Kelly Mahoney (NOAA Meteorologist):

In the Front Range, we have this unique topography. Steep terrain and a lot of rock so you don’t absorb water. We do have weather patterns that can introduce a lot of rainfall and fast-moving water that can cause a lot of flash flood problems quickly. We saw some cooler weather coming in. This weather pattern wasn’t anything of huge note. It was going to be a welcome relief from a heat spell.

News broadcast from 2013:

It has been pouring here all night, and it’s still coming down. Some areas have gotten a much as six inches of rain in just a few hours.

A man witnessing the flood:

Boulder County, Colorado Foothills. Man, we’ve been getting rained on up here. Never seen anything like it.

Matt Kelsch (Hydrologist, University Corporation for Atmospheric Research):

When you hear all of the stuff about the 100-year flood and the 500-year flood, that’s important, because we haven’t lived here that long.

Our understanding of what is likely to happen is based on what has happened in the past.

News broadcast from 1976:

One of the worst natural disasters in Colorado history occurred last night west of Loveland. Torrential rain sent a wall of water down the Big Thompson Canyon.

Kelly:

It was a storm that sprung up all of a sudden, and people had little to no evacuation time.

News broadcast from 1976:

Many escaped by climbing the steep canyon walls, others were swept to their death.

Gilbert White (Boulder Flood Planner):

Well, there were 139 people that lost their lives in one day up there. Lots of people had built down in the floodplain.

Matt:

Gilbert White recognized the fact that what happened in the Big Thompson is something that has happened in all of these canyons before we settled here.

Kelly:

Gilbert White’s message was you know not to over-engineer nature. Not necessarily that humans shouldn’t be in a location, but that if you were going to be there, you needed to do so responsibly and accept the risk that you’ve taken on and do the appropriate mitigation to validate living where you live.

Text on screen:

Under Gilbert White’s leadership, Boulder implemented measures that would mitigate the damage from future flooding.

Matt:

Along the side of the creek, you see a lot of these jagged rocks, and they’re designed to break down the energy of the floodwater as the water moves through.

That way, the stream doesn’t try to meander out of its channel.

Bob Harberg (Principal Engineer, City of Boulder):

These dropped structures are designed to stabilize the river channel.

Matt:

Same idea. It is trying to control the creek by making a change elevation in very distinct areas to keep it controlled and doesn’t allow it to meander out of its banks.

Bob:

This bridge is designed to break away in a large flood event and swing this way, and then it is hinged on this side. That large steel cable will keep it from floating downstream and becoming debris.

Matt:

The Boulder bikeways weren’t built because Boulder loves bicyclists so much, we do, this is the flood control plan. The bike paths were put in the area that flood waters will come through during the big flood. So it serves two purposes. One it helps control the stream and protect properties. The other thing is it gives a nice alternative transportation for a bicyclist in town.

Probably the top feature is to remove critical facilities out of the floodplains. So you don’t have things like gas stations, and things with hazardous material, you have properties out of the floodplain.

Text on screen:

On September 12, 2013, Gilbert White’s flood mitigation system faced the ultimate test.

News broadcast from 2013:

Overnight, flash flooding in Boulder, Colorado.

News broadcast from 2013:

The sirens have just sounded again in Boulder.

Kelly:

I came into work as the event was unfolding, and I kept watching the radar, kept watching how much rain came down, and I said this is just unbelievable. And then I could look out the window and say you gotta be kidding me, this is still coming down.

News broadcast from 2013:

This wall of water, some described as possibly thirty feet.

Person filming water:

Four Mile Creek bike path.

Text on screen:

Boulder’s flood control efforts helped the city survive its worst natural disaster in decades.

But 16 miles north of Boulder, the city of Lyons wasn’t so lucky.

Kelly:

What we’re learning about what happened in Lyons, it appears that there were a couple of differences. Much less about the amount of water that fell and much more about what happened once it was on the ground.

Eve Feese (Lyon’s Resident):

Thirty-five years ago our landlord told us that right in front of our trailer is where the river used to run and he said when they decided to put the mobile home park in they had to do something about the river, so they decided well let’s just move the river and that way we can put the mobile home park in.

The river wins.

Because when it wants to take something, it’s going to take it.

David Driskell (Executive Director of Community Planning for City of Boulder):

Resilience for us is being prepared for the unexpected. Being able to bounce forward, not just bounce back.

Matt:

I think we are going to learn even more from what just happened here. The community is gonna look at what worked and what didn’t work with this last flood and maybe improve.

Kelly:

To say this never happened before, we don’t know. But it was certainly an anomalous amount of water in the atmosphere that led to an extreme event.

David:

In an era of climate change, how do we prepare for the unexpected? In every way possible. Whether it’s the way we engineer, the way we are stewards of the land, where we put development, where we don’t, to be able to respond to whatever comes our way.