



TRI SAGE CONSULTING
Monthly Report
Carson Truckee Water Conservancy District

March 31, 2017

MONTHLY ACTIVITIES- March

- 1) Review FEMA Public Assistance program requirements, contract requirement, etc; meet with FEMA Kick-off Team on April 3, 2017.
- 2) Follow-up with TRFMA regarding LIDAR data for upstream of Mayberry Bridge section.
- 3) Finalize the 408 Encroachment Permit Application for the District.
- 4) Email updated 408 Encroachment Permit Application to USFWS for diversion upgrade/fish passage projects; discuss role of USACE and District in this process with project engineer.
- 5) Email updated NDOT 408 Encroachment Permit Application and blockage methodology for Verdi Bridge Scour Project.
- 6) Schedule meeting with City of Reno to discuss letter.
- 7) Follow up with USACE on 408 Application processing and timing for the City's Stoker Storm Drain Project.

UPCOMING ACTIVITIES

- 1) Prepare NDEP report for First Quarter Post Flow Debris Removal Work.
- 2) Complete Post Flood channel evaluations and debris/sediment removal work once river flows allow;
- 3) Apply for FEMA reimbursement for Debris/Sediment Removal Work.
- 4) Work with City of Reno to permit flood work including sediment and debris removal work.
- 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, USFWS and NDOT Verdi Bridge Scour Projects.
- 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 finalized the 408 Encroachment Permit application as directed by the Board at the last meeting. Two new projects have been identified which will require 408 Encroachment Permits prior to work; these are projects being planned by the USFWS for the upgrade and replacement of two diversion structures on the Truckee River with the incorporation of fish passage elements into the new designs. The projects are being championed by the USFWS and they hope to embark on projects at the Steamboat Ditch diversion and the Verdi Hydroelectric Plant diversion in 2017 with other river diversion to follow in later years. The updated 408 Application was emailed to the USFWS project manager for these projects and then the 408 permit process and timing was discussed with the project engineer.

The NDOT Verdi Bridge Scour Project is back on track looking for a permit application in mid-2017 with need for the permit to be issued in early 2018 for construction in the summer/fall of 2018. Permit processing timing has been communicated with the project team.

TRFMA provided the District updated flow models which include several areas not previously modeled downstream of downtown and downstream of the 395 Bridge; these model updates will be very useful for the District especially when evaluating deposits and projects in these reaches. The model updates upstream included some areas up to McCarran Bridge that will also be useful to the District. However, there is still a hole in the model upstream of this area and upstream of Mayberry Bridge to the state line and there continue to be questions regarding the extents of the 14,000cfs channel in these upper reaches that cannot be answered or estimated without a flow model for these areas. Tri Sage has requested the raw LIDAR survey data from the 2014 survey in order to evaluate what would be required as far as time and expense to create models for these upstream sections. It is not possible to estimate the cost to the District until the data format and connectivity is better understood. We will continue to work toward obtaining this data for this purpose and will update the Board on costs prior to embarking on work to create the model.

Tri Sage has been working with Superintendent Penrose to evaluate the information needs, supporting documents required and contracting requirements for the District's Kick-off meeting with the State Division of Emergency Management/FEMA. Tri Sage and the Superintendent will attend a kick-off meeting on April 3rd to discuss our project and work needs due the flood and how to get FEMA reimbursement for flood related work and repairs.

Tri Sage has requested an update on the processing of the 408 Permit for the City of Reno Storm Drain project; as the City would like to construct this year if the flows become manageable in the river.

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. This project may be placed on hold due to high river flows and funding limitations following the flood.

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.