TRI SAGE CONSULTING
Monthly Report
Carson Truckee Water Conservancy District

February 2, 2014

MONTHLY ACTIVITIES- December 2014

1) Inspected possible deck encroachment at 3305 Idlewild Drive after notification by the City of Reno.
2) Reviewed HEC RAS model for water surface elevations near 3305 Idlewild Drive to evaluate possible encroachment.
3) Surveyed Booth Street Bridge and updated flow model sections with surveyed Booth Street Bridge geometry; completed model runs to evaluate area along Riverside Drive near Keystone Bridge and 14,000cfs water surface elevations.
4) Reviewing historical agreements, records, models and photos for information to evaluate possible river bed configuration changes along riverside drive.

UPCOMING ACTIVITIES

1) Respond to deck encroachment issues along Idlewild Drive.
2) Finalize evaluation of the updated flow model results along Riverside Drive and findings related to historical river bed configurations; collaborate with TRFMA regarding the model updates in this area.
3) Evaluate options for containment of flow along Riverside Drive, if any are necessary, in conjunction with TRFMA and City of Reno.
4) Evaluate additional needs for model updates upstream of Keystone Avenue to State Line and downstream of Lake Street to Glendale Bridge.
5) 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.
6) 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.
7) 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.
8) Finalize Virginia Street Bridge Replacement Project encroachment permit once other regulatory permits are issued.

9) Draft Vegetation Variance Application for Trees in Vegetation Free Zone if applicable under SWIF; confirm eligibility with USACE.
10) Finalize the Equipment Access/Entry Point Documentation and Mapping for the District Jurisdiction;

SUMMARY REPORT

On January 21, 2015, the City of Reno Code Enforcement contacted Tri Sage regarding a possible encroachment at 3305 Idlewild Drive into the Truckee River flood channel which they believed may fall under the jurisdiction of the District. The City was referred to the District by the USACE Regulatory branch as they do not have jurisdiction in this case. Tri Sage inspected the possible encroachment, a deck that has been constructed from the bank out towards the river without a City building permit, from a willing neighbor's yard and photographed the deck in question. While at the Idlewild location, Tri Sage identified a similar possible encroachment upstream of the case in point. Tri Sage also photographed the upstream deck (not exactly sure of the address of the upstream deck) and notified the City of this possible encroachment. Tri Sage has been in correspondence with the City of Reno and State Lands regarding this issue and has requested additional information from the City regarding the upstream deck to establish whether the City has issued a building permit for the upstream structure. If the owners want to retain the deck structures, the District should require them to provide the professional engineering analysis and stamped drawings for the structures including modeling or equivalent to prove that the structures do not increase the water surface elevation at 14,000cfs more than 0.1ft as allowed by the USACE for encroachments and they should also should also provide design drawings to substantiate that the structures can withstand the river flow velocities should they encroach into the flow.

Tri Sage was able to collect field survey data for the Booth Street Bridge geometry during December and that information was incorporated in the HEC RAS flow model for that model section. The model has been run with the updated sections and this improved the predicted water surface elevations at the bridge and along Riverside Drive; however, the water still seems to over-top the berm along that section. The model update seems to correlate well with photo documentation from the 2005/2006 flow event of approximately 14,700cfs. In addition, Tri Sage is working to evaluate if and when and how the channel geometry in this section might have changed over time. Tri Sage is reviewing historical records, the Martis Creek Agreement elevations, historical photos and prior models to see if there is information that might reveal how the river bed geometry has or has not changed over the years. Tri Sage plans to finalize the analysis of this section and then collaborate with the modelers from TRFMA to jointly evaluate the conditions. Once the over-topping conditions are assessed, Tri Sage recommends working with TRFMA and the City of Reno to discuss remedies.

The City has received approvals to start the relocation of utilities from the Virginia Street Bridge corridor in preparation for construction of the new bridge. The City plans to present the project to the District at the next meeting in March (or possibly April if permitting is delayed). 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.

The following section is repeated from prior reports without update:
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.