



TRI SAGE CONSULTING
Monthly Report
Carson Truckee Water Conservancy District

October 6, 2014

MONTHLY ACTIVITIES

- 1) Monitoring River flows for project timing.
- 2) Establishing permitting requirements and access for removal of the Box Culvert at Idlewild during low river flow conditions; monitoring field work for permit reporting.
- 3) Survey and creation of model sections along Riverside Drive near Keystone Bridge to evaluate model outcomes and water elevations.
- 4) Develop Debris Removal Scope of Work for 2014, pursue access and resolve access issues, draft Contractor agreement for work to be completed during October or early November.
- 5) Meeting with City of Reno regarding development plans for West Street Plaza and USACE matters.
- 6) Follow-up with TRFMA regarding LIDAR aerial surveying timing and invoicing; survey scheduled for mid- October.

UPCOMING ACTIVITIES

- 1) Invoicing for TRFMA LIDAR aerial survey contribution once completed.
- 2) 2014 Debris Removal Project- Finalize Contractor Agreement, access issues and complete work during October or first week in November.
- 3) Update and run model for areas downstream of Keystone Avenue bridge problem area where water leaves the channel at 14,000cfs; evaluate options for containment.
- 4) Permit reporting for Box Culvert Removal work.
- 5) Evaluate additional needs for model updates upstream of Keystone Avenue to State Line and downstream of Lake Street to Glendale Bridge.
- 6) 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.
- 7) 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;
- 8) 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- if not removed during October;
- 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

River flows through downtown Reno have been in the 25-30cfs range over the past week other than during the precipitation event. Tahoe's level continues to drop and is controlling the outflow to the Truckee River at less than 10cfs. Unless there is more precipitation, the flows will continue to dwindle.

Tri Sage collected additional survey cross-sections of the river channel and banks around the Keystone Avenue area once the flows were down to less than 50cfs range; work was completed as the river channel was easily accessed with these low flows. Model cross sections are being created from the survey data and the model will be run at the 14,000cfs flow. Model results will be evaluated to determine the appropriate next steps if the surveys do not resolve the model issues and retain the flow in the banks at this flow rate.

TRFMA is proceeding with the Topo-Bathymetric LIDAR study of the river from the State line to Wadsworth during this low flow period. TRFMA will issue an invoice to the District for their portion of this work. The work is currently planned for mid-October with the exact date yet to be established. It will take approximately three months for data from this effort to become available for modeling purposes.

The City of Reno has agreed to remove the box culvert at Idlewild Drive during the expected low river conditions. NDEP has authorized this work and associated reporting to be performed under the General Working in Water Ways Permit to which the District is a party. USACE Regulatory has indicated that this is either a non-permit required project or may be completed under a Nationwide -3 permit without notification. This work will be performed under the District's permit with State Lands for access and maintenance of the flood channel. An access agreement for the adjacent property has been secured. The project is expected to be completed during the first week of October.

Tri Sage has developed a scope of work for the 2014 Debris Removal Project and has recruited RTC as the contractor to perform this work. RTC performed this work last year and did an excellent job and has the experience to get this year's work completed efficiently. As authorized by the Board, the contractor will spend up to \$25,000 on this effort this year and then the District can evaluate any additional needs. An agreement for the work has been created and executed. Work is scheduled to begin on October 13, 2014 and all work will be completed prior to the expiration of the City of Reno License for Entry on City properties which expires on November 10, 2014. Tri Sage has pursued access authorization for multiple properties including the County's Mayberry Park and has notified one property owner of the intent to access through the Lake Ditch access.

The City of Reno is working with a developer who is interested in making some modifications to the West Street Plaza which is the area that has been identified with inundation during a 14,000cfs event and also is the subject of USACE encroachment concerns. Tri Sage met with the City and discuss opportunities to have planned modifications support the Interim Risk Reduction Measures or permitting as might be requested by the USACE for this area.

Currently the schedule for Virginia Street Bridge construction will be for a start of work in 2015 as soon as river conditions permit assuming 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 the last meeting the Board delayed acting on this letter until closer to the project start time.

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 noted change in the river flow reduction from July to the current timeframe of mid-August:

- 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 will be cut back as part of the 2014 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- if not removed during low flows as planned during October, has model needs to be evaluated and updated in this section; additional survey data(which will be collected in mid-August 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. The model 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 modelers will analyze the box culvert (if not removed as planned during October low flows). 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.