

## **Implications of flood response decision support framework on making room-for-the-river: A case study of the St. Vrain Creek**

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**Abstract.** In September 2013, the Front Range of Colorado experienced a 1000-year precipitation event that caused widespread flooding, channel migration, and loss of man-made infrastructure. Opportunities have seemingly arisen to speed implementation of pre-existing plans to perform flood mitigation using non-structural techniques along the St. Vrain Creek. A decision support framework was built to study preferred management actions in response to the flood considering multiple stakeholder preferences and criteria including aspects of the society, economy, and environment. Sixty scenarios were developed from six different analysis techniques, five different stakeholder groups, and two different sets of sub-criteria relative important factors. Results of the multi-criteria decision analysis seem to indicate that preferred management alternatives include a mixture of structural and non-structural flood mitigation techniques, indicating that environmental improvement can complement flood mitigation along the St. Vrain Creek.