



TRI SAGE CONSULTING
Monthly Report
Carson Truckee Water Conservancy District

January 31, 2017

MONTHLY ACTIVITIES- January 2017

- 1) Monitored river flows and impacted areas during flood flows on January 9-10; inspected locations as flows diminished.
- 2) Drafted & distributed report for Semi-Annual River Inspection as required by the Martis Creek Agreement with submittal to the USACE.
- 3) Drafted & distributed Debris Removal Report for NDEP Working in Waters Permit reporting and also for submittal to the USACE along with the Semi-Annual Report.
- 4) Met with Chism Park applicant, along with Superintendent Penrose, following the high flow event to discuss project and options; project will be modified and resubmitted for permit.
- 5) Review Martis Agreement and draft notice language for review & discussion by Board.
- 6) Inspect City of Reno Sewer crossing over-river pipe removal work completion under permit; crossing removed 1/30/17 bank work near completion.
- 7) Draft letter for Board review to Nevada Department of Conservation and Natural Resources regarding channel clearing funding.
- 8) Review letter draft to City of Reno regarding channel capacity at Booth and Riverside.
- 9) Follow up with USACE on projects, information and 408 Applications including the City's Stoker Storm Drain Project and Chism Park.
- 10) Coordinate encroachment projects with USACE Regulatory Branch for NEPA review & permit requirements and with State Lands for permit requirements.
- 11) Pursue timing and availability of 2-D Model with TRFMA.

UPCOMING ACTIVITIES

- 1) Possible debris and deposition removal work post flow event.
- 2) 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.
- 3) Communicate changes to the 408 Permit process with likely applicants including the City, and utilities.

- 4) 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).
- 5) Update the model in the vicinity of Mayberry Park to determine the extents of the flow channel in that reach.
- 6) 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.
- 7) Work with the City of Reno to pursue a permanent encroachment permit for the West Street Plaza and any associated projects.
- 8) 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.
- 9) 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.
- 10) 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.
- 11) 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.
- 12) Finalize the Equipment Access/Entry Point Documentation and Mapping for the District Jurisdiction;

SUMMARY REPORT

Tri Sage drafted the Semi- Annual Inspection Report for the USACE and included with that report the debris removal report. The Semi-Annual Inspection which was conducted in early December did not identify any additional issues with the channel beyond the previous items noted. The City of Reno had performed substantial vegetation removal along some of the walls, gabions, rip-rap and rock areas from Booth Bridge to downtown so this improvement was noted in the report. Shoal deposits have not been found to increase in size due to the low river flows over the prior period; however vegetation on the deposits has increased due the lack of scouring flows.

The debris removal work was documented in a report for the NDEP Working in Waters Permit which was submitted to NDEP, USACE Regulatory, NV Lands and this report was also an attachment to the Semi-Annual Inspection Report. This report documents the debris removed by the project and also documents the multiple times that specific locations were cleared as the flow events occurred during the work.

The river channel was inspected by Tri Sage and Superintendent Penrose on 1/31/17 once forecast rain events had passed, and flows had substantially subsided following the January 9-10, 2017 flow event. The river flow during this inspection was down to about 500cfs so most areas were visible with this flow level. The inspection found debris piles that should be considered for removal in the following

locations: Verdi River Bend Area, Dickerson & West Second Street, Arlington/Island Avenue, Cochran/Island Avenue, Center Street shoal deposit and possibly the Kietzke Side channel. The inspection also identified large areas of deposition in the river channel in the following locations: upstream and around Wingfield Park and the kayak park and the deposit downstream of Lake Street Bridge has grown substantially in both size and depth. It was noted that many of the deposits that had previously become overgrown with vegetation had much of the vegetation scoured away by this high flow event and in several cases the deposits were reduced in size; the improved flow areas include the following locations: Arlington/Island Ave, Kietzke Bridge, Kietzke Side Channel, Park Street area, Center Street shoal, Idlewild Box Culvert area. There were no notable impacts to any of the walls, rip-rap or rock areas or any of the gabions along Riverside Drive.

The Chism Park area was inspected on January 13, 2017 following the flow event to see how the wall and stairs that have not yet been permitted fared in the flows. Both structures had minor damage and impact from the flows. There was a lot of debris deposited upstream of this property where the river bends. The owner has indicated that she will not pursue the current project and encroachment application now that she sees the impacts from these flows; she will revisit the design and resubmit for the encroachment permit or alternatively she will restore the bank areas to pre-project condition. Tri Sage has notified the USACE that this project will be revised and to discontinue review of the plans as submitted.

The City of Reno Sewer Crossing completion has been delayed by the weather. The over-river pipeline is still in place and is now scheduled to be removed in early February. Tri Sage will verify this completion later in the month.

An issue has been identified regarding debris removal in the Mayberry Park area where there are substantial trees down on the banks that are believed to be outside of the 14,000cfs flow channel; however, the flow model has never been developed for this reach so it is unclear as to the extents of the flow channel in this reach. TRFMA will provide the survey data for this reach and once the engineer has this data and can better evaluate what will be required to create the model sections, they will be able to provide a cost estimate for the development of a model for this area.

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 6-9 months 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.