



**TRI SAGE CONSULTING**  
**Monthly Report**  
**Carson Truckee Water Conservancy District**

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March 6, 2017

**MONTHLY ACTIVITIES- February**

- 1) Review encroachment permit requirements for two projects upstream of Mayberry Bridge.
- 2) Follow-up with TRFMA regarding model updates in upstream/downstream areas as well as LIDAR data for these areas; discuss model updates needs with engineer.
- 3) Prepare Agreement for RTC Debris Removal work from Post Flow locations.
- 4) Pursue entry agreements with property owner for debris removal access.
- 5) Notify property owners and monitor debris removal work.
- 6) Discuss sediment and debris removal work to be performed by the City of Reno at the Kayak Park and Cochran Ditch; investigate permitting requirements with USACE.
- 7) Update the RSIC Entry Permit for use in repair of the TMWA Eastman structure.
- 8) Pursue FEMA requirements for flood project reimbursement and attend applicant briefing at NV Division of Emergency Management.
- 9) Follow up with USACE on projects, information and 408 Applications including the City's Stoker Storm Drain Project and Chism Park project;
- 10) Met with Chism Park owner to discuss restoration of bank which requires no permit.
- 11) Discuss Riverside letter with City Staff.

**UPCOMING ACTIVITIES**

- 1) Prepare report for Post Flow Debris Removal Work.
- 2) Apply for FEMA reimbursement for Debris Removal Work.
- 3) Work with City of Reno to permit flood sediment and debris removal work.
- 4) Update the encroachment permit application to include all elements that will be required for the newly implemented process for USACE Flood Branch review of and authorization of the permits. Review fee structure and propose tiered structure to District Board for review.
- 5) Communicate changes to the 408 Permit process with likely applicants including the City, and utilities.

- 6) Work with project proponents for encroachment permit applications for City of Reno Stoker Storm Drain Addition, Chism Mobile Home Park and NDOT Verdi Bridge Scour Projects( this projects has now been delayed a year pending access).
- 7) Evaluate cost to update the flow model in the vicinity of Mayberry Park and upstream to the State line to determine the extents of the flow channel in that reach.
- 8) Discuss 2-D Model updates with TRFMA and opportunity for CTWCD to use this model update; Model nearly completed and will be made available to CTWCD by TRFMA.
- 9) Work with the City of Reno to pursue a permanent encroachment permit for the West Street Plaza and any associated projects.
- 10) Continue to evaluate and discuss temporary flood control measures including flow limitations, cost, storage, installation requirements and options for West Street Plaza and Booth-Riverside Drive areas.
- 11) Evaluate additional needs for model updates upstream of Idlewild Park to State Line and downstream of Lake Street to Glendale Bridge; possibly needed for upcoming 408 Encroachment evaluations.
- 12) 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.
- 13) Continued coordination with City of Reno for 1) Flood Response evaluation and incorporation of Interim Risk Reduction Measures into their Flood Response plan, and 2) Flap-gate Installation needs assessment and project.
- 14) Finalize the Equipment Access/Entry Point Documentation and Mapping for the District Jurisdiction;

## **SUMMARY REPORT**

Tri Sage pursued the Post Flow Debris Removal work by completing an agreement with RTC to perform the work and working with property owners for authorization to work in and through their properties. RTC worked three days to remove debris at three locations including Verdi River Oak at the river's bend, Dickerson/Second St, and Island Avenue shoal. The project focused on the removal of large trees upstream of the city bridges and on removal of the debris that was limiting the flood channel in Verdi. The work to remove debris is limited by the continued high flows which have kept several areas inundated with water and unable to be addressed. Tri Sage will prepare a report for this work for submittal to NDEP under the Working in Waters

Tri Sage has been working to coordinate with the City of Reno for the removal of the sediment deposits in and around the Kayak course at Wingfield Park as well as the removal of debris at the Cochran Ditch area. The sediment is severely restricting the channel capacity below the Districts 14,000cfs. The USACE Regulatory Branch recommends the City apply for a Nationwide 3 Permit as this permit will allow them to build a temporary ramp into the channel and also allow for temporary placement of a diversion to divert flow from the work area. The Flood Branch has indicated via email that this work can be completed without a 408 permit as it is Maintenance of the channel. Based on the current flow forecast that river flows could remain this high and higher until late summer or early fall, it is expected that this work will have to be delayed until that time.

Tri Sage reviewed two projects upstream of the Mayberry Bridge where the current flow model ends. The projects elevations were compared to extrapolated- expected water surface elevations and generally found to be outside of the 14,000cfs flow channel so these projects were confirmed not to require 408 Permits from the District. One of the projects had an optional bridge across the Lake Ditch and project applicants were informed that any such bridge would require a complete set of plans to determine if and likely would require a 408 Permit. These projects, coupled with the previously identified issue of where the flood channel extents lie for debris removal needs further demonstrates the need for the flow model to be completed upstream. The Verdi River Oak bend inundation is an example of the need to the flow model to be developed to the State line. The engineer has been provided with model updates from TRFMA and also the raw LIDAR data from the 2014 survey. These pieces are currently being reviewed to evaluate what information is currently available for upstream (and also downstream of Kietzke Bridge) sections and to estimate the cost of preparing the flow model for these un-modeled areas.

Tri Sage has updated the RSIC Right of Entry Agreement to include the parcel acquired by the Colony where the previous State Prison Facility had been; this parcel is adjacent to the river bank just upstream of the Glendale Bridge and was previously not accessible by the District due to the nature of the facility. The parcel will provide access to the river for future debris removal/maintenance work and the District access will also be utilized by TMWA to repair the flood channel damage at the Eastman Ditch structure from the recent storms.

Tri Sage met with the Chism Park owner to discuss what would be required to restore the property to the initial condition. The USACE has confirmed that no 408 Permit will be required to restore this property to the pre-project condition. The Martis Agreement also allows for maintenance of the banks to stabilize them using rocks and this is an area where the flow erodes the bank during an event so it would seem we can allow some latitude to the applicant to restore the bank using local rock to stabilize it under this maintenance clause.

Tri Sage has contacted the State Division of Emergency Management and will attend the briefing on March 7<sup>th</sup> to discuss FEMA reimbursement for flood work and repairs. It is not clear if the District can get reimbursement for the flood debris removal work and it is possible that others work may need to be completed by the District ( such as shoal removal, or Carson River work) that may be able to be reimbursed. Details to follow.

Tri Sage has continued to work through issues related to permitting with the USACE Flood Section and on the outstanding permit requests. As directed by the Board at the last meeting, Tri Sage will be preparing a revision to the 408 Permit Application and Checklist to incorporate the new USACE Process and new review requirements. In addition, Tri Sage will propose a tiered fee structure to go along with this updated application for the Board consideration and discussion at a future meeting. Once the new 408 Permit Application is finalized, it is recommended that the updated process and timing be communicated with likely applicants for permits so that these projects can apply well in advance for the 408 Permits. The USACE estimates that currently the process will take between 6-9months to issue a 408 permit depending upon the specific project.

Other projects which will require encroachment permits are in the planning stages at this time including the NDOT project to apply scour protection to the Verdi Bridges. Tri Sage has notified this applicant

regarding the new conditions for a 408 Permit and new timelines so that the NEPA information for this work can be shared upfront between the Regulatory and Flood Sections of the USACE.

The City of Reno is continuing with their review of the Flap-Gate requirements in order to address the USACE inspection issue; the city has engaged an engineering firm to design the flap-gates for installation at several locations and will pursue permitting and installations in the coming year.

The City is evaluating alternatives for the West Street Plaza interim risk reduction measures to be incorporated into the City's Flood Response Plan while the City works with a potential developer who is interested in the West Street Plaza. The City is working toward an application for a permanent encroachment permit for this project pending the outcome of work with the potential developer.

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 was 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 Idlewild Park to Lake Street areas for the determination of water surface elevations and identification of problem areas.

### **RECOMMENDATION**

It is recommended that the Board of Directors continue to pursue the inspection/evaluation items as outlined in this report and work toward confirming open items with the USACE Flood Branch.