West Fork Carson River Prioritization Project –

Project Findings to Date

CWSD Board Meeting – August 20,2025

(Project Proponent)

(Consultant)

(Subcontractor)

Summary of Project

This effort is a basin-scale planning project of the West Fork Carson River watershed in California. It builds on the findings of the West Fork Carson River Vision Plan and seeks to identify priority restoration projects and community values.

The project is to complete a geomorphological analysis and sediment budget, and develop a prioritized list of projects in the watershed. Funding will also include initial design for one or more projects.

<u>Funding :</u>

- Alpine Watershed Group received US EPA funding through the State Water Resources Control Board
- And the required 25% match came from Carson Water Subconservancy District

Funding for this project has been provided in full or in part by the United States Environmental Protection Agency and the State Water Resources Control Board under the Federal Water Quality Management Planning Program (Clean Water Act Section 205[j]).
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Project Milestones and Deliverables:

1. **Sediment Budget**

   Fine sediment is a contributor to water quality degradation

   A “sediment budget” identifies where sediment is coming from

2. **Identify stream restoration/enhancement projects**

   What are the opportunities for in-stream projects that could improve water quality and other values (fish habitat, meadow health, stream function)

3. **Prioritize projects**

   Develop a “Prioritization Plan” for projects that accounts for environmental benefits, technical feasibility, costs, and cultural values (recreation, etc.)

4. **Develop initial designs**

   For one or more projects (fall-winter 2025-26)

Project Milestones and Deliverables:

Findings covered in this presentation

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Sediment Budget Findings (1)

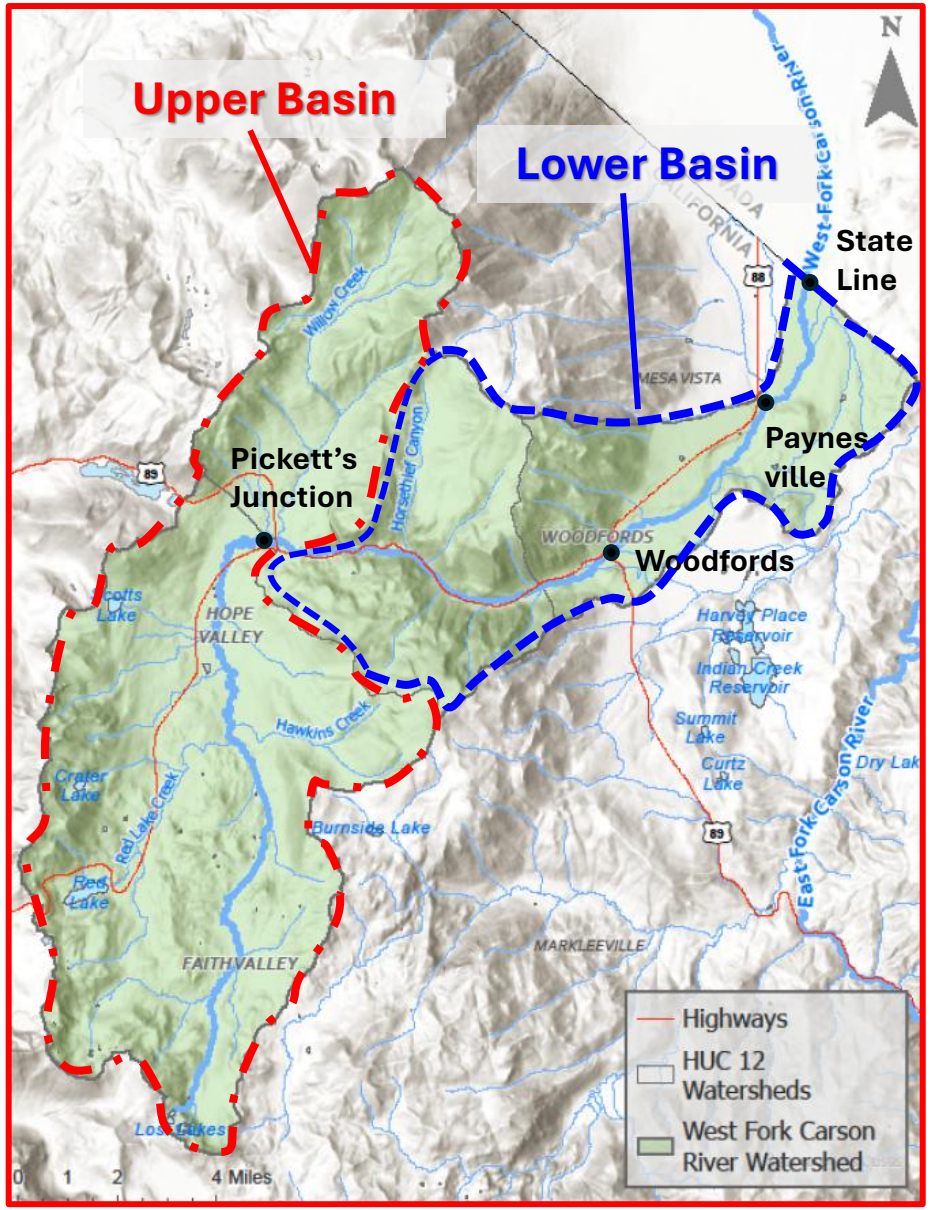
West Fork Carson River is listed as impaired due to turbidity (i.e., fine sediment) in the lower section of the watershed. Where does this sediment come from?

Geologically the watershed is subdivided into two parts:

- **Upper Basin** – Lots of glacial till, volcanic and granitic rocks, eroding meadows
- **Lower Basin** – Volcanic and granitic rocks, bouldery glacial outwash fan deposits (not erodible)

Key Finding:

- <u>Most of the fine sediment comes from the upper basin (the glaciated part)</u>



Sediment Budget Findings (2)

Within the Upper Basin, sediment comes from 2 main sources:

1. **Erosion of Glacial Till Deposits**
   - Most fine sediment originates from “glacial till” – mixed size sediments that were deposited by glaciers
   - Fires, roads, logging, etc. on till deposits exacerbates this source

2. **Riverbank Erosion in Glacial Meadows**
   - Historically much of the fine sediment deposited in wide valley meadows (Hope, Faith, Red Lake, Willow)
   - Presently these deposits are a source rather than a sink of fine sediment
   - Loss of beaver is one reason why

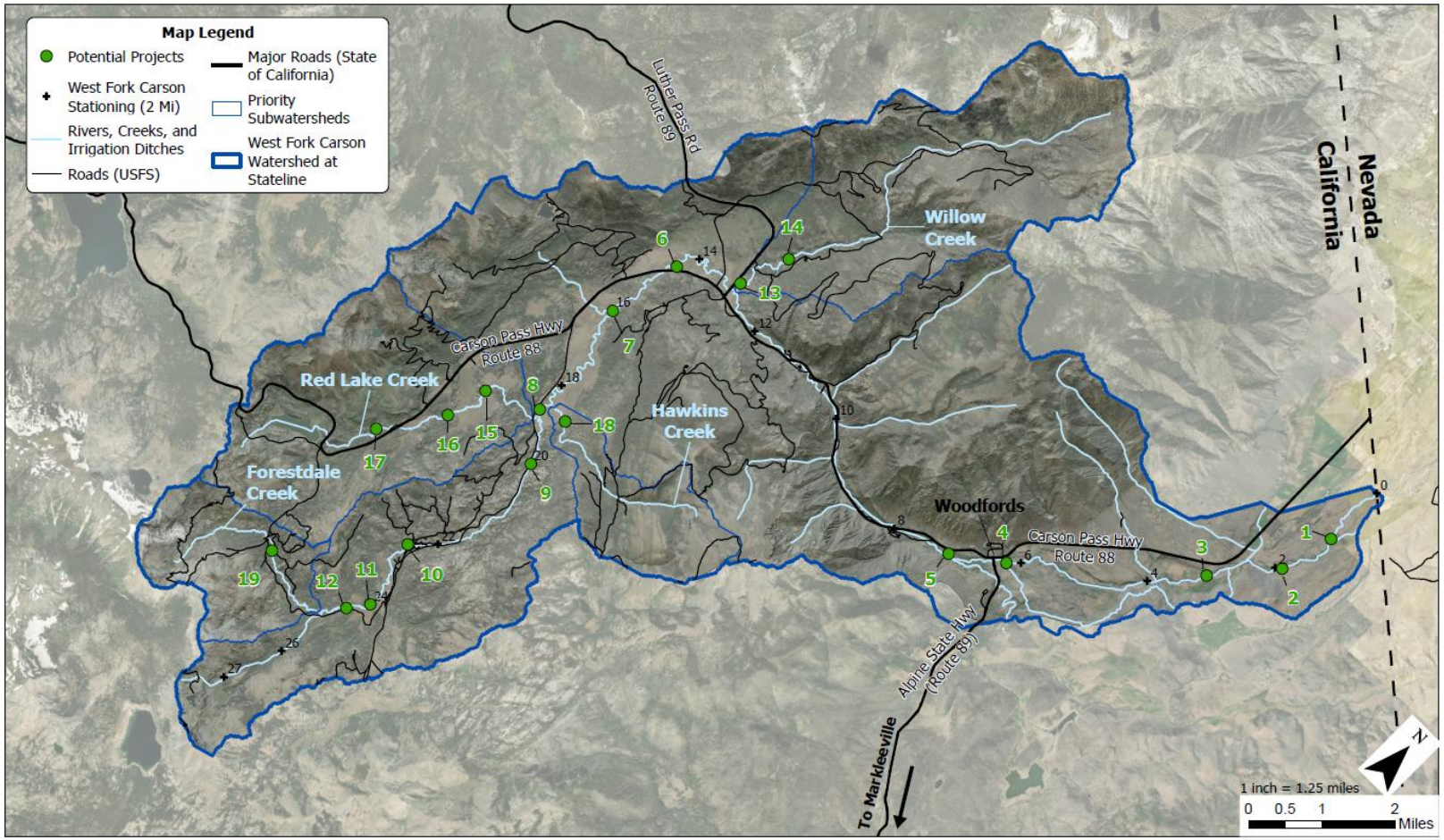
Sediment Budget Findings (3)

Based on the sediment budget findings, the best opportunities for in-stream projects are those that will bring the channel bed closer to the floodplain surface. This will accomplish 2 things:

- Reduce bank height and bank instability
- Cause more frequent flooding and more deposition of fine sediment

➢ *In addition to reducing sediment, these kinds of projects could also increase channel complexity (more pools, bars, side channels), increase groundwater recharge in meadows, potentially improve fishing, increase dry season flows, and offer other benefits*

Potential Projects in the Basin



At least 19 in-stream projects were identified around the basin (more may be added)

- 12 projects on mainstem West Fork Carson
- 7 on tributaries (Red Lake, Willow, Forestdale, Hawkins Creeks)

The projects mostly aim to reconnect channels with floodplains, and address multiple objectives

- Reduce sediment
- Benefit fish
- Improve meadow health
- Improve recreation (fishing, camping)

Some projects on the mainstem would be larger efforts, and some on tributaries are lower hanging fruit

Example Projects

Project #14 - Willow Creek Meadow Restoration

- Low-risk, relatively low-cost project would assist beavers in re-engaging a meadow
- Project consisting of beaver dam analogs, large wood felling, and willow planting would increase flow into meadow and improve instream conditions
- Beavers are already present

Project #7 - Middle Hope Valley Restoration

- Larger project would improve connection to floodplain and channel complexity in a rarely visited portion of Hope Valley
- Downstream grade control structure, large wood, beaver dam analogs, engineered log jams, and willow revegetation
- Similar in scope and scale as Faith Valley project, could apply lessons learned

Prioritization Process (in progress)

We are using a scoring system called “Multiple Accounts Analysis” (MAA) to weight the Technical, Economic, Environmental, and Cultural aspects of each project and develop a prioritized and phased action plan

The weighting for the MAA will incorporate input from stakeholder groups

To participate in the process, please contact Kimra McAfee to give your feedback

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