

Vulnerability Analysis



June 2016

Engineering and Construction Division

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What if... South Platte River, 1965



Big Thompson Canyon, 1976



Front Range Flooding, 2013



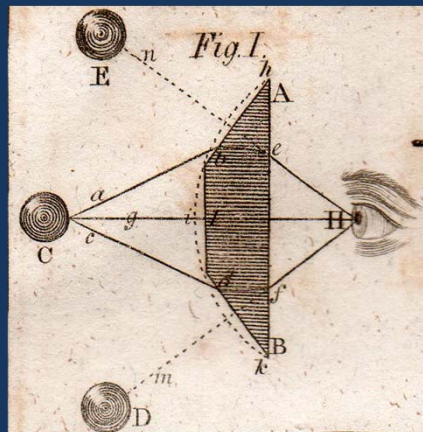
Analysis Goals

- Determine Locations that Pose Significant Risk to Storm Infrastructure
 - Failing or Inadequate
- Homes and Buildings in the Existing Floodplain
- Prioritize Projects
 - Reduce the Risk of Loss
 - Remove Structures From Floodplain



Analysis Sources

- Stream Channel Inventory
- Drainage Basin Master Plans
- Floodplain GIS Analysis
- Staff and Other Observations

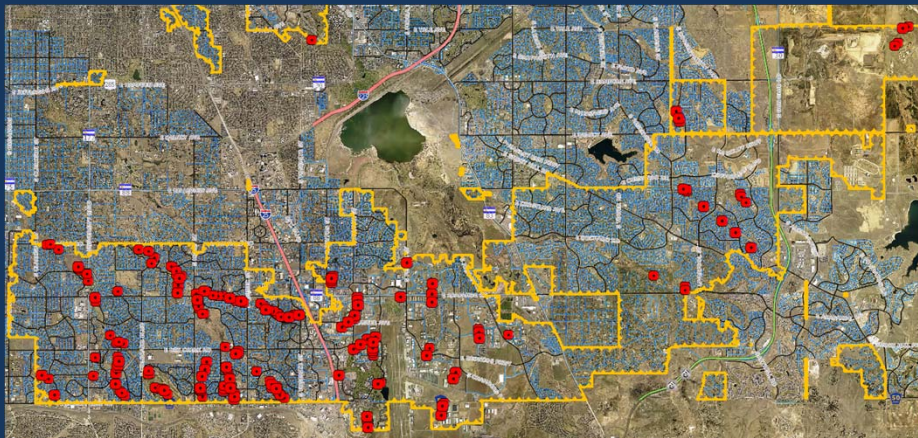


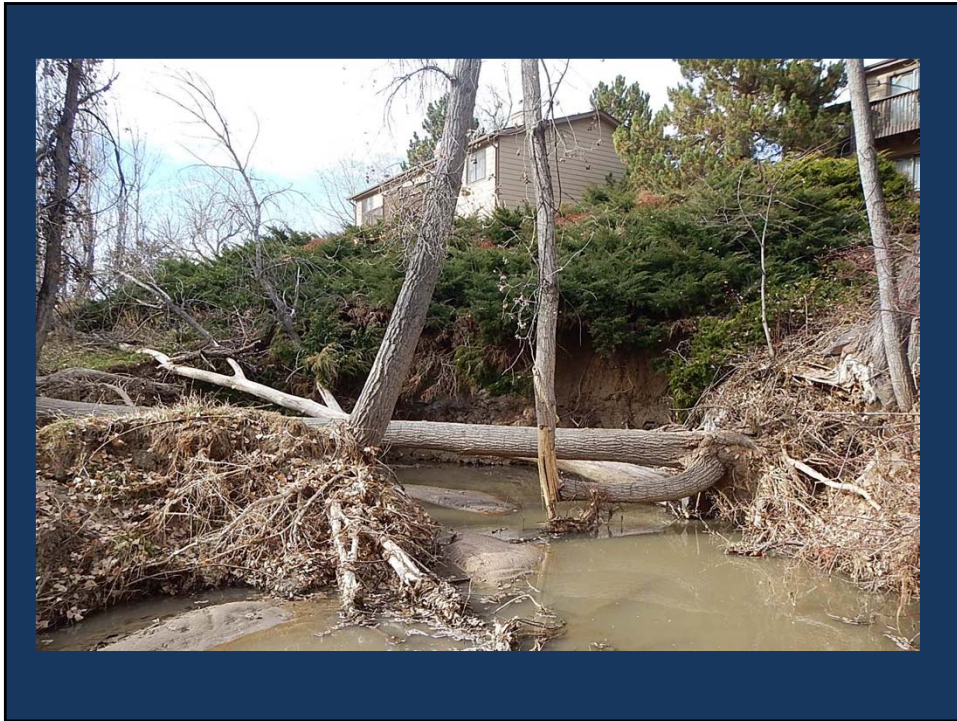
Stream Channel Inventory

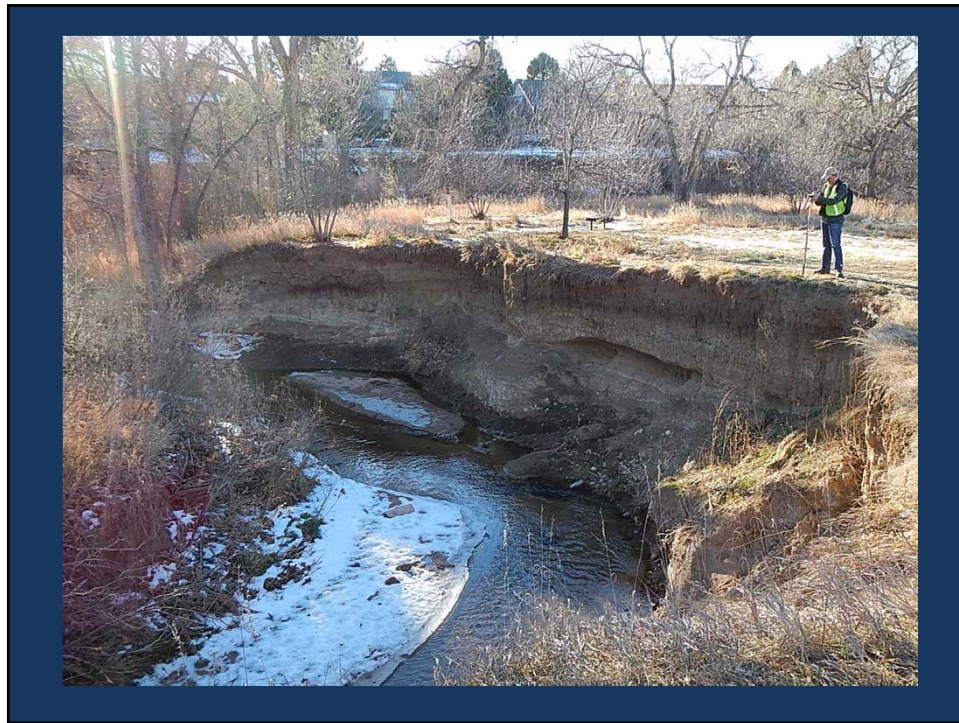
- Consultants Walked and Documented Condition of Channels
- Photo Records Tied to GIS
- Located Problem Areas and Photos of “Erosion Points”



Stream Channel Inventory







Drainage Basin Master Plans

Littles Creek Major Drainageway Plan

West Toll Gate Creek Major Drainageway Plan

PROPOSED FOR:

- Town Drainage and Flood Control District
- City of Kansas
- Southeast Water Drainage Authority

Submitted By:

- Urban Drainage and Flood Control District
- Southeast Water Drainage Authority
- City of Kansas
- City of Engineering

Logos: Southeast Water, City of Kansas, City of Engineering, Southeast Water Drainage Authority

Big Dry Creek (Downstream of County Line Road) Major Drainageway Plan

Logos: Southeast Water, City of Kansas, City of Engineering, Southeast Water Drainage Authority

Map: A map showing the drainage basin area, with a red line indicating the proposed project location. The map is dated June 2015.

AVRES

June 2015

Four small photographs at the bottom:

- A photograph of a river or stream flowing through a landscape.
- A photograph of a river or stream flowing through a landscape.
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Drainage Basin Master Plans

- Master Plans Completed in Partnership with UDFCD
- Identify Condition and Storm Capacity Concerns
- Include Conceptual Design and Costs of Projects

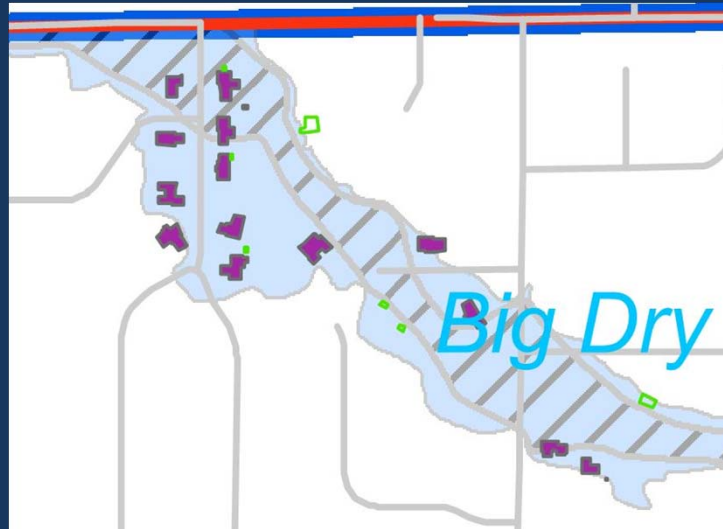


Floodplain Analysis

- Overlaid Mapping of Insurable Structures (Homes and Commercial Buildings) Over the FEMA Floodplain In GIS
- Reviewed Locations where a Project (road crossing, bridge, channel) Could Remove Buildings from the Floodplain
- Feasible Projects Identified



Floodplain Example



Projects Identified

- Projects Identified from All Sources
 - Stream Inventory
 - Master Plans
 - Floodplain Analysis
- Projects Lower the Long Term Risk; Some Remove Buildings from Floodplain



Stream Inventory Project Example



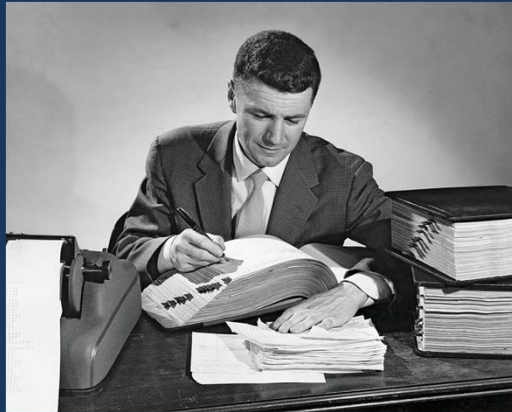
Master Plan Project Example



Priority Projects

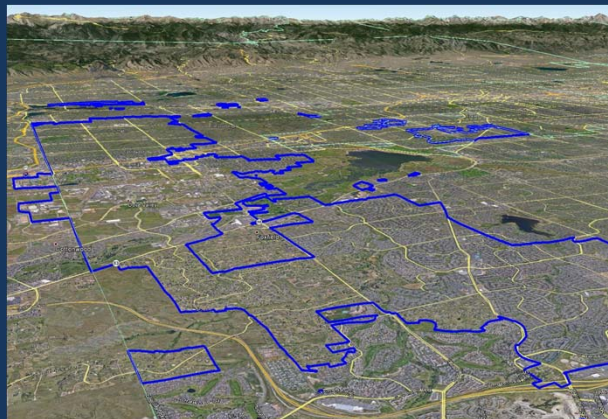
An aerial photograph of a city grid, likely Denver, Colorado, showing a network of streets and a central green lake. The map is overlaid with a grid of red and blue lines. Numerous yellow circular markers are scattered across the map, indicating specific locations. A few pink circular markers are also visible, primarily in the lower-left quadrant. The map is framed by a dark blue border.

Cost Of Projects



Identified Costs From Master Plans

- Recent update of all Master Plan Cost Estimates for use in Basin Fee Updates (SDFs/ECFs)
- Total of Projects Identified in Master Plans
\$160 Million!



Next Steps

- Projects will form the Basis for a 10-year CIP Plan
- Use in Budget and Planning Process with UDFCD
- Ongoing Analysis and Revision of Priority Projects List



Questions and Discussion

