

# APPLE VALLEY

Saint Vrain Creek Watershed

## 2013 Colorado Flood Recovery



**COLORADO**  
Colorado Water  
Conservation Board  
Department of Natural Resources



United States Department of Agriculture  
Natural Resources Conservation Service



**COLORADO**  
Department of Local Affairs  
Community Development Block Grant —  
Disaster Recovery



### Multiple Benefits

- **Protect life, property, and infrastructure**
- **Mitigate flood risk**
- **Engage local community**
- **Enhance ecosystem structure and function**
- **Improve aesthetics**
- **Maintain home access**

The 2013 flood devastated Apple Valley, a small settlement of homes and farms along North Saint Vrain Creek near the Town of Lyons. Flood flows caused millions of dollars in damage both from inundation, where homes built on the floodplain were soaked by slow-moving high waters, and from sudden shifting of the creek as it violently set about eroding, depositing, and reclaiming its native corridor.

After the flood, some homeowners sold their land through federally- or locally-sponsored buyout programs, while many chose to rebuild. Those who remained expressed a strong desire to see the creek corridor recovered to its pre-flood vitality.

Emergency measures to protect the most vulnerable properties, and remove trash and artificial debris, were undertaken in the months following the flood. Long-term recovery was led by the Saint Vrain Creek Coalition (SVCC), which formed in 2014 and coalesced stakeholders around development of a Master Plan to prioritize projects based on flood risk, ecological enhancements, and community values. In 2015, SVCC secured federal, state, local, and private funding for the rehabilitation of Apple Valley, one of the highest priority areas identified in the Plan.

The purpose of the Apple Valley project was to improve the resiliency of the North Saint Vrain Creek corridor to future flooding through stream rehabilitation, floodplain reconnection, infrastructure protection, and riparian regeneration. Integrating the needs and values of the local community was an important aspect of the project.



**Watershed**  
Saint Vrain Creek



**Locale**  
Boulder County



**Local Sponsor**  
Saint Vrain  
Creek Coalition



**Property Ownership**  
85% private  
15% public



**Project Cost**  
\$3,034,280

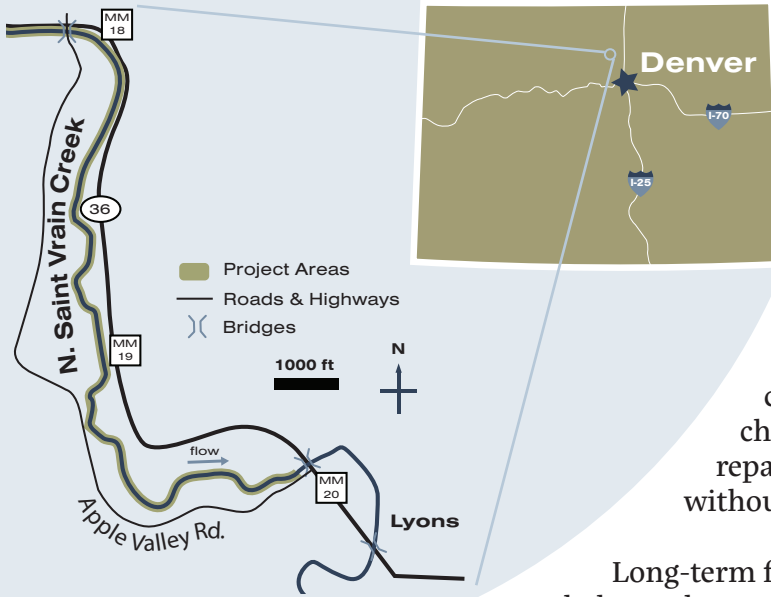


**Construction Dates**  
Nov. 6, 2017 - May 19,  
2018 (195 days)

Natural river channel movement during the flood destroyed numerous homes in Apple Valley.



## North Saint Vrain Creek Apple Valley



# River Corridor Rehabilitation

Situated downstream of a large dam, aspects of North Saint Vrain Creek through Apple Valley benefited from a relatively stable flow regime. Over time, encroachment into the native river corridor via agriculture and development concentrated the creek into one channel that was loved by the community for its aesthetic and recreational qualities. The 2013 flood changed the landscape, leaving behind multiple channels and massive amounts of debris. Emergency repair work sometimes created excessive uniformity without providing long-term stability.

Long-term flood recovery work in Apple Valley sought to balance the needs of the river with the needs of its residents. Rather than locking the channel in place, the project used natural material (large wood and vegetation) and some boulders to guide flows away from critical infrastructure. Where possible, the channel was left alone or slightly adjusted.

Floodplains and overflow channels were recreated or reconnected, and small side channels were added to floodplain benches to encourage flow distribution into the adjacent riparian community during high water. A riffle-pool sequence was re-established to maximize habitat and promote channel stability. Revegetation of the corridor using native plants was paramount, involving large crews of volunteers and educating them about the long-term benefits of erosion resistance, shade, habitat, and water quality enhancement that a healthy riparian buffer brings to a stream.

### BY THE NUMBERS

project length:  
10,800 linear feet

31 participating  
property owners

12 buyout  
properties

24 in-stream  
structures

3,650  
volunteer hours



Above: Emergency repairs begin in Apple Valley very soon after the flood. Photo Credit: DARTW Public Affairs Office, 36th Infantry Division

Below: Volunteers (including Mister Binx the dog) seeding and mulching a large floodplain bench in Apple Valley.



## Project Objectives

- Stabilize streambanks and floodplains to protect against damage to homes and infrastructure
- Increase floodplain capacity through sediment removal, grading, and creating or formalizing overflow channels and alternative pathways
- Remove flood debris and trash from the riparian corridor
- Establish native vegetative cover on critically eroding land
- Enhance aquatic habitat through improved complexity, vegetation, and water quality

# Before



The flood deposited massive amounts of sediment and eroded sections of the banks of North Saint Vrain Creek.

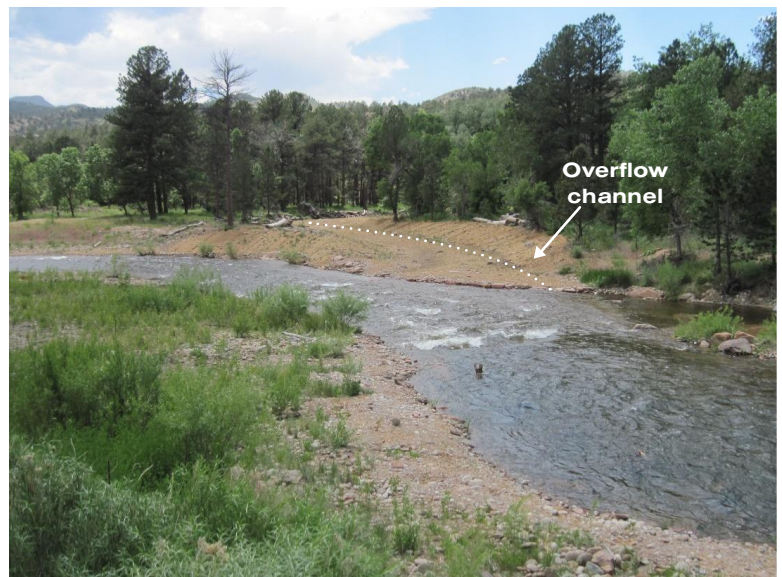
# After



The project removed swaths of sediment and debris, defined a low-flow channel to consolidate water during baseflow, graded banks to create point bars and benching, incorporated large wood to protect the far outside bend, added an overflow channel for additional capacity, and planted native vegetation.



Looking across North Saint Vrain Creek toward the pre-flood channel that filled in with sediment and debris.



The project removed sediment and re-established a flow path for high water in the pre-flood channel. The intent is to dissipate energy and provide a preferred path at high flows to protect nearby infrastructure and property.

## REVEGETATION

**6,593 container plants**



**5,294 willow & cottonwood live stakes**



**15.8 acres seeded**



# - PROJECT - TEAM

The Apple Valley project was split into two separate projects for reasons related to funding and eligibility. Both portions of the project were funded by the Colorado Water Conservation Board (CWCB) and Natural Resources Conservation Service (NRCS) Emergency Watershed Protection (EWP) Program. The Department of Local Affairs (DOLA) Community Development Block Grant - Disaster Recovery (CDBG-DR) Watershed Resilience Pilot Program provided match funding for Apple Valley North. Match for Apple Valley South was generated from a creative combination of cash from local and private sources, and in-kind match in the form of volunteer hours, plant donations, and other goods and services from local stakeholders. CWCB provided technical assistance throughout project planning, design, and implementation.

## FOR MORE INFORMATION

**Board of Directors**  
Saint Vrain Creek Coalition  
office@saintvraincreekcoalition.org  
[www.saintvraincreekcoalition.org](http://www.saintvraincreekcoalition.org)

[www.ColoradoEWP.com](http://www.ColoradoEWP.com)



North Saint Vrain Creek at Apple Valley after construction (July 2018).

## Partners

Private landowners  
Local volunteers  
Lyons Middle/Senior High School  
Lyons LEO Club  
Boulder County  
Volunteers for Outdoor Colorado  
Saint Vrain Anglers Trout Unlimited  
CEMEX  
Colorado Water Conservation Board (CWCB)  
Colorado Department of Local Affairs (DOLA)  
Natural Resources Conservation Service (NRCS)

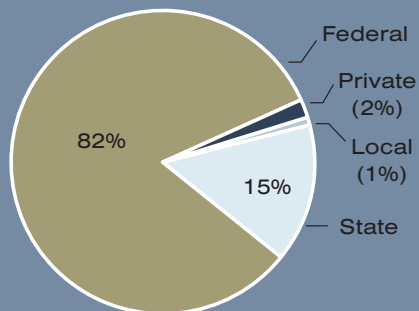
## Contractors

Ramboll Environ  
Iron Woman Construction and Environmental Services  
FlyWater  
S2O Design and Engineering  
Whinnery Construction  
Resilient Watershed Partners (RWP)

## BUDGET

**TOTAL: \$3,034,280**

### Project Funding by Source



### Project Cost Breakdown

