

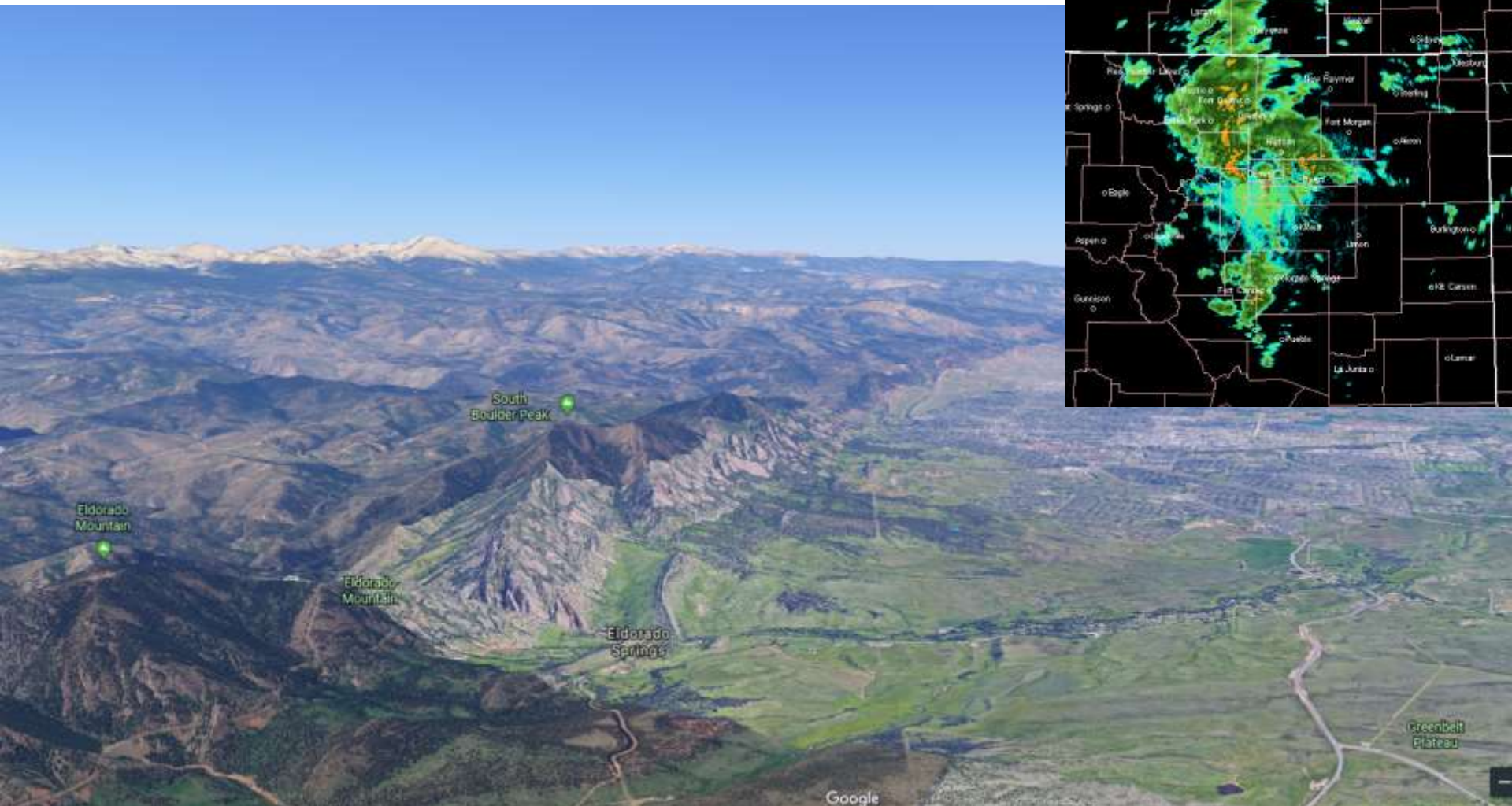
Room for the River

Chris Tagert, PE, CFM



September 2013 Flood

Michael Baker
INTERNATIONAL



September 2013 Flood



- 9" of rain fell on September 12, and up to 17" total by September 15
- 17 counties affected – Boulder County most severely
- Over 1,000 people had to be airlifted to safety from remote locations; this was the largest airlift rescue operation in USA since Katrina

September 2013 Flood

Michael Baker
INTERNATIONAL



Timeline of Federal Recovery Efforts

Michael Baker
INTERNATIONAL



FEMA Public Assistance (PA)

Cat A & B

September 2013 – Spring 2014

FEMA HMA/HMGP

Buyout Program

Spring 2014 - July 2016

CDBG-DR

Staffing Assistance

January 2014 - September 2019

Emergency Watershed Protection

PHASE 1

September 2013 - May 2014

PHASE 2

November 2014 - September 2018

FEMA PA

Cat C/404/406

Spring 2014 - Fall 2019

What's left to do? There's still...

- Infrastructure in harm's way
- Development pressure in Colorado's highest growth county
- Homes within high-risk areas
- Hazards other than floods affecting the county

Room for the River is the story of Boulder County working to keep resiliency as a part of its culture at a time when recovery efforts are “winding down.”

- Resilience in Boulder County
 - “Boulder County is committed to working toward a more resilient community that enhances our ability to manage and adapt to change (both abrupt and gradual) in social, economic, physical, and natural systems.”
 - Resilience is “the capability to anticipate risk, limit impact, and bounce forward rapidly by adapting and learning in the face of disruptive shocks and stresses.”
- To that end, the county identified the following shocks and stresses
 - ...
 - Residual risk profiles, in some cases significant ones
 - Projected development pressure as the county’s economy grows
- ... And established this vision for the project:
 - “Let’s develop a long-term plan that supports reduction of residual risk and responsible development”

ROOM FOR THE RIVER: The Objectives

MULTI-HAZARD APPROACH

IDENTIFY PARCELS FOR MITIGATION

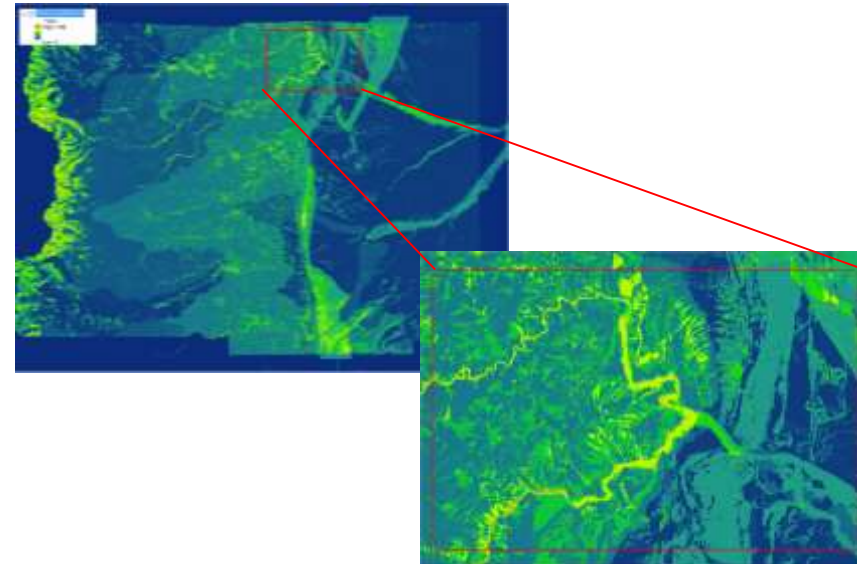
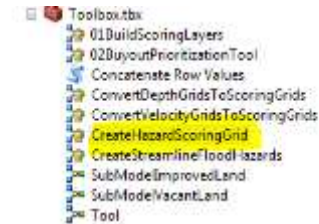
- Recommend mitigation strategies for structures
- Identify beneficial actions for parcel without structures

IDENTIFY FUNDING SOURCES

USE DATA ANALYTICS TO HELP FORMULATE POLICY
INSIGHTS (A TOOL)

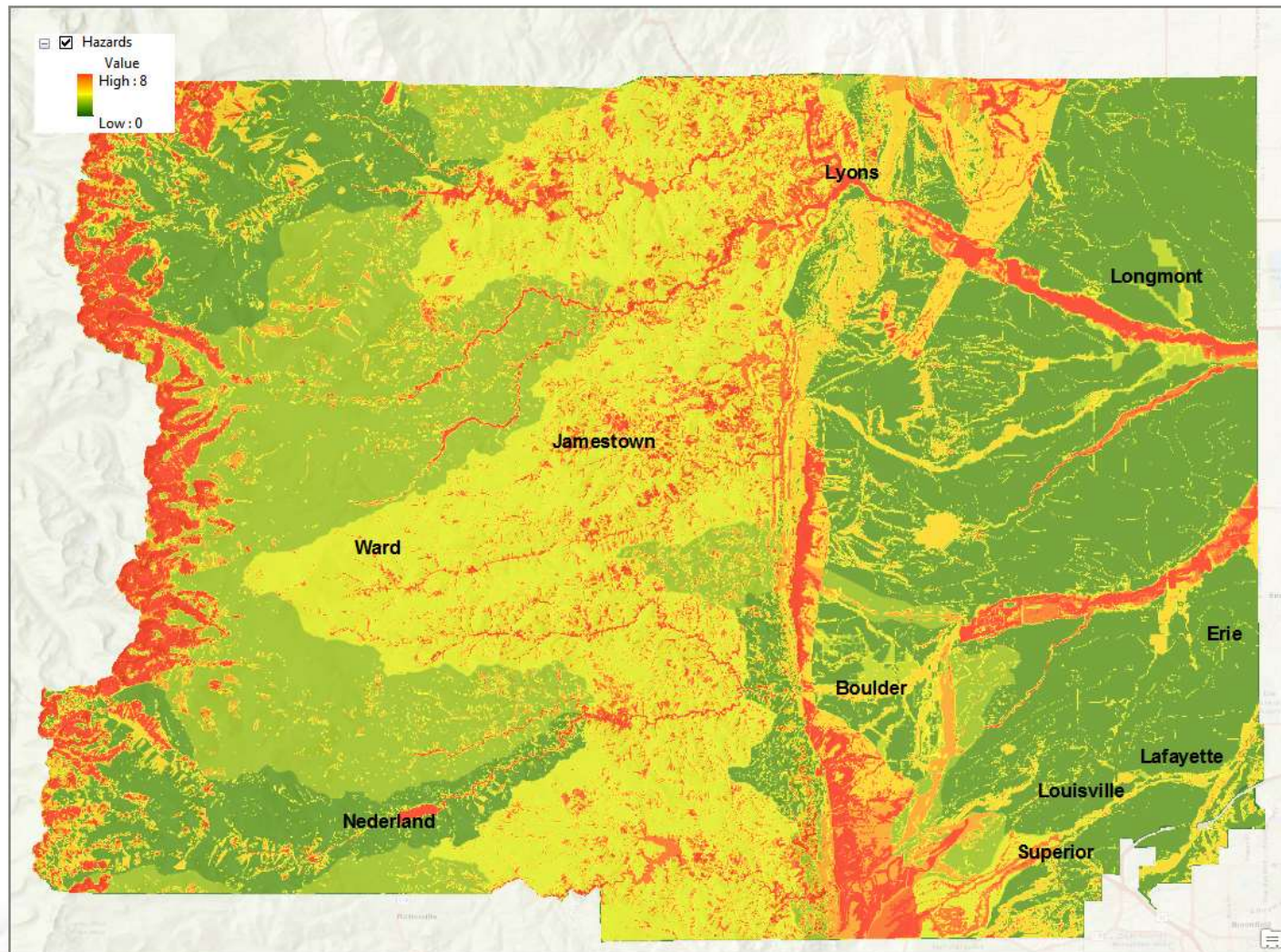
Hazard Data

HAZARDS	SOURCE	COVERAGE
Flood	Boulder County/FEMA	Countywide
Debris Flow	CGS/Cesare, Inc.	Countywide
Fluvial Hazard Zone	Round River Design, Inc.	St. Vrain Corridor
Landslide Susceptibility	Cesare, Inc.	Countywide
Rockfall	Cesare, Inc.	Countywide
Steeply Dipping Bedrock	Cesare, Inc.	Countywide
Flood Depth Grids	Baker	Partial
Flood Velocity Grids	Baker	Partial
Wildfire Threat	Boulder County	Countywide



Hazard Grid

Hazard Data



Parcels for Mitigation

Identify vacant vs. improved parcels



Parcels for Mitigation

Mitigation Measures – Acquisition Criteria

IMPROVED PARCELS	UNIMPROVED (VACANT) PARCELS
Occupancy Type	Parcel Size
Number of Bedrooms	Number of Buildable Lots
Number of Units	Public Lands Connectivity
Building Value (total)	Wetlands & Riparian Corridors
Building Area (total)	Critical Wildlife Habitat & Migration Corridors
Building Age	
Total # NFIP Claims	
Total \$ NFIP Claims	
Community Cohesiveness	

Parcels for Mitigation

Mitigation Measures – Relocation Criteria



Parcels for Mitigation

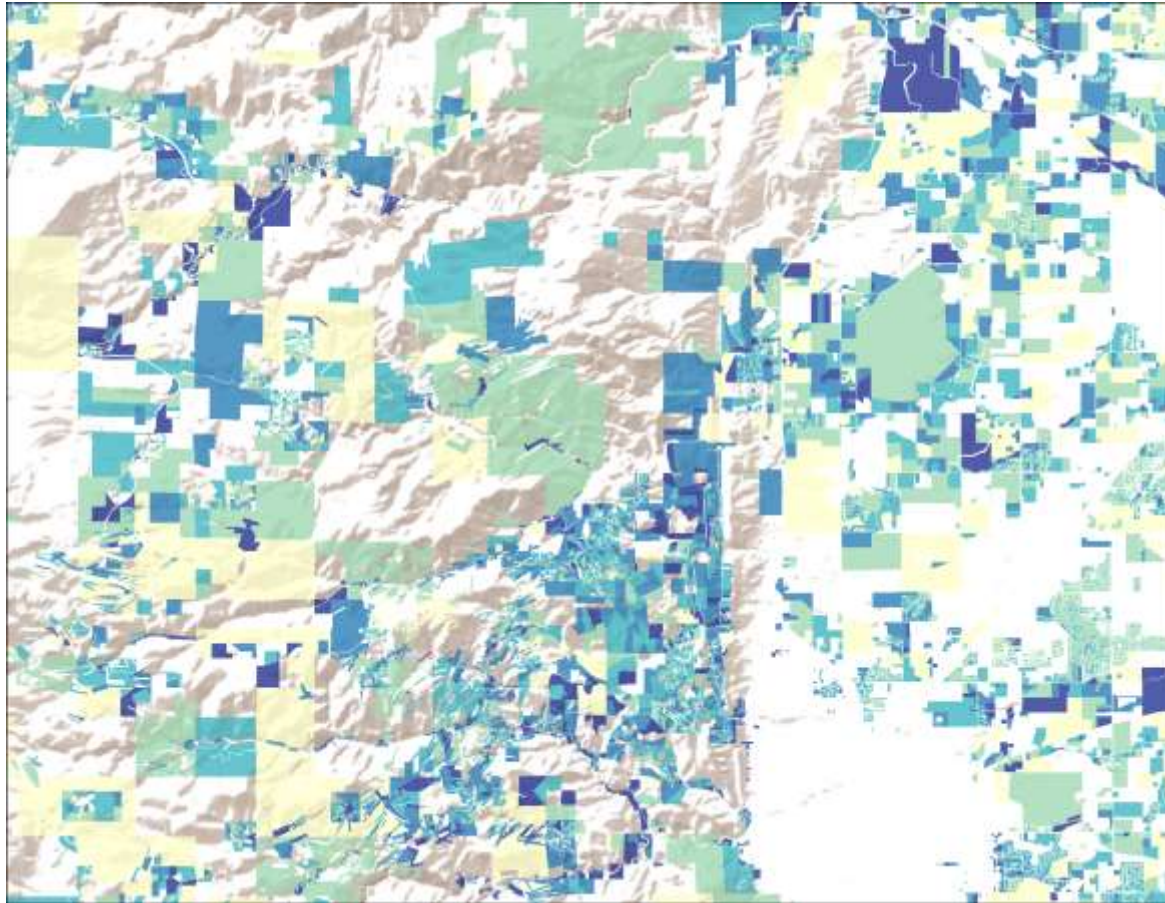
Mitigation Measures – Elevation Criteria

- Structures outside of the 500-year are not eligible for elevation
 - Structures outside the 500-year flood zone are more prone to debris flow, fluvial hazards, etc. County prefers more effective mitigation measures for these structures.
- Does not include structures in the floodway
 - County prefers more effective mitigation measures for these structures.

Criteria	Scoring	Statistics
Exclude all structure(s) outside of all hazard areas except flood and fire	NA	NA
Exclude structure(s) outside of Floodway	Structures touching 0.2% SFHA = 50	244 properties
	Structures touching 1% SFHA (NON FW) = 100	1,212 properties

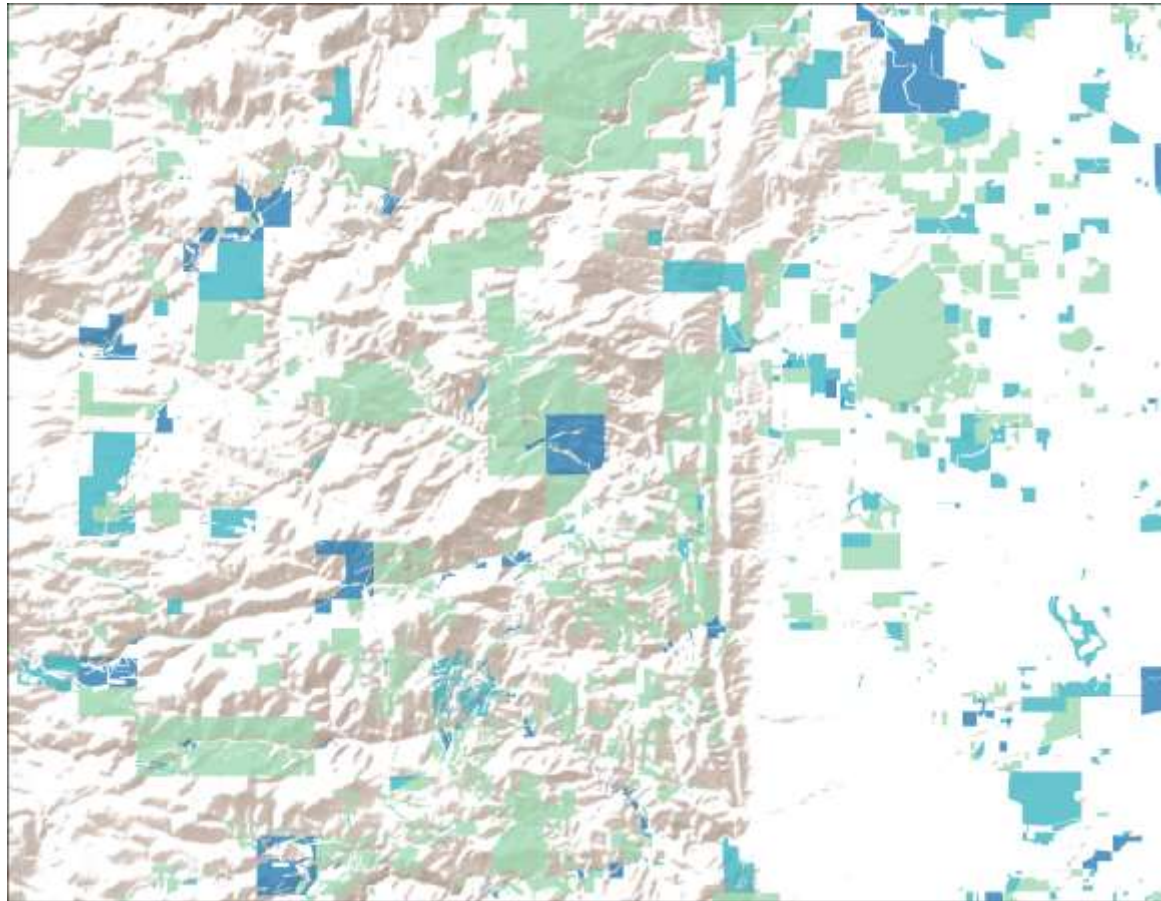
Criteria Example 1

Over 25 Input Criteria Used



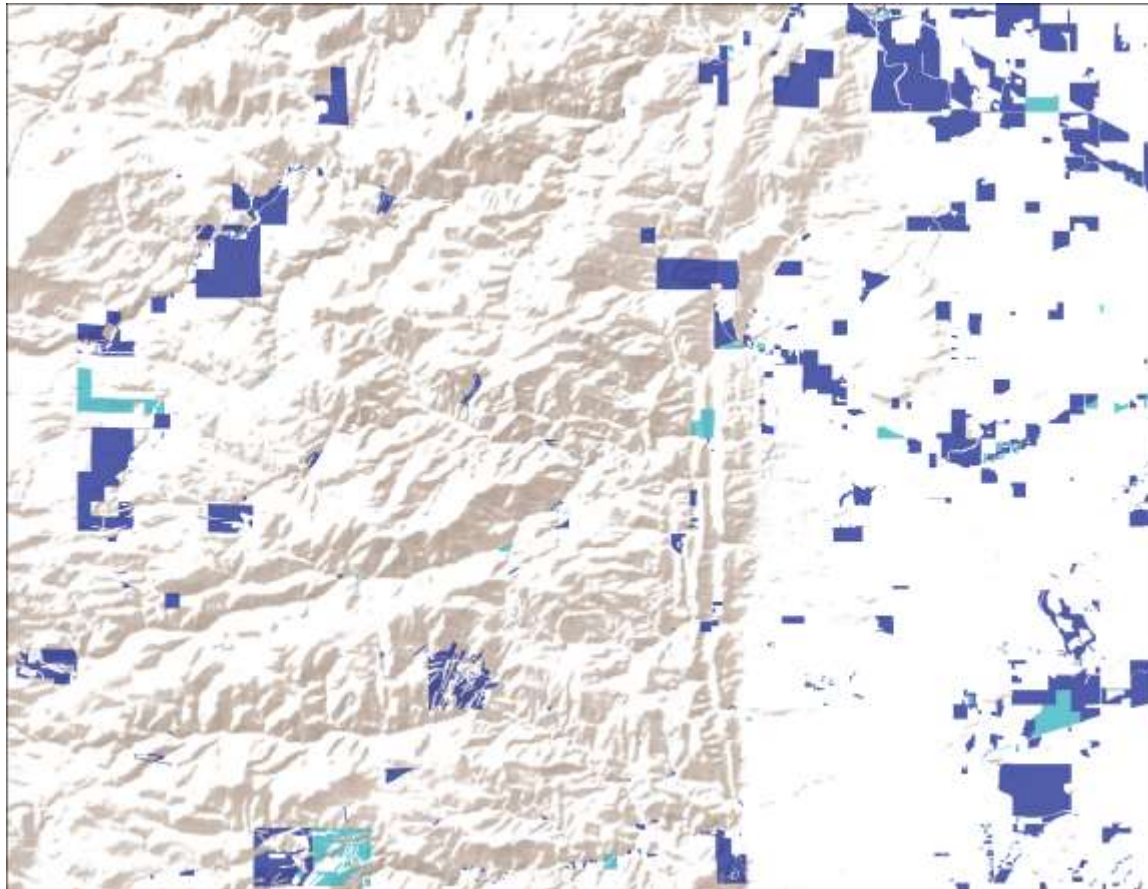
Criteria Example 2

Over 25 Input Criteria Used



Criteria Example 3

Over 25 Input Criteria Used



Parcels for Mitigation

Mitigation Measures – Non-Structural Criteria

- Minor and infrastructure-related flood mitigation projects
 - Smart landscaping, septic retrofits, sump pump inspection and repair
 - Increased emphasis on flood mitigation when identifying/prioritizing CIP projects
- Deed restrictions and conservation easements

Identify Funding Sources

- Grants
 - FEMA specific
 - Other
- Local Funding
 - Stormwater utility fees
 - Sales tax
 - Parcel tax

Deliverables

- Tool/Database
- Final report
 - Staffing requirements by mitigation strategy
 - Capability requirements by mitigation strategy
 - Program outreach
 - Program implementation plan
 - Immediate next steps
 - 3-year action plan
 - Long-term planning



Deliverables

- Countywide screening analysis that the county intends to use to define a “program”
- Information and statistics that can be used in discussions with Planning Commission and County Commissioners
- Stories to tell about other programs across the country
- An implementable, phased action plan

“The capability to anticipate risk, limit impact, and bounce forward rapidly by adapting and learning in the face of disruptive shocks and stresses”

Room for the River

