



The Resilient St. Vrain Program:

Collaborative Recovery from the 2013 Colorado Floods

ASFPM 2018 National Conference, Phoenix, AZ Tuesday June 19, 2018

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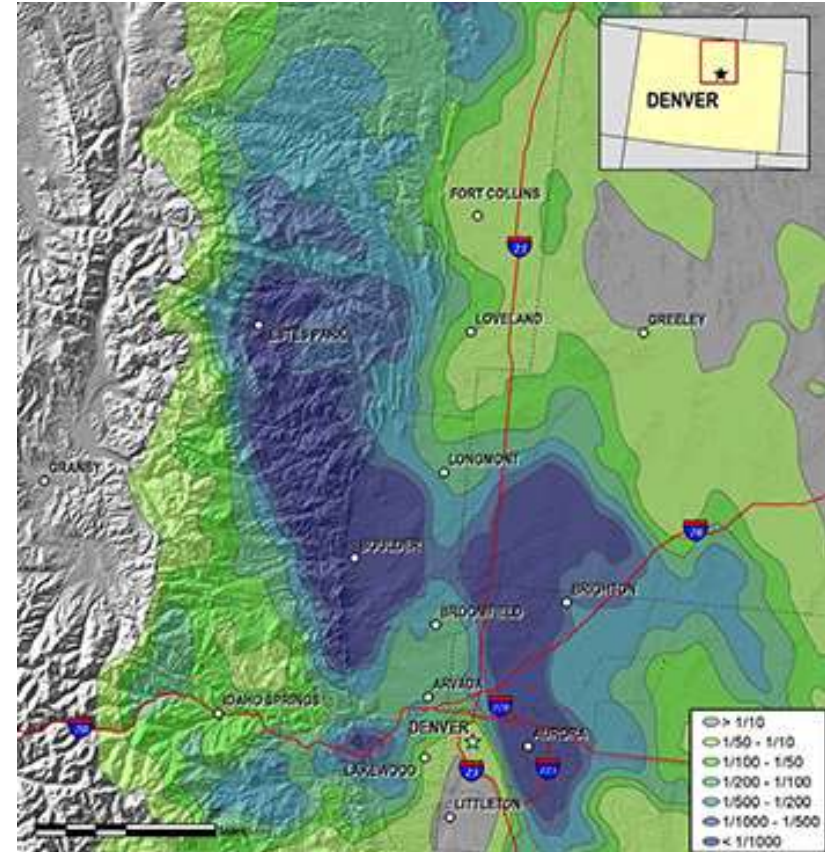
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2013 Colorado Front Range Storm Event

- September 2013 Flood produced 100-year to 500-year flow rates along Colorado's front range from a 1:1,000 year rain fall event
- Included the St. Vrain Creek in the City of Longmont

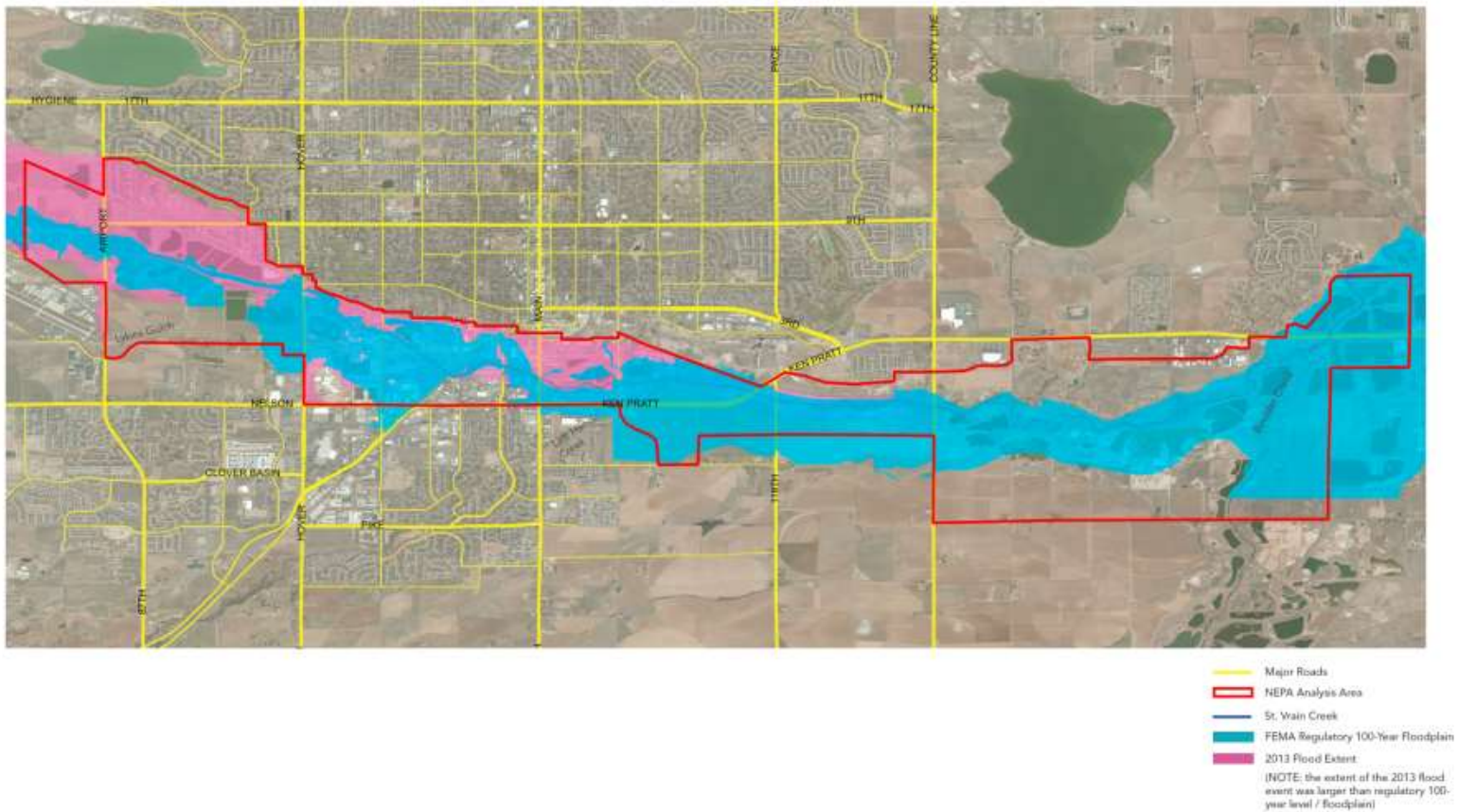




Flooding Caused Massive Widespread Damage



FEMA Regulatory 100-Year Floodplain and September 2013 Flood Extents



How did the Resilient St. Vrain project start?



- Fully restore the St. Vrain Greenway trail damaged by flooding.
- Protect people and property by making the St. Vrain Creek through Longmont more resilient to future flooding.
- Maintain and enhance the natural environment for wildlife and fish, improve the quality of stormwater that makes its way into the creek, and restore the natural setting enjoyed by the community.
- Honor previous planning efforts in the project's design.
- Incorporate reasonable sustainable approaches into the project.





Technical Challenges to Design

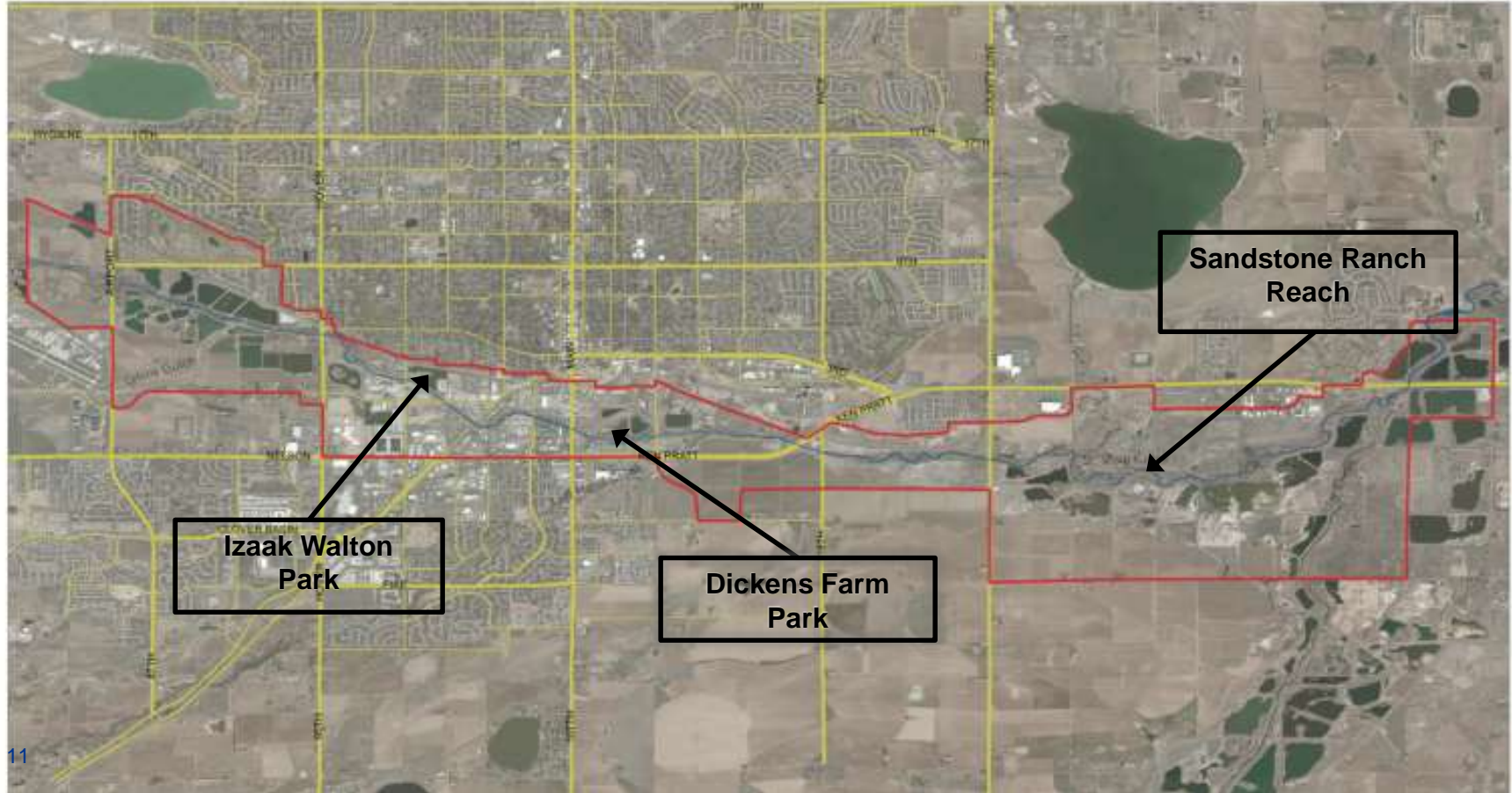


Resilient St. Vrain Program

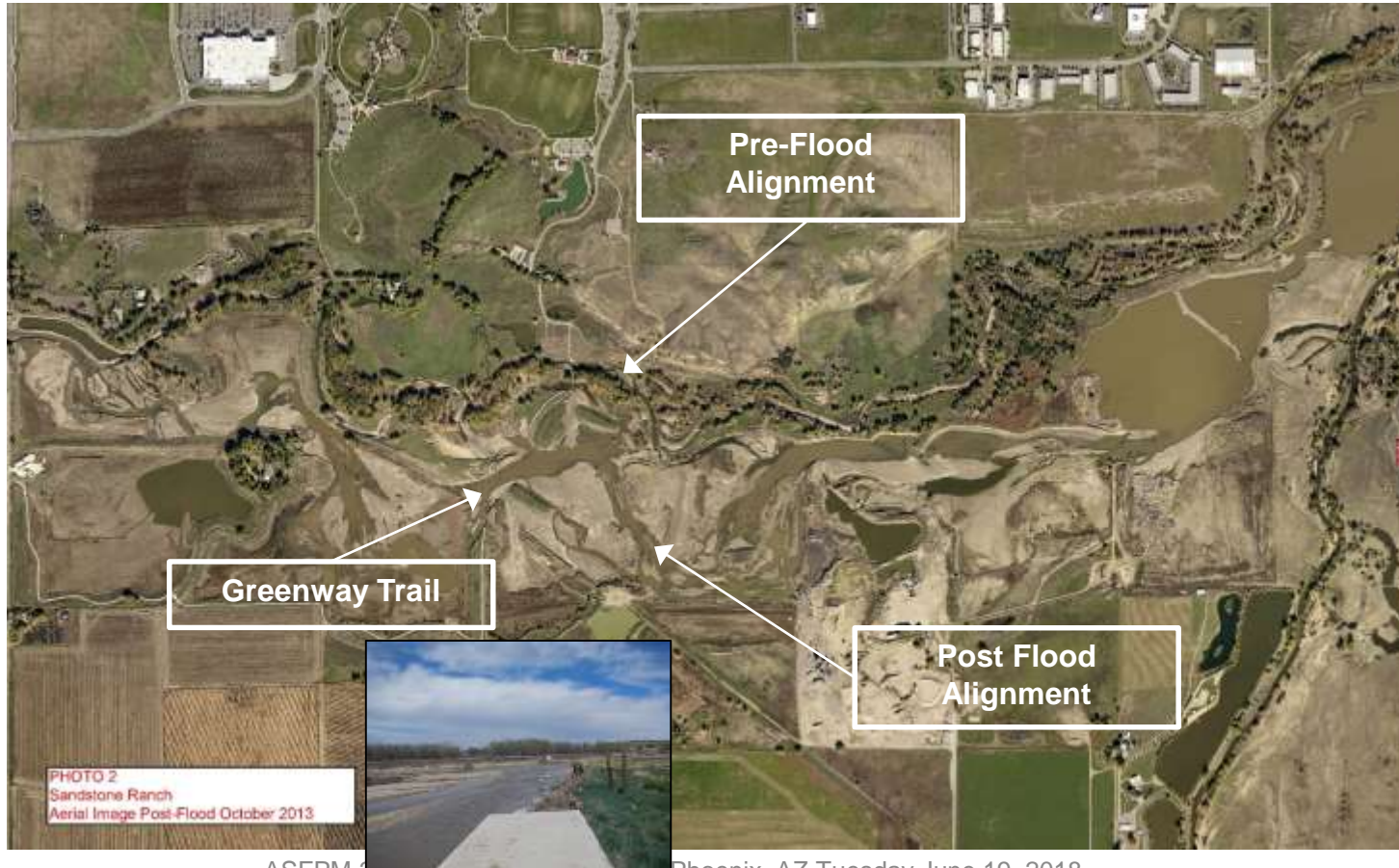
- Funding of the program
- Project coordination and communication
- Focus on resiliency



Damage/Cost Assessment – May 2015



Sandstone Ranch Reach



Dickens Farm Park



Greenway Trail Damage



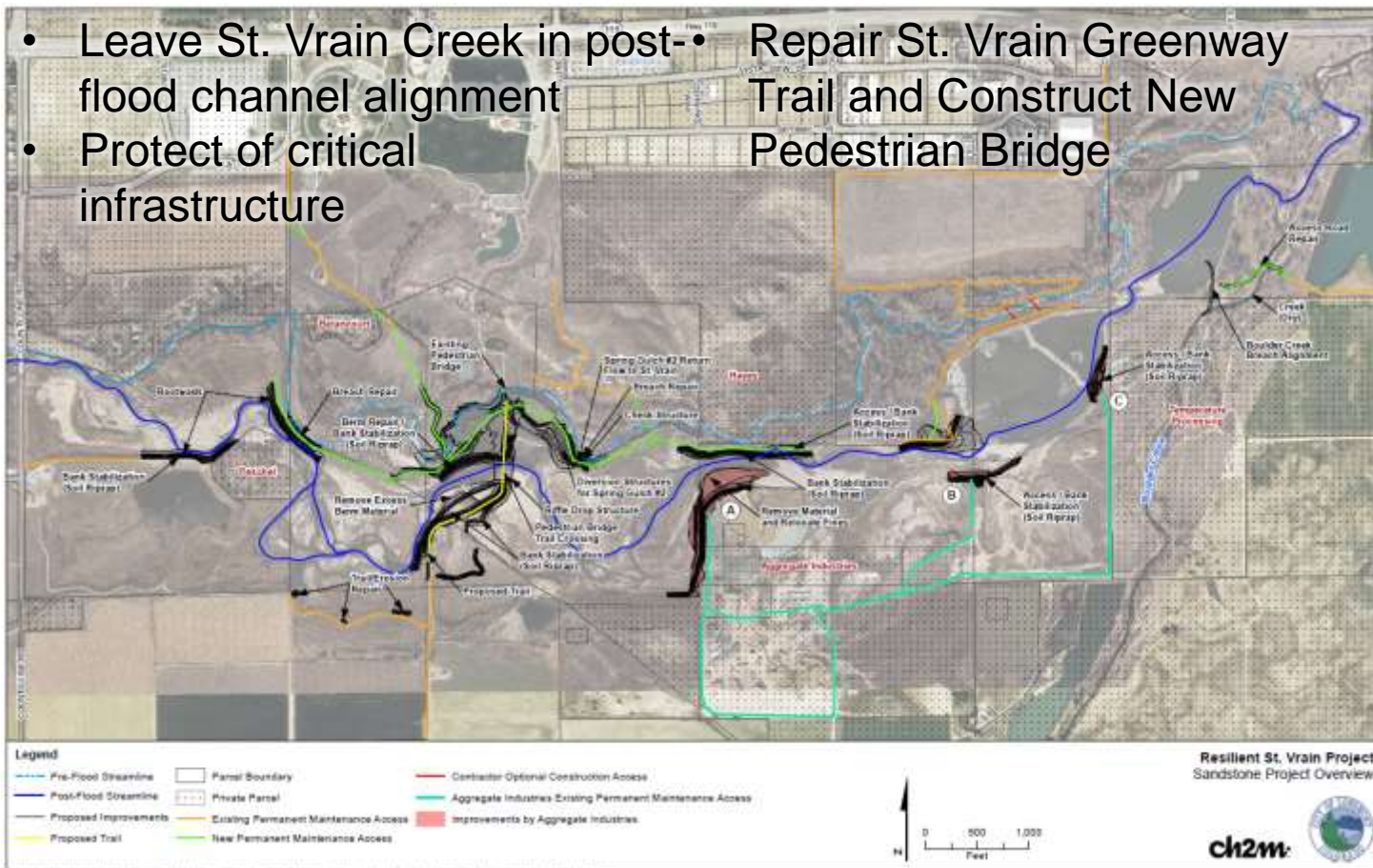
Pond Breach

Izaak Walton Park



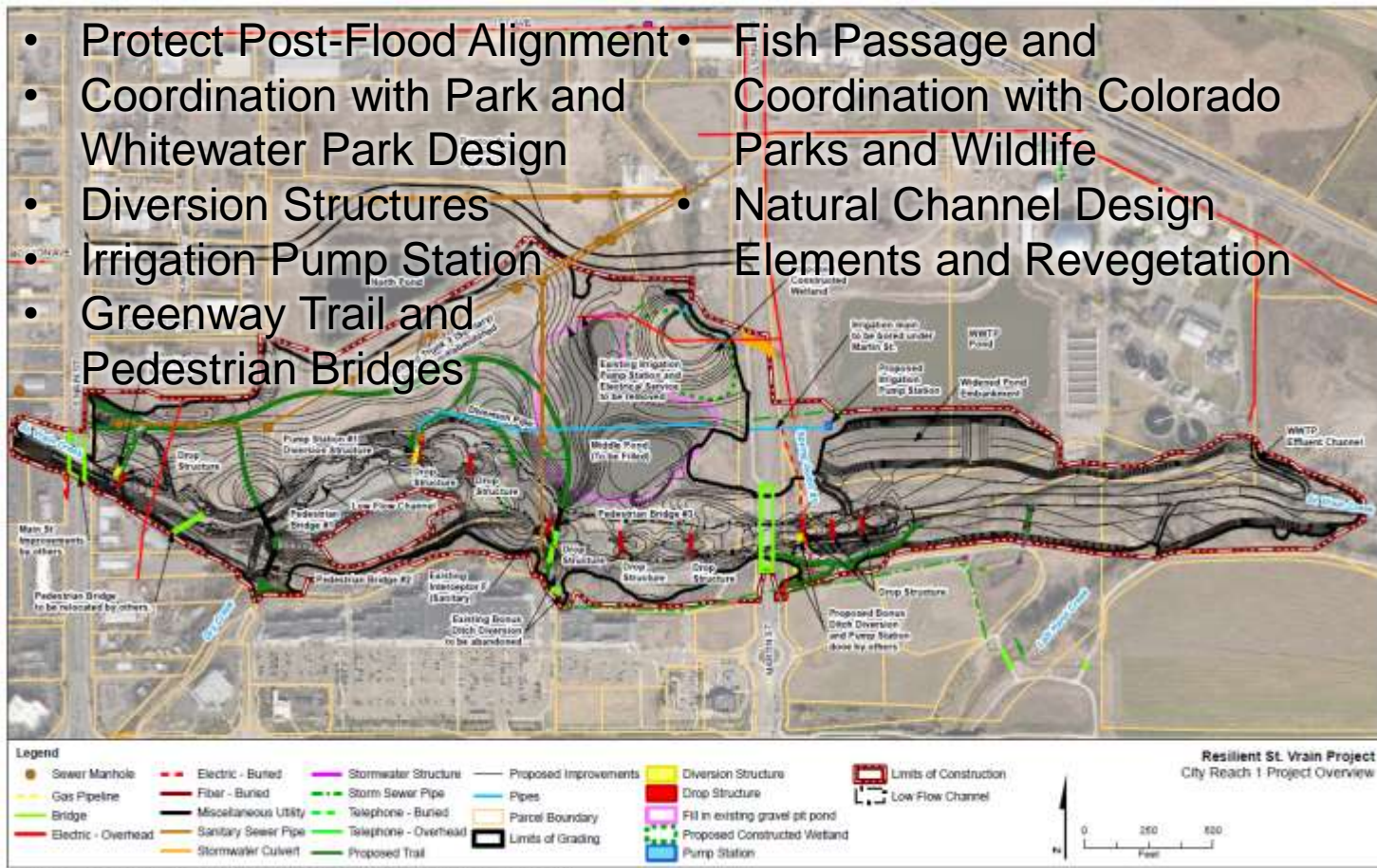
Proposed Improvements for Sandstone Ranch Reach

- Leave St. Vrain Creek in post-flood channel alignment
- Protect of critical infrastructure
- Repair St. Vrain Greenway Trail and Construct New Pedestrian Bridge



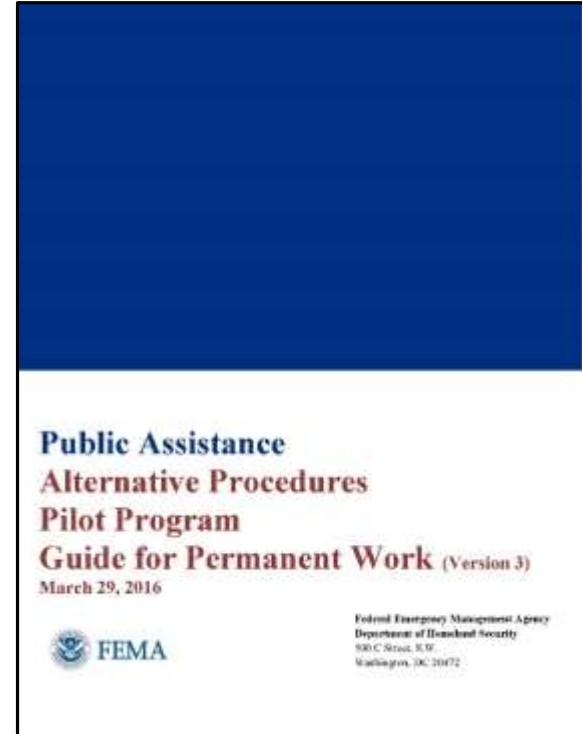
City Reach 1 Improvements – Overall Figure

- Protect Post-Flood Alignment
- Coordination with Park and Whitewater Park Design
- Diversion Structures
- Irrigation Pump Station
- Greenway Trail and Pedestrian Bridges
- Fish Passage and Coordination with Colorado Parks and Wildlife
- Natural Channel Design Elements and Revegetation



FEMA Public Assistance Alternative Procedures (PAAP) Funding

- Disaster Relief and Emergency Assistance for Permanent Improvements
- Goals
 - Reduce costs
 - Increase flexibility
 - Improve resiliency
- Requires an agreed upon damage description, scope of work, and cost estimate
- <https://www.fema.gov/media-library/assets/documents/115868>
- Initial PAAP Funding Deadline – September 14, 2017



Other Funding Sources for RSVP

- City Funds
- Great Outdoors Colorado (GOCO)
- PAAP Mitigation
- Hazard Mitigation Grant Program (HMGP)
- Ralph Price Reservoir PAAP – Related to Water Supply
- Community Development Block Grant disaster recovery (CDBG-DR)



Funding Matrix

Resilient St. Vrain Project - Funding Matrix for City 1 and Sandstone						
	FEMA Creek - Core (PW 1153)	FEMA Creek - Mitigation (PW 1153)	FEMA HMGP	City Funds	GOCO	CDPHE (Agreement number 1564)
			Separate project	City match to State and Federal funding; City funds will also cover any unfunded work	City's match for FEMA reimbursable trail repairs; covers non-FEMA reimbursable trail repairs (landscaping)	Separate project - Not a match to federal funding
Funding	\$27,763,766	\$737,833	\$1,975,000		City's cost share for greenway trail repairs - \$444,000 Non-reimbursable landscaping - up to \$41,000	
City Reach 1	<ul style="list-style-type: none"> •Trails (concrete and crusher fines) •Bridges •Irrigation (greenway irrigation damaged in the flood and establishment of vegetation, not park irrigation) •Bank Stabilization (grading, riprap, revegetation) •D-Barn and St. Vrain Pump Station No. 1 Diversions and associated drop structures •Access Roads and Crossings •Culverts and Pipes •Utilities •Demo and Tree Removal •Retaining Walls •In-Stream Channel Work (e.g. excavation for flood capacity) •Park Features Damaged During the September 2013 Flood (2 benches, 2 garbage cans, 3 wayfinding signs, 8 greenway signs, 3 full assembly gates and posts) 	<ul style="list-style-type: none"> •Riprap to Prevent Future Damage (except for the area covered under the CDPHE grant) •Utility Relocation Away from Creek •Moving Trails Away from Creek 	Downstream of Martin Street	<ul style="list-style-type: none"> •Creek work that is not eligible for FEMA funding •Creek work if there isn't sufficient funding from FEMA and other City sources •City match to FEMA PW work 	<ul style="list-style-type: none"> • Greenway trees damaged in the flood that are not reimbursable by FEMA) • City's cost share of greenway 	<ul style="list-style-type: none"> •Riprap on the North Bank of the St. Vrain to Prevent Future Damage to the Wastewater Treatment Plant
Sandstone	<ul style="list-style-type: none"> •Trails (concrete and crusher fines) •Bridges •Irrigation (establishment of vegetation, repair of damaged greenway irrigation) •Bank Stabilization (grading, riprap, revegetation) •Spring Gulch diversion structure •Access Roads and Crossings •Culverts and Pipes •Utilities •Demo and Tree Removal •Grade Control at the Bridge •In-Stream Channel Work • Park Features damaged in the flood (2 garbage cans, 3 greenway signs, 1 bench) 	<ul style="list-style-type: none"> •Riprap to Prevent Future Damage •Utility Relocation Away from Creek •Moving Trails Away from Creek 	N/A	<ul style="list-style-type: none"> • City match to FEMA PW work 	<ul style="list-style-type: none"> •City's cost share of greenway and bridge design and construction (including greenway irrigation) • Greenway trees/landscaping that are not reimbursable by FEMA 	N/A

Project Coordination and Communication

- City of Longmont Staff Leading PAAP Effort with CH2M/Jacobs in support role
- FEMA PAAP Meetings
 - November 11, 2015
 - Project Overview, PAAP Eligible Components, Extension of Funding Deadline
 - April 4, 2016
 - Project Overview, Coordination with Adjacent Projects and Other Funding Sources
 - Discussion of how to fully utilize PAAP Mitigation Funding
 - May 4, 2016
 - Details, Next Steps, Identification of FEMA point person for the St. Vrain Project
 - June 1, 2016
 - On-site Meeting with FEMA Headquarters, local FEMA staff, and State staff
 - Received verbal approval of the alternative project

PAAP Phase 2 Submittal

- Extension of the Funding Deadline to November 30, 2018
- City Reach 1 Scope of Work and Components
- Sandstone Scope of Work and Components
- Discussion of Ralph Price Reservoir PAAP Used for Water Supply Components
- Identification of a future phase that could be used if additional funds are available
- Funding Sources Working Together

City of Longmont FEMA Project Worksheet 1153 PAAP Phase 2 Submittal

Submitted To:

FEMA and the State of Colorado

Submitted By:

City of Longmont

Date:

June 10, 2016

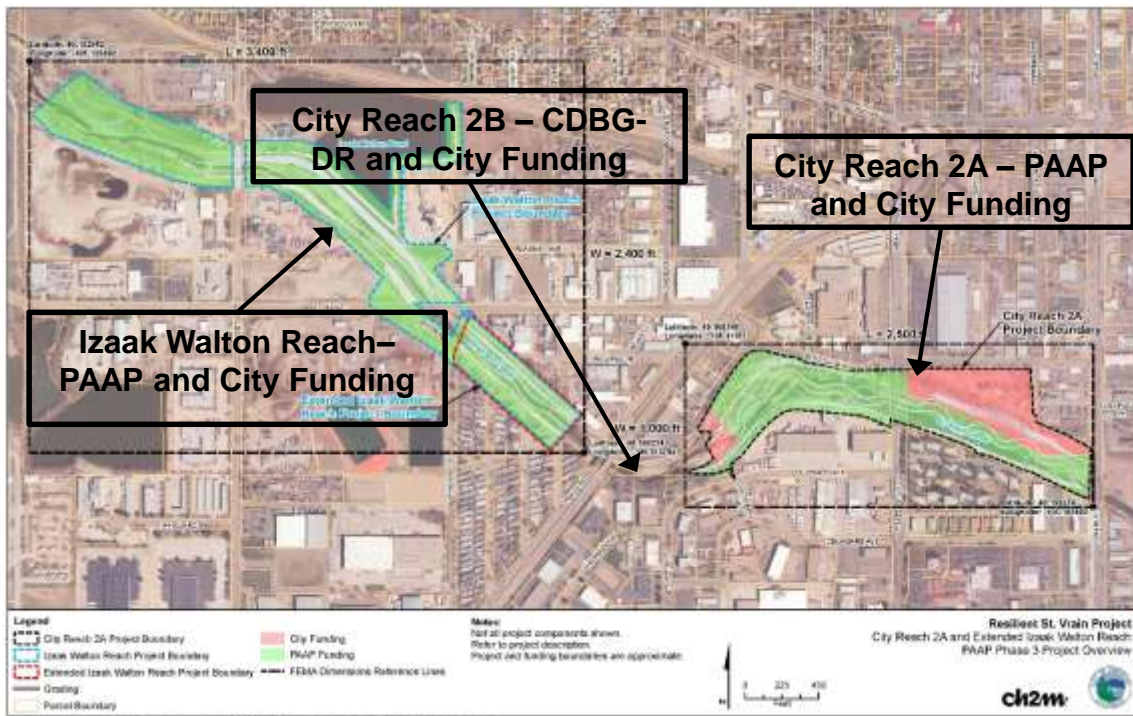
Funding Sources Working Together

Funding Sources:

- RSVP PAAP
- HMGP
- Ralph Price Reservoir PAAP
- RSVP PAAP Mitigation
- GOCO
- City of Longmont local funds



PAAP Phase 3 – Moving Upstream



Funding Sources and Progress

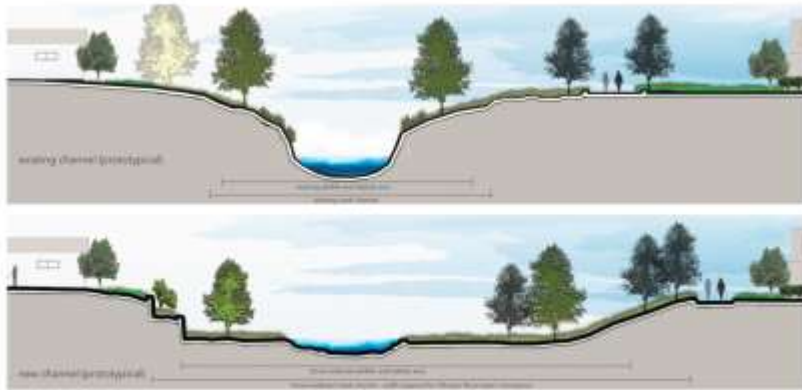
Looking Ahead: Funding Status and Estimated Construction Dates



- Sandstone Ranch Reach
 - Construction Complete – 2018
- City Reach 1
 - Construction Complete – 2018
- City Reach 2A
 - Construction 2018 – 2019
- City Reach 2B
 - Construction 2018 – 2020
- City Reach 2 Upstream
 - Preliminary Design Complete 2017
- City Reach 3
 - Conceptual Design Complete 2018

Investment in Resiliency Provided Bang for the Buck

Conceptual Channel Cross Section



Conceptual Cross Section

Conceptual Post Project Floodplain

Investment in Resiliency Provided Bang for the Buck



City Reach 2A – Pre-Project Graphic



City Reach 2A – Post Project Graphic

Richard Myers, deputy of the FEMA region eight environmental office, said in an interview last week that the federal agency is touting the way Longmont staff went about the multi-million-dollar Resilient St. Vrain project as an example for other cities across the nation.

"Longmont came to us in early 2014 and they came to us on the environmental side very early in the project planning process," Myers said. "And that sort of early collaboration makes the whole process go a lot smoother. Nick Wolfrum and his team are just awesome to work with."

Questions?

For Additional Information Visit:

<https://www.longmontcolorado.gov/departments/departments-n-z/water/stormwater-drainage/resilient-st-vrain>

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