



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

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June 2, 2014

**MONTHLY ACTIVITIES**

- 1) Follow up with USACE on Virginia Street Bridge (VSB) permit; Authorization has been received and CTWCD Permit draft was reviewed and sent to USACE and City.
- 2) Detail City of Reno charges for VSB work by CTWCD and work with Gwyn Bergin to invoice the City for this work.
- 3) Running updated TRFMA 14,000cfs flow model and performing sensitivity analyses on the shoaling deposits at Lake, Center , Virginia and upstream of Arlington as requested by the USACE.
- 4) Continued River Inspection for Semi- Annual Report to USACE.

**UPCOMING ACTIVITIES**

- 1) Follow up with USACE on Virginia Street Bridge language; City of Reno will request modifications to this permit to better align with the USACE Regulatory Branch 404 permit schedule.
- 2) Semi- Annual River inspection (continued) and review of debris removal work for 2014; Draft inspection Report for June 2014.
- 3) Survey of areas downstream of Keystone Avenue bridge for HEC-RAS Modeling of possible shoal/problem area where water leaves the channel at 14,000cfs;
- 4) Evaluate additional needs for model updates upstream of Keystone Avenue and downstream of Lake Street.
- 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) Continued coordination with USACE regarding 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, 3) Vegetation Variance for trees along channel- not expected to be necessary due to interim order, 4) Box Culvert facility evaluation and potential removal project;
- 8) Draft Vegetation Variance Application for Trees in Vegetation Free Zone if applicable under SWIF; confirm eligibility with USACE.

- 9) Finalize the Equipment Access/Entry Point Documentation and Mapping for the District Jurisdiction;

## **SUMMARY REPORT**

The USACE has issued an authorization for the Virginia Street Bridge encroachment permit with specific conditions related to no equipment in the project area from November to June. The CTWCD drafted a permit for review by the USACE and also by the City of Reno. The City of Reno is expected to request some modifications to this draft permit, specifically the construction window in order to better align it with the USACE 404 Regulatory Permit work schedule which prefers that the project continue into the high flow season in order to complete construction in a single season and not to start and stop the project multiple times which may cause more stress on the river ecosystem. The project proponents will need to have contingency plans in place for high flow events regardless of when they occur. Tri Sage will work with the City and USACE to see what might be possible to modify the permit conditions to better accommodate the project while still providing channel capacity during flow events. It should be noted that the City has other permits and issues in the process of resolution for this project and until all issues are resolved, the City will not bid the project work. It is expected that work not start until late in 2014 or it may even be delayed into 2015 depending upon permitting and final conditions.

Since the last monthly report, no further discussion with the USACE regarding the determination of “Floodwalls” versus “Channel walls” through the downtown Reno river corridor has been had.

The Status of USACE inspection issues is noted below:

- 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. There is a new area of possible shoaling identified downstream of Keystone Avenue Bridge that may be the cause of 14,000cfs flows leaving the banks along Riverside Drive; this area will be surveyed( probably once river flows drop out in July) and deposits evaluated to get data for further evaluation in the model.
- 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. 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.
- 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; 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 will become a moot point.
- 4) Idlewild Box Culvert/Bank Erosion- the model needs to be evaluated and updated in this section; additional survey data( which will be collected in July after the River flows drop)

is required as the model contains minimal cross-sections in this reach. Once the model is updated with additional survey data, it will be run to determine the impact of the box and the need for removal. It is anticipated that this box will need to be removed to reduce the erosion of the Idlewild Drive bank. USACE is awaiting evaluation results and proposed solutions for this reach.

- 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. Additional survey data will be collected, once river flows drop in late July, at the sections below the Keystone Avenue Bridge where the water leaves the channel at 14,000cfs and at the Idlewild box culvert as well as other sections where the modeling efforts may require additional sections. The modelers will analyze the box culvert and also perform sensitivity on the shoaling areas to determine if and when these areas will become problematic to the flow. 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. At this time it is anticipated that work will need to be done to remove deposits in the river near Keystone Avenue and to remove the box culvert at Idlewild Drive. The exact requirements of these potential projects are still under evaluation.

The semi-annual inspection is underway to identify issues and debris that should be removed during 2014 prior to the winter flows. It is anticipated that this requirement will be substantially less than the project completed in late 2013. The inspection will be completed in the next few days now that the peak run-off for the spring has passed and the report will be prepared for USACE in compliance with the Martis Creek Agreement.

## **RECOMMENDATION**

It is recommended that the Board of Directors continue to pursue the inspection/evaluation items as outlined in this report. It is further recommended that the Board reserve funding for potential projects until the evaluation of the channel deposits below the Keystone Avenue Bridge and the box culvert are complete and determination is made of project needs and timelines.