



TRI SAGE CONSULTING
Monthly Report
Carson Truckee Water Conservancy District

October 2, 2015

MONTHLY ACTIVITIES- September 2015

- 1) Monitor Virginia Street Bridge work for Encroachment Permit.
- 2) Met with USACE Regulatory Branch to discuss river projects; email State Land regarding vegetation removal.
- 3) Evaluate Riverside Drive model for scenarios related to vegetation removal and Mannings coefficient to retain flows including review of general feasibility.
- 4) Review 6500 Stagg Lane encroachment removal notice & City Plaza letter.
- 5) Pursue Contractor and Right of Entry Permits with Private Property Owners for Debris Removal work.
- 6) Work with City of Reno on Entry Authorization License for channel maintenance access.
- 7) Contact TRFMA in pursuit of old version of the HEC-2 model which may have been the source of the Martis Agreement water elevations.
- 8) Re-inspect deck encroachment on Idlewild with deck relocation & draft confirmation letter.

UPCOMING ACTIVITIES

- 1) Evaluate temporary flood control measures including cost, storage, installation requirements and options for West Street Plaza and Riverside Drive.
- 2) Plan annual debris removal project and secure contractor, permits/authorizations for work.
- 3) Evaluate additional needs for model updates upstream of Keystone Avenue to State Line and downstream of Lake Street to Glendale Bridge; possibly needed for upcoming 408 Encroachment evaluations.
- 4) 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.
- 5) Schedule a meeting and with USACE Flood Control Branch (October 2015) 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.
- 6) Continued coordination with City of Reno for 1) Flood Response evaluation and incorporation of Interim Risk Reduction Measures into their Flood Response plan, 2) Flap-gate Installation needs assessment and project and 3) Vegetation Variance for trees along channel- not expected to be necessary due to interim order.
- 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

Tri Sage with Dyer Engineers has continued to evaluate the Riverside Drive section of the model to evaluate if it is feasible to contain the 14,000cfs flow through vegetation removal and approximately how much vegetation would need to be removed if this approach is feasible. Review vegetation locations and density in the field. TRFMA is working with the USACE to see if they can get a copy of the HEC-2 model believed to be the source of the Martis Agreement profiles.

Tri Sage worked with Superintendent Penrose to review draft letters to the owner at 6500 Stagg Lane who has yet to remove the river encroachment and also to the City Parks related to the West St Plaza encroachment. Tri Sage inspected the Idlewild deck encroachment now that the deck has been relocated.

Tri Sage is pursuing a contractor and access agreements for the 2015 debris removal project. In addition, Tri Sage continues to work with the City of Reno on an extended 2year Right of Entry Authorization License; this item has been moved to the October 28th, City Council Agenda. An updated Draft License Agreement will be discussed at the Board meeting.

The City of Reno is continuing with their review of the Flap-Gate requirements in order to address the USACE inspection issue; work is progressing well on this project.

The Virginia Street Bridge project is in full swing and the work is progressing well. Much of the new wall has been constructed to tie in to the existing wall on the north side. The falsework has been installed on the ten pads which were poured the river bed. The falsework has steel beams placed on it which will support the concrete bridge spans which have been constructed and poured on the south bank. The concrete arches will be moved on to the beams on the falsework in the near future. This encroachment and the periodic storm flows will be monitored closely in the coming months.

The following section is repeated from prior reports(updates in Italics):

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- *The City of Reno has engaged an engineer to evaluate each penetration relative to the water surface elevation at 14,000cfs through the downtown reach.* 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. *The City of Reno is working with the potential developer on this matter and will propose temporary measures at a minimum.* 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. Discussion with agencies regarding the sections along Riverside Drive Bridge where the water leaves the channel at 14,000cfs and evaluation of mitigation options. The City of Reno is working to address the flap-gate needs as well as the Interim Risk Reduction Measures (IRRM) for the West Street Plaza. Director Penrose and Tri Sage will plan a meeting with the USACE Flood Control Branch in September or October of 2015 to discuss the inspection report and associated issues; this will give time for several items to be addressed including the flap-gates and the IRRM.

RECOMMENDATION

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