Flood Response evaluation and incorporation of Interim Risk Reduction Measures into their plan, 2) Flap-gate Installation needs and project and 3) Vegetation Variance for trees along channel- not expected to be necessary due to interim order.
- 6) Finalize Virginia Street Bridge Replacement Project encroachment permit once other regulatory permits are issued.
- 7) Draft Vegetation Variance Application for Trees in Vegetation Free Zone if applicable under SWIF; confirm eligibility with USACE.
- 8) Finalize the Equipment Access/Entry Point Documentation and Mapping for the District Jurisdiction;

SUMMARY REPORT

December was a fairly quiet month once the Semi-Annual Inspection Report was issued to USACE and the NDEP permit reporting was submitted. Both submittals included the reports that were included in the Board packets for the December meeting.

River flows have come up and have prevented the collection of survey data for the Booth Street Bridge which is a key piece of data needed to finalize the modeling along Riverside Drive downstream of the Keystone Avenue Bridge. River flows will be monitored as they may recede again between storms and if the bridge does not lend to physical survey, we will use other methods to approximate the bridge dimensions.

After the last meeting of the Board where we discussed approaching Waste Management to remove the trees in the flow channel at the Recycle America location, an email was received to let the Board know that the trees had been removed. The removal was verified and all trees/debris had indeed been removed.

While verifying the Waste Management debris removal, two substantial trees were found which had been blown down during a recent wind-storm event and were lying from the bank partially into the river flow at the southwest edge of the Sutro Street Bridge. Ron Penrose and Todd Westergard were notified that Tri Sage planned to get Reno Tahoe Construction (RTC) who performed the 2014 Debris Removal Project to remove these trees if possible prior to river flows increasing and trees being carried into the channel. RTC was able to schedule this removal in just a few days and Tri Sage pursued an Entry Authorization with the City of Reno which was executed by Ron Penrose so that RTC could utilize the City's walking paths for access to the downed trees. RTC removed the trees on December 19th, 2014 and Tri Sage monitored the removal work.

Currently the schedule for Virginia Street Bridge construction will be for a start of work in 2015 as soon all permits are received by the City of Reno. The City of Reno is continuing to working on issues related to the issuance of the USACE 404 Permit for this project. The City will need a letter from the CTWCD authorizing work prior to June if work in the channel is possible due to flow conditions. At a prior meeting the Board delayed acting on this matter until closer to the project start time.

Notably, the USACE has yet to issue their inspection report from April 2013. As a reminder, the USACE criteria for rehabilitation funding and notifications changed late in 2013 such that the CTWCD inspection issues are not subject to loss of the rehabilitation funding nor notification. Since the May 2014 monthly report, no further discussion has been had with the USACE regarding the determination of "Floodwalls" versus "Channel walls" through the downtown Reno river corridor; however this is an issue that will be pursued for some resolution as it impacts other inspection issues as noted below.

The Status of USACE inspection issues are noted below and the status remains unchanged since July's Monthly report except for the removal of the Box Culvert at Idlewild Drive and other italicized sections.

- 1) Shoaling- the shoaling deposits identified by USACE have been included in the recent modeling and at the current stage are NOT impacting the 14,000cfs flow. The USACE requested sensitivity analyses have been performed and indicate that doubling the size of the shoaling deposits does

NOT push the waters out of the banks in any of the four areas identified during the inspection. The Keystone Avenue Bridge area has been eliminated as a shoaling deposit.

- 2) Flap-gates- Now that we have model water surface elevations in the downtown areas, the City of Reno will evaluate each penetration relative to the water surface elevation at 14,000cfs. (This work has been delayed due to personnel changes at the City). Once we have the model updated and run at the reaches upstream and downstream of the downtown areas to produce water surface elevation data, the City of Reno will continue their evaluation on the storm-drain penetrations into the channel. Tri Sage was able to get GIS data for the storm drain locations to correlate to model flow elevations.
- 3) Vegetation- vegetation along the walls and growing from the walls was removed by the City of Reno as part of the 2013 Debris Removal Project; however during the inspection it was noted that vegetation is developing again. *This was too minor to address in 2014 and will be cut back as part of the 2015 project work.* Potential determination of the walls as channel walls, not floodwalls means that there is no “vegetation free zone” requirement and other than the short section that the USACE might determine to be floodwalls, vegetation may become a moot point once specific determination is confirmed.
- 4) *Idlewild Box Culvert/Bank Erosion- the box culvert encroachment was removed in October 2014 and once the flow has an opportunity to re-establish in the unobstructed channel the bank erosion on the Right Bank will be further evaluated if necessary.*
- 5) Flood Response- It appears from the current modeling that the 14,000cfs water surface elevation is below the horizontal surface in all areas downtown except for the West Street Plaza area. There was no approved encroachment by the USACE or the CTWCD for this project including the removal of the walls and railings along this section of river. The USACE has requested that the CTWCD work with the City of Reno to propose Interim Risk Reduction Measures that can be reviewed and approved by the USACE and incorporated into the City’s Flood Response Plan. It is not clear at this writing what the requirements will be relative to the placement of plywood along the railings and walls as called for in the Martis Creek Agreement now that it is apparent from the modeling that the 14,000cfs flow is below the top of wall and below the horizontal surface in all sections except the West Street Plaza.

Next steps include the evaluation and running of the model in reaches above and below the Keystone to Lake Street areas for the determination of water surface elevations. The model runs will be updated for the sections around the Keystone Avenue Bridge where the water leaves the channel at 14,000cfs and re-run to see if the model updates solve this issue or if other measures will be required. The City of Reno will work to address the flap-gate needs as well as the Interim Risk Reduction Measures for the West Street Plaza. Director Penrose and Tri Sage will plan a meeting with the USACE to discuss the inspection report and associated issues.

RECOMMENDATION

It is recommended that the Board of Directors continue to pursue the inspection/evaluation items as outlined in this report.