

Study Completed in 2015

Neffs Creek, Utah

Assessing the Flood Hazard on a Urbanized Alluvial Fan



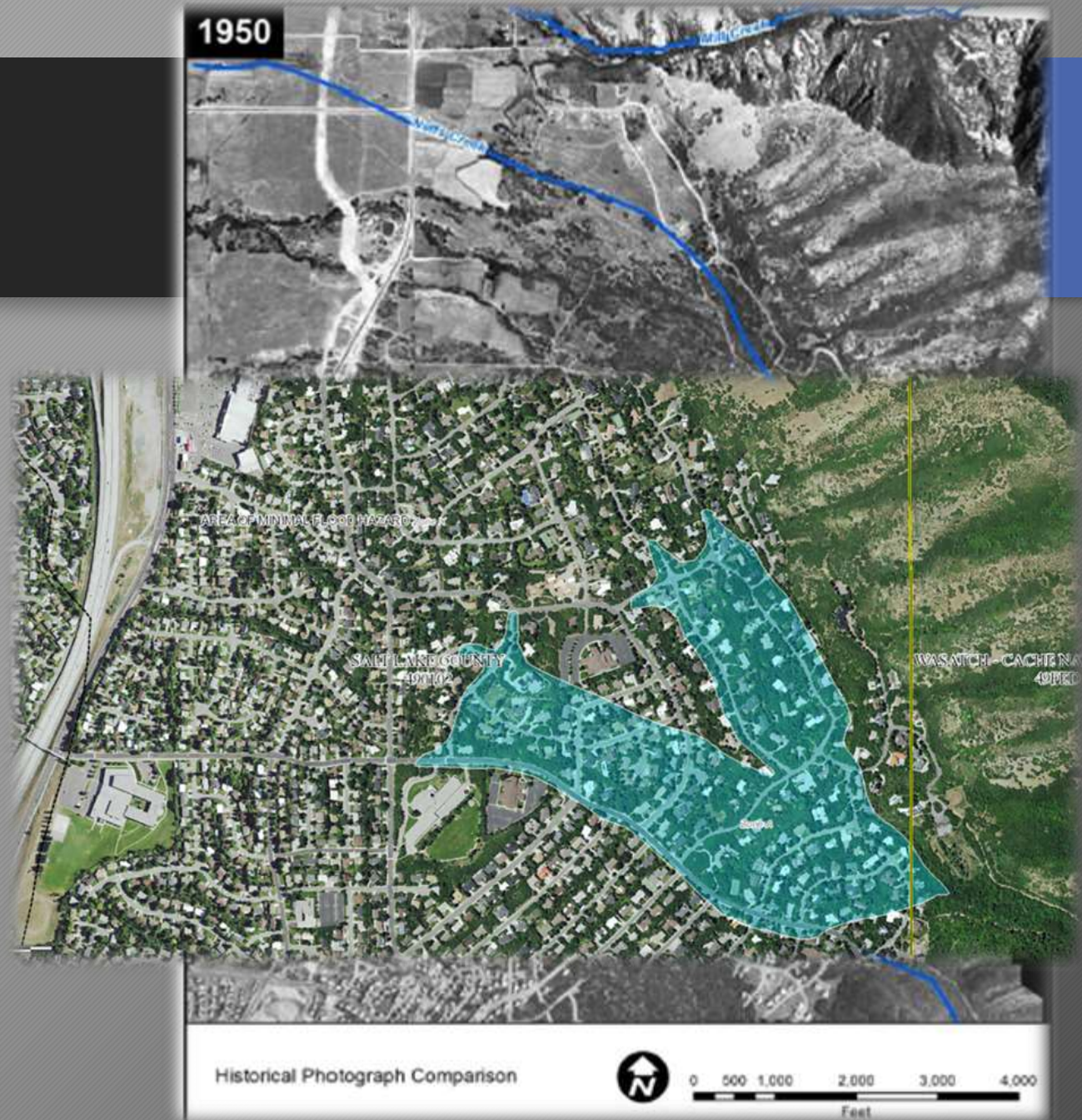
Association of State Floodplain Managers
Annual Conference
June 20, 2018

Neffs Creek Canyon, City of Millcreek, UT

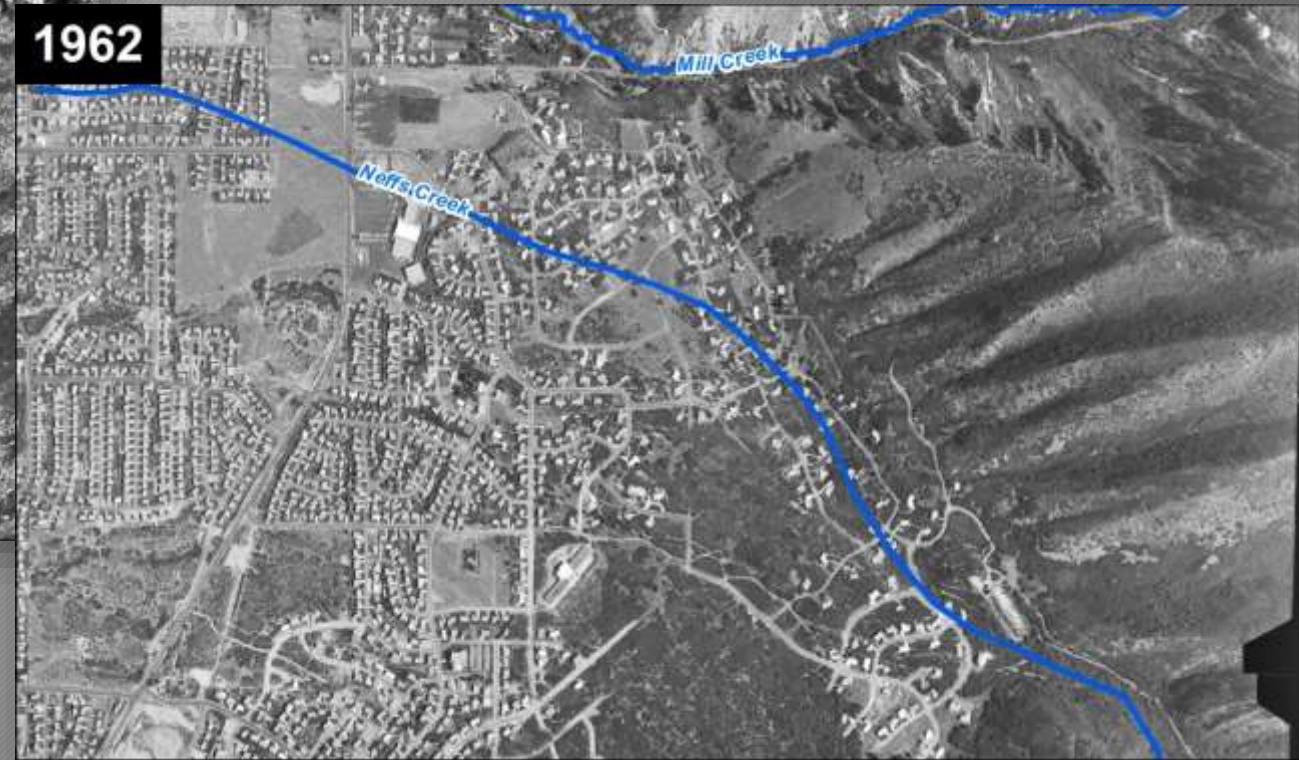
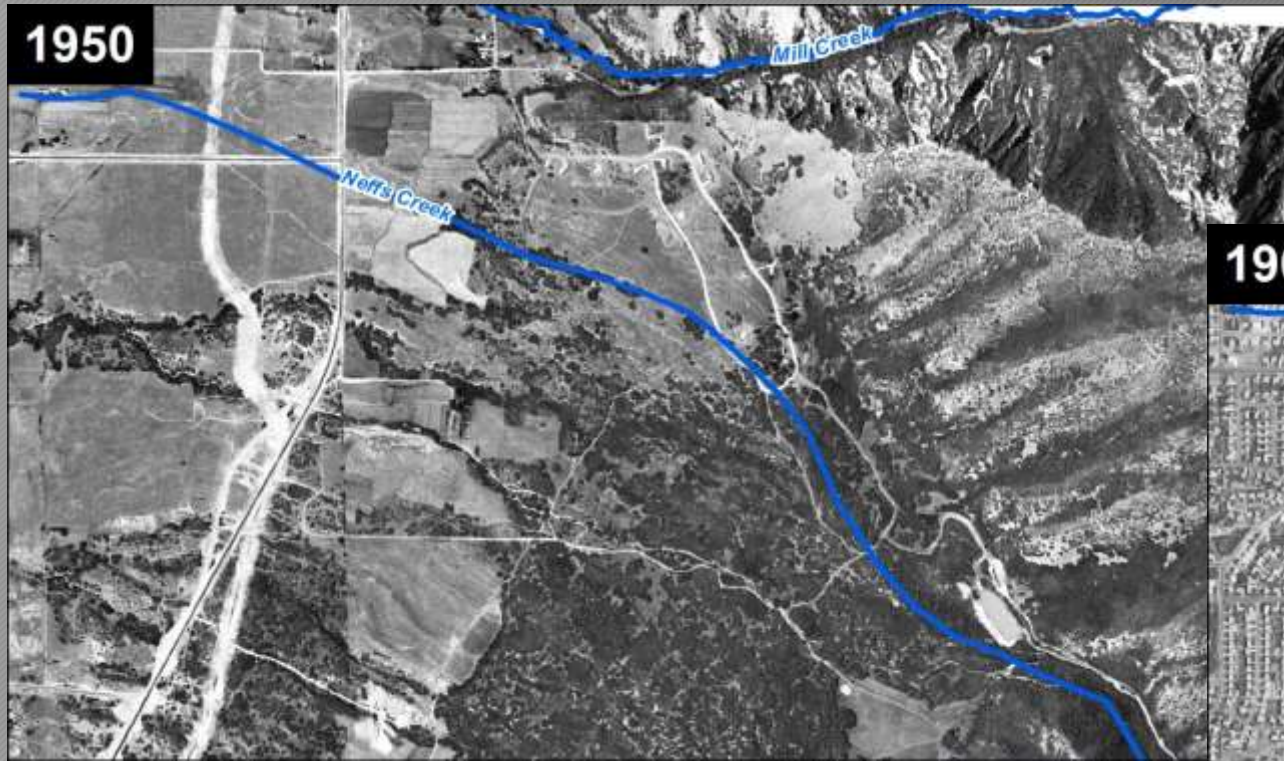


A Necessary Study

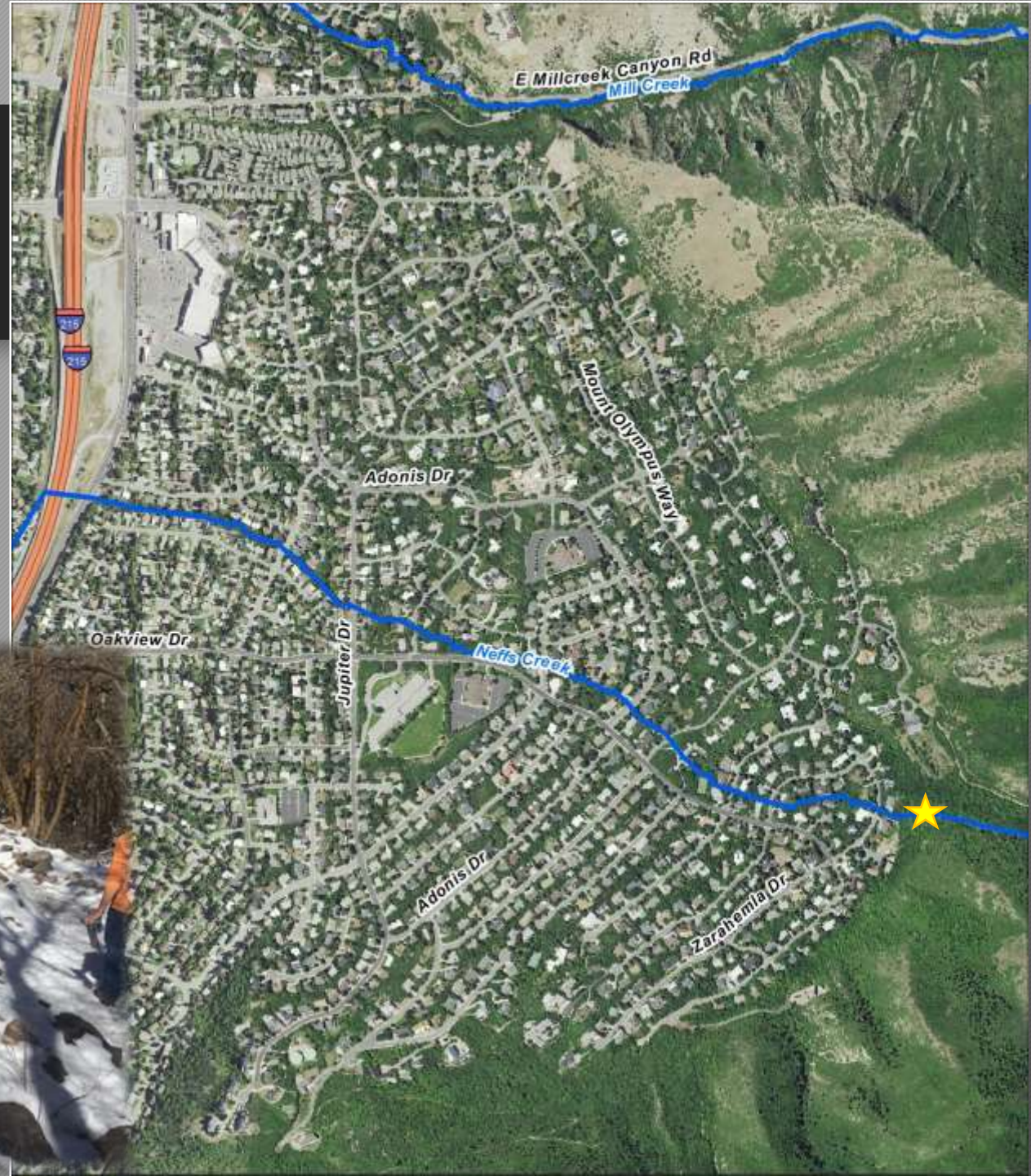
- Risk: Developed area next to steep mountain
- Zone A does not accurately portray true flood risk
- 2017 Salt Lake City Cloudburst Flood
- Study:
 - Requested by Salt Lake County
 - DEM lead
 - Funded through FEMA CTP Grant



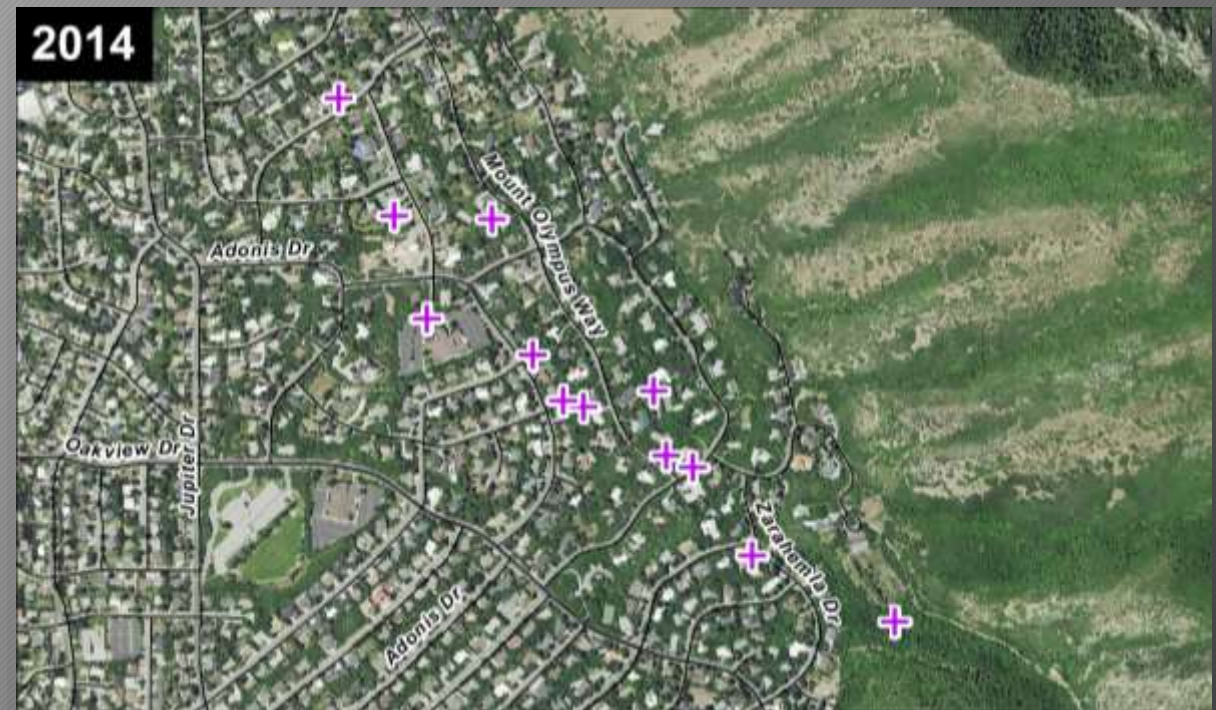
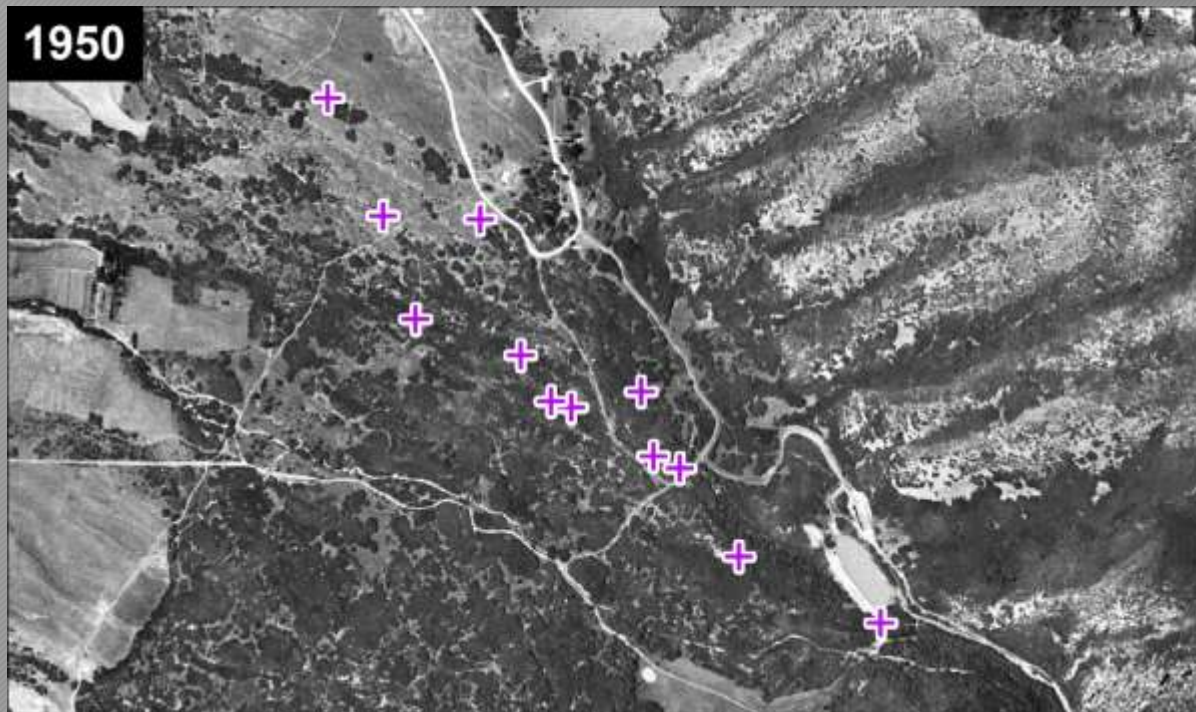
Historical View



Modern View



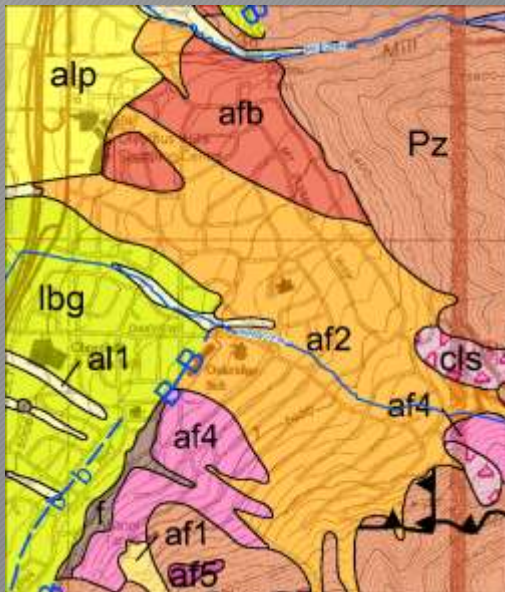
Flow Bifurcations



FEMA Alluvial Fan Guidelines Approach

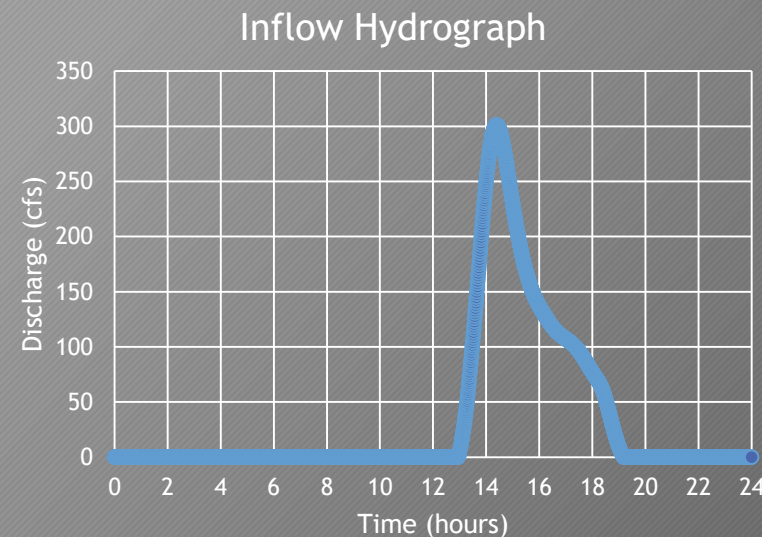
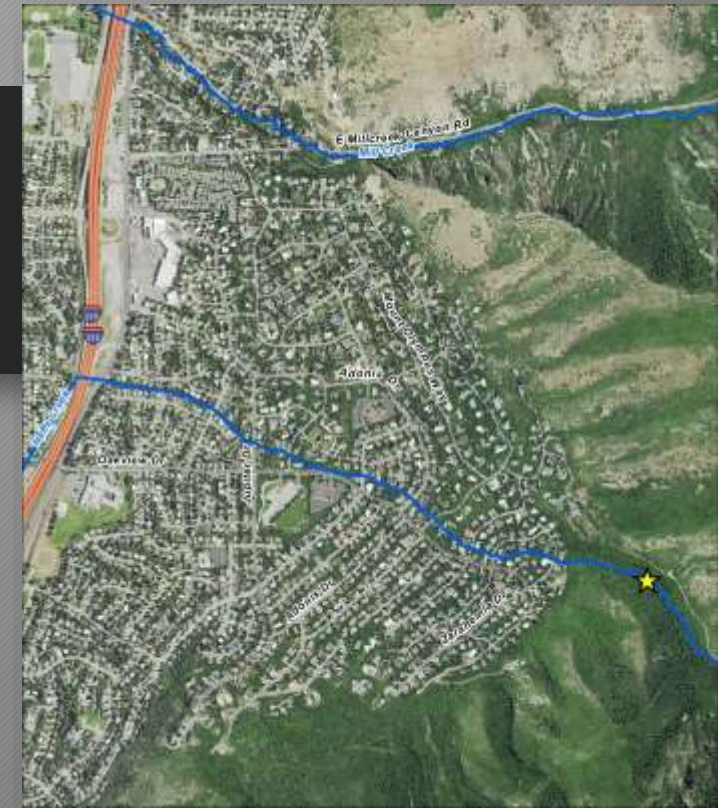
- Three-Stage Process

- Stage 1: Recognizing and Characterizing Alluvial Fan Landforms
- Stage 2: Defining Active and Inactive Areas of Erosion and Deposition
- Stage 3: Defining the 100-Year Floodplain (for Active Alluvial Fan Landforms)



Stage 3 - Defining the SFHA

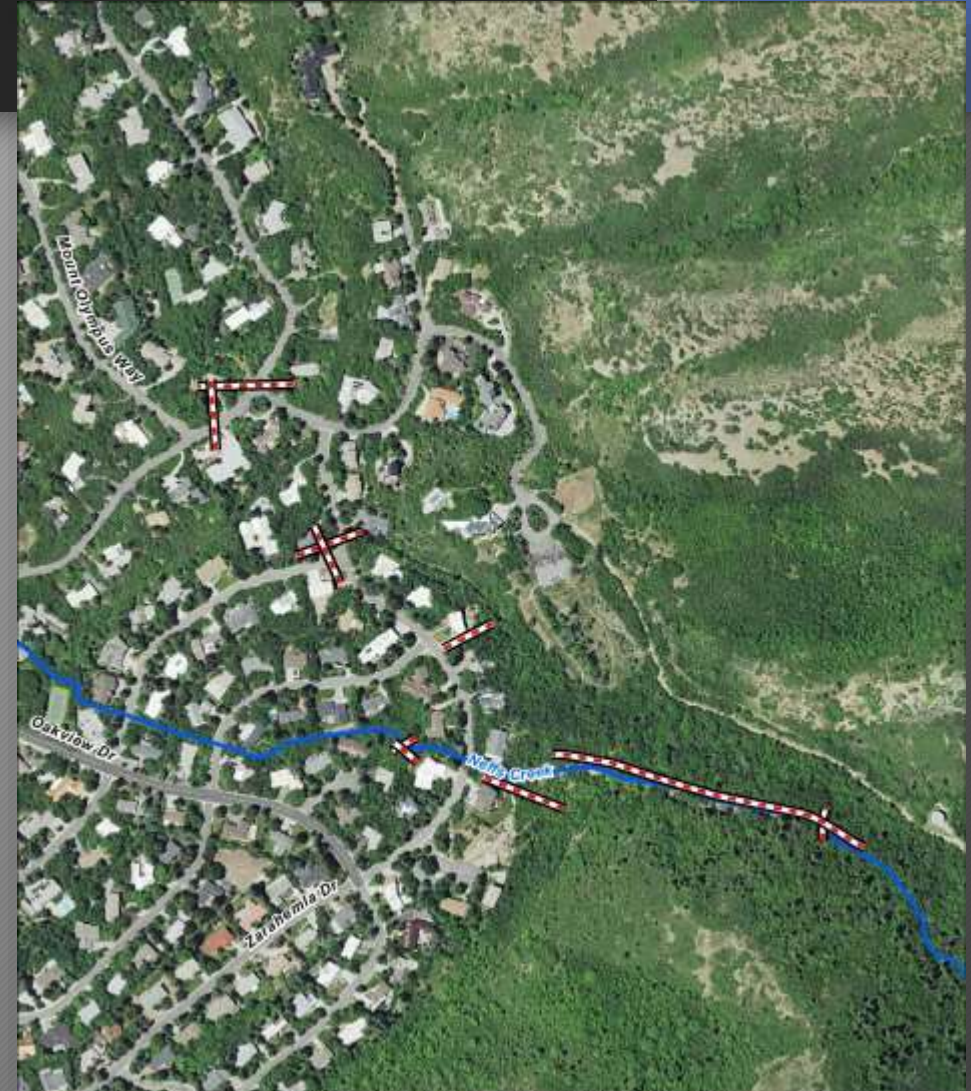
- Two-Dimensional Model
 - Hydrology - County-approved study (2007)
 - Inflow Hydrograph
 - Flood routing on fan surface (no infiltration)
- Flowpath Uncertainty
 - “Virtual” Levees



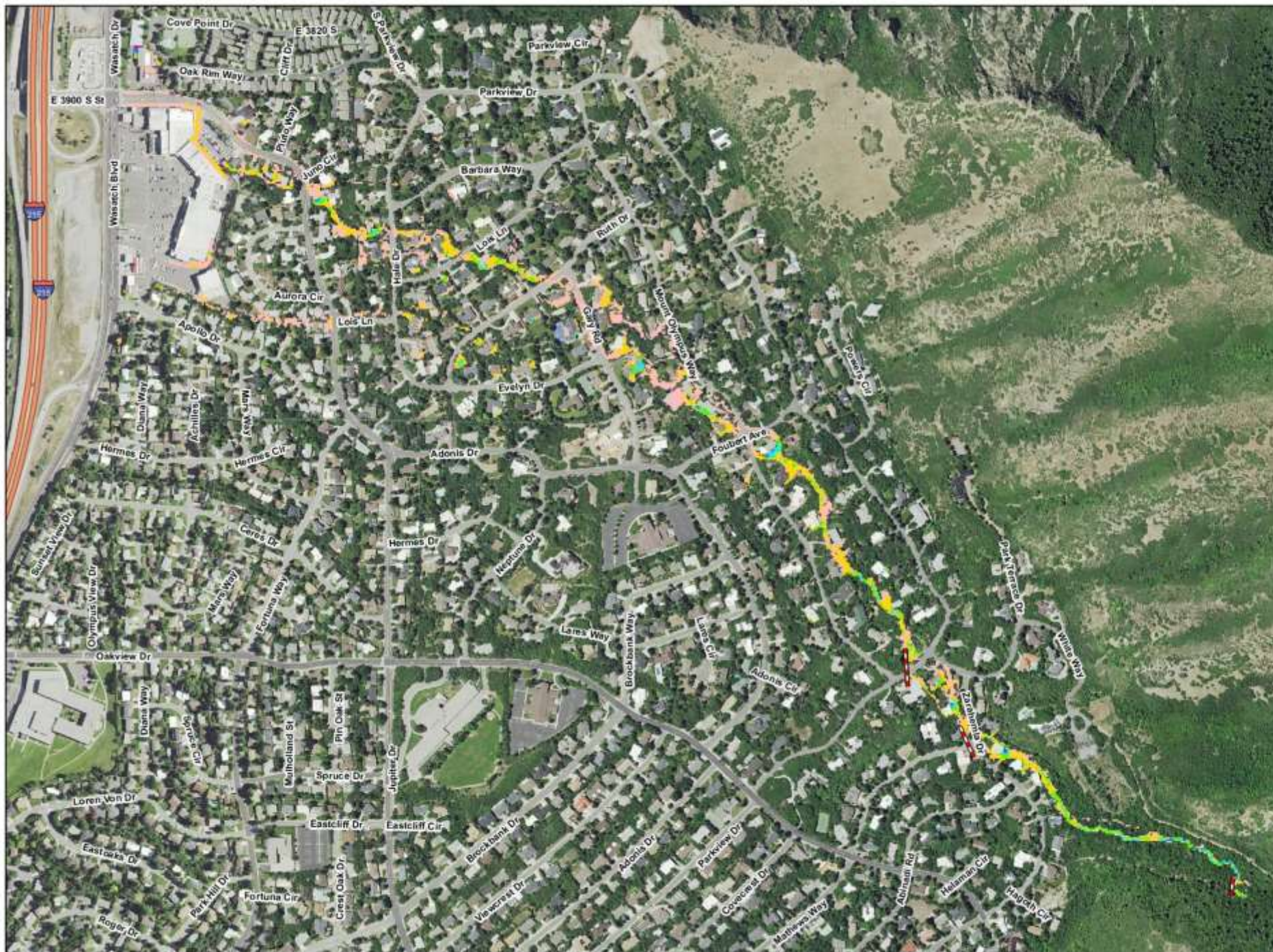
Stage 3 - Flowpath Uncertainty

- Seven (7) Scenarios

Flowpath Uncertainty Scenario	Description
Base Condition	Existing conditions. No virtual levees were used.
Scenario 1	Virtual levees were placed to direct flow toward the northern portion of the project area.
Scenario 2	Virtual levees were places to direct flow toward the central portion of the project area.
Scenario 3	Virtual levees were placed to split the flow between the northern and southern portions of the study area.
Scenario 4	Virtual levees were places to direct flow toward the southern portion of the project area.
Scenario 5	Virtual levees were places to direct all the flow into the diversion ditch channel.
Scenario 6	Virtual levees were places to direct flow toward the southern fan apex area.
Scenario 7	Virtual levees were places to direct flow toward the central fan apex area.



Scenario 1



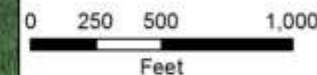
Neffs Creek Flood Hazard Study

Max Flow Depth-
Scenario 1

feet



Flowpath Uncertainty
"Virtual" Levees

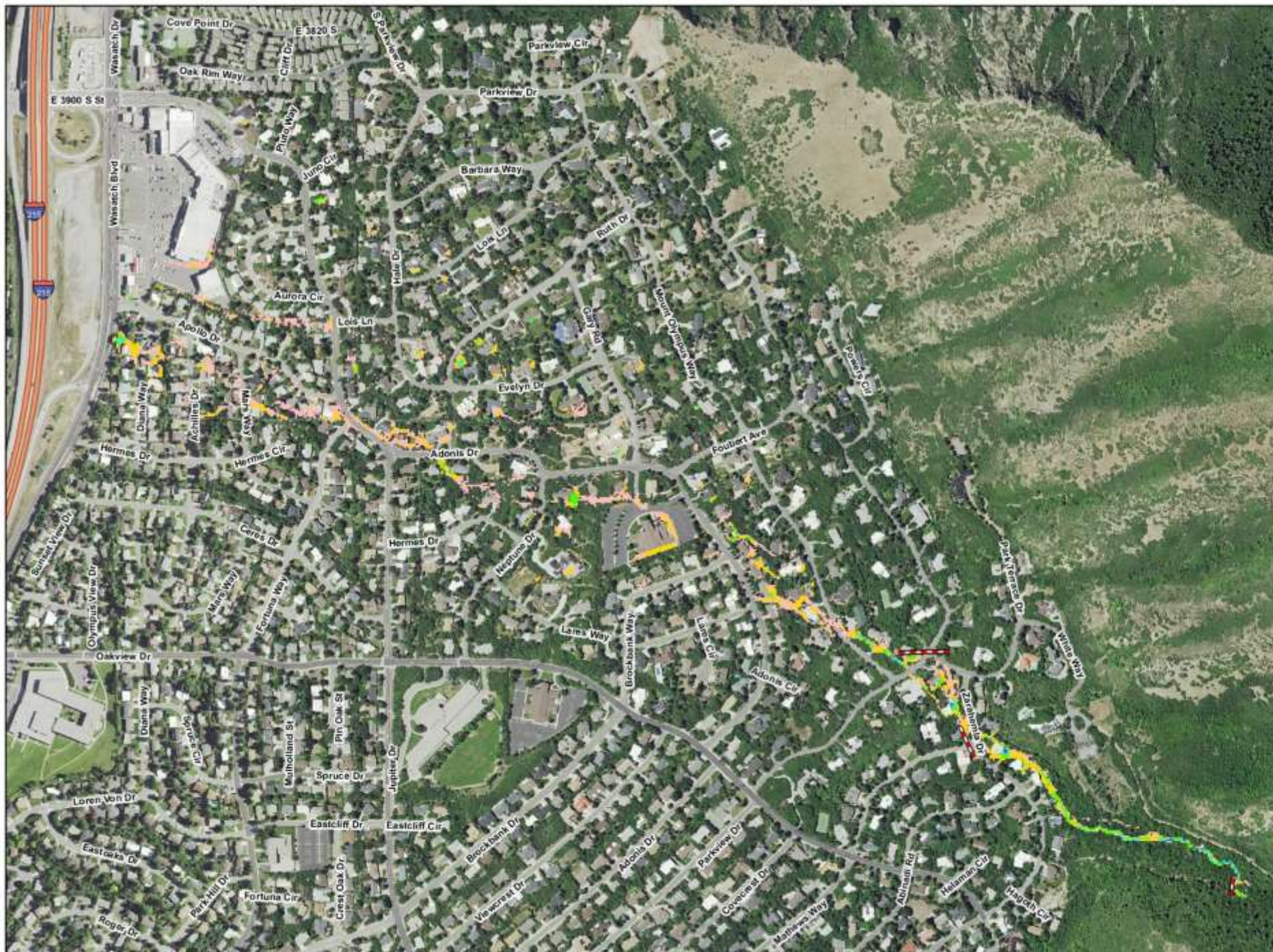


AECOM

JE FULLER
INCORPORATED & ASSOCIATES, LLC

www.jefuller.com

Scenario 2



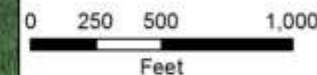
Neffs Creek Flood Hazard Study

Max Flow Depth-
Scenario 2

feet



Flowpath Uncertainty
"Virtual" Levees

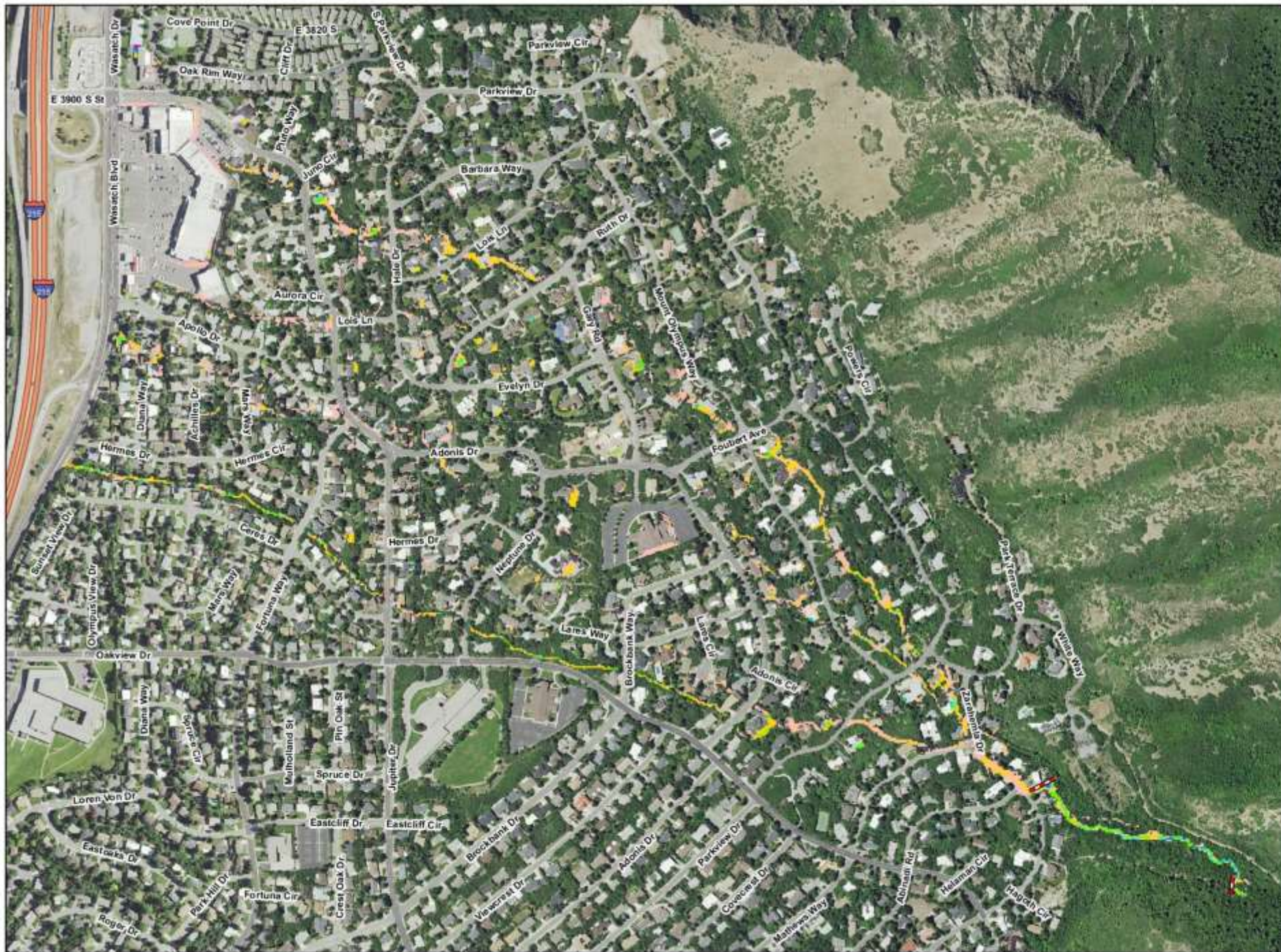


AECOM

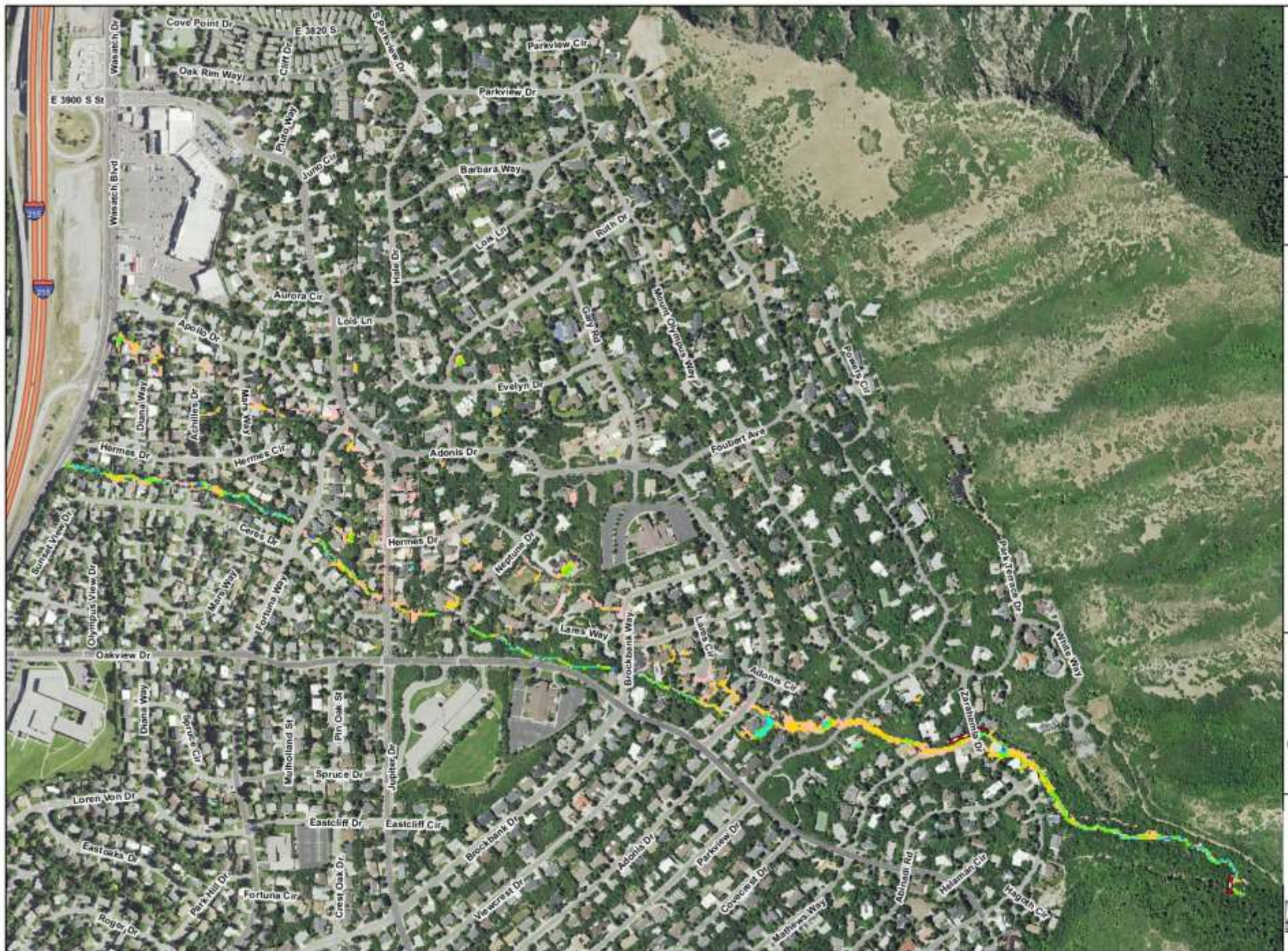


www.jefuller.com

Scenario 3



Scenario 4



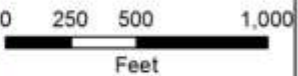
Neffs Creek Flood Hazard Study

Max Flow Depth-
Scenario 4

feet



Flowpath Uncertainty
"Virtual" Levees

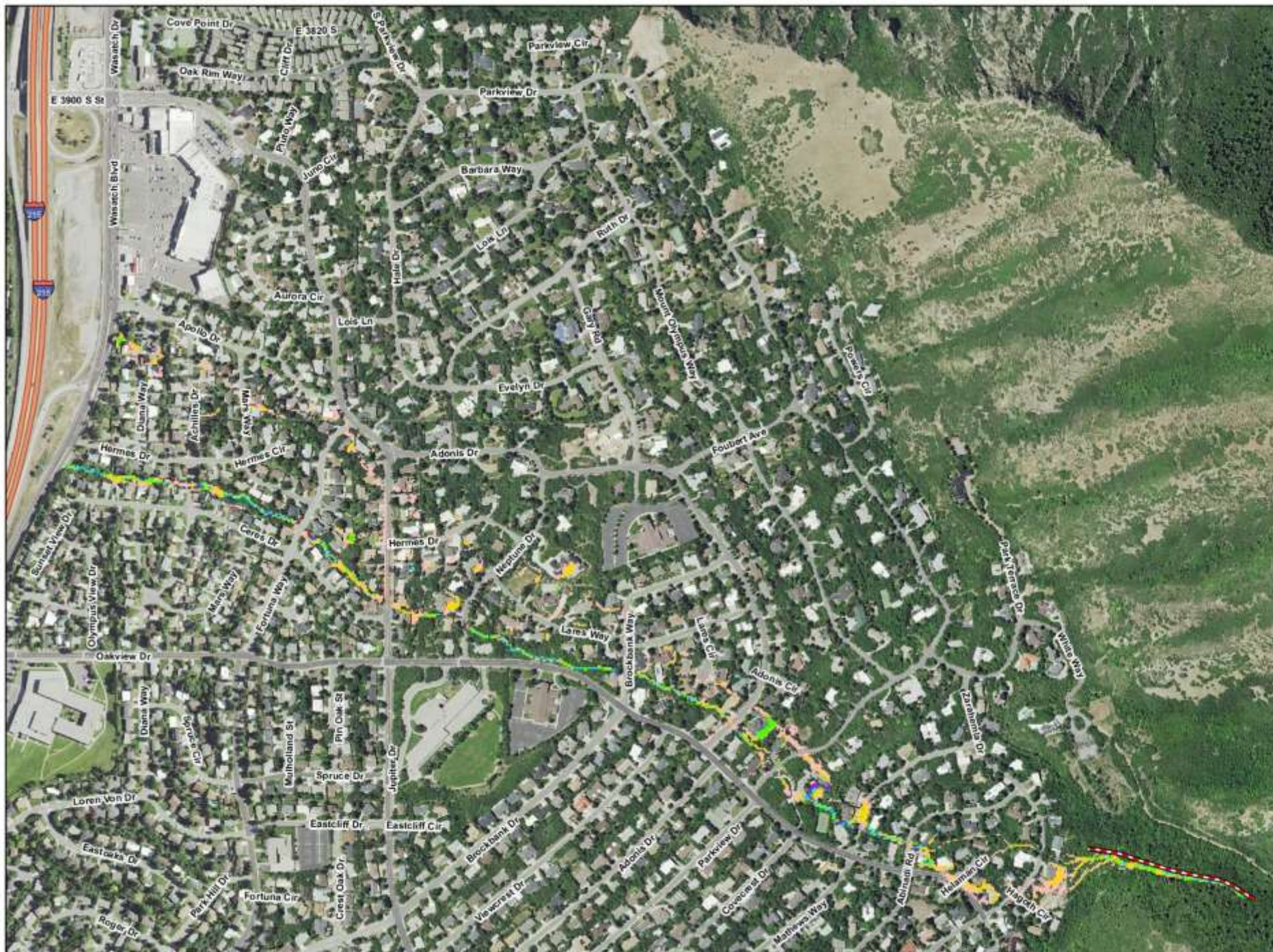


AECOM



www.jefuller.com

Scenario 5



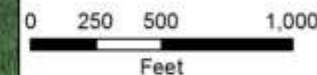
Neffs Creek Flood Hazard Study

Max Flow Depth-
Scenario 5

feet



Flowpath Uncertainty
"Virtual" Levees

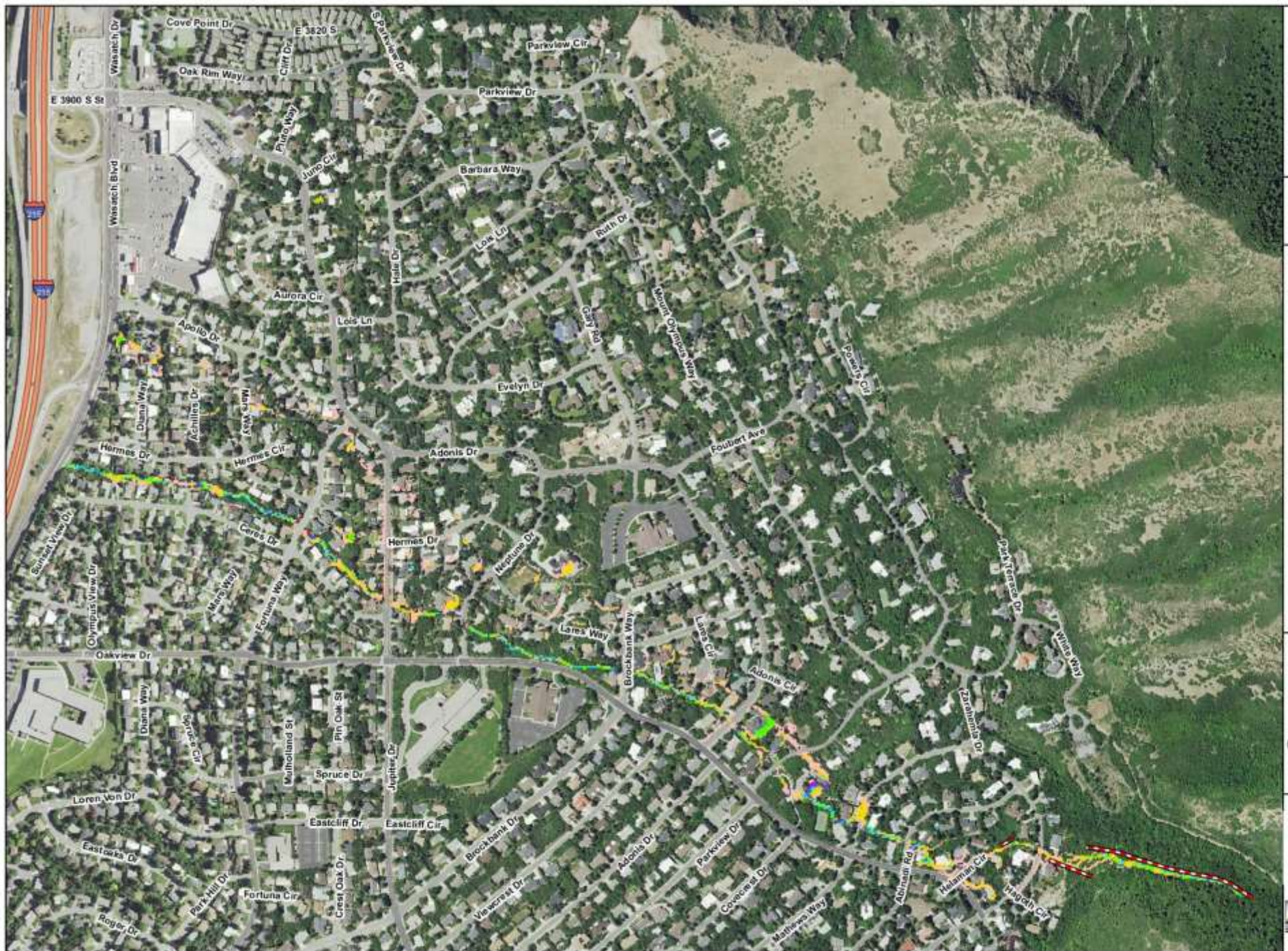


AECOM



www.jefuller.com

Scenario 6



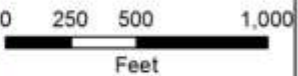
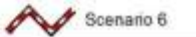
Neffs Creek Flood Hazard Study

Max Flow Depth-
Scenario 6

feet



Flowpath Uncertainty
"Virtual" Levees

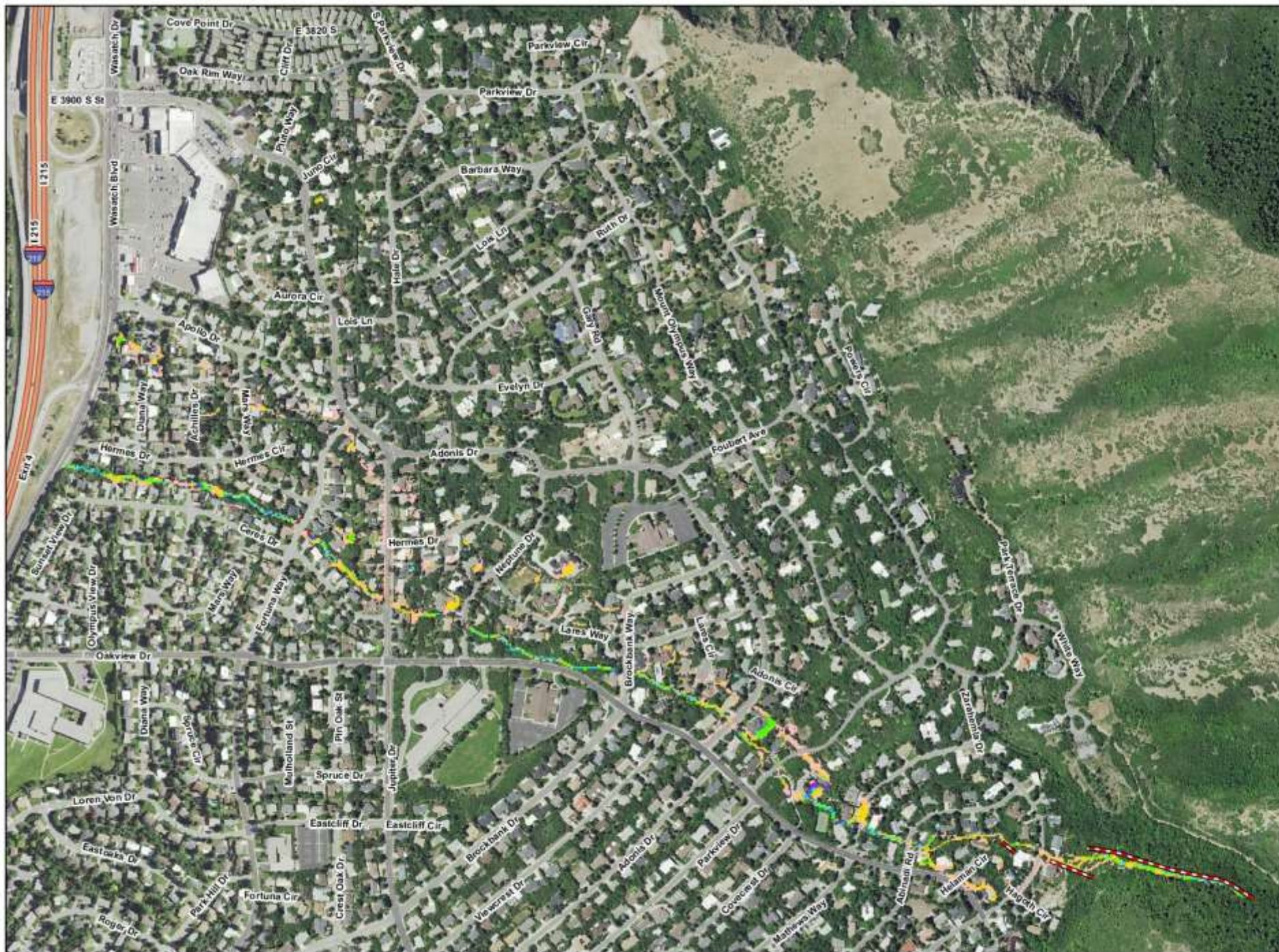


AECOM



www.jefuller.com

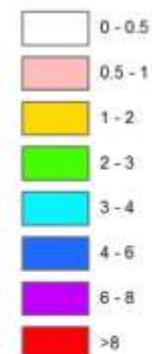
Scenario 7



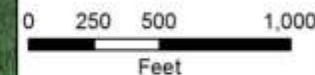
Neffs Creek Flood Hazard Study

Max Flow Depth-
Scenario 7

feet



Flowpath Uncertainty
"Virtual" Levees



AECOM



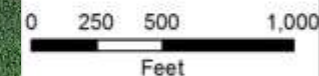
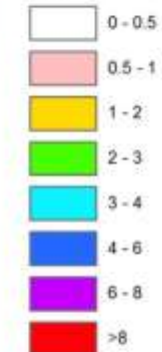
www.jefuller.com



Neffs Creek Flood Hazard Study

Max Flow Depth- Composite

feet



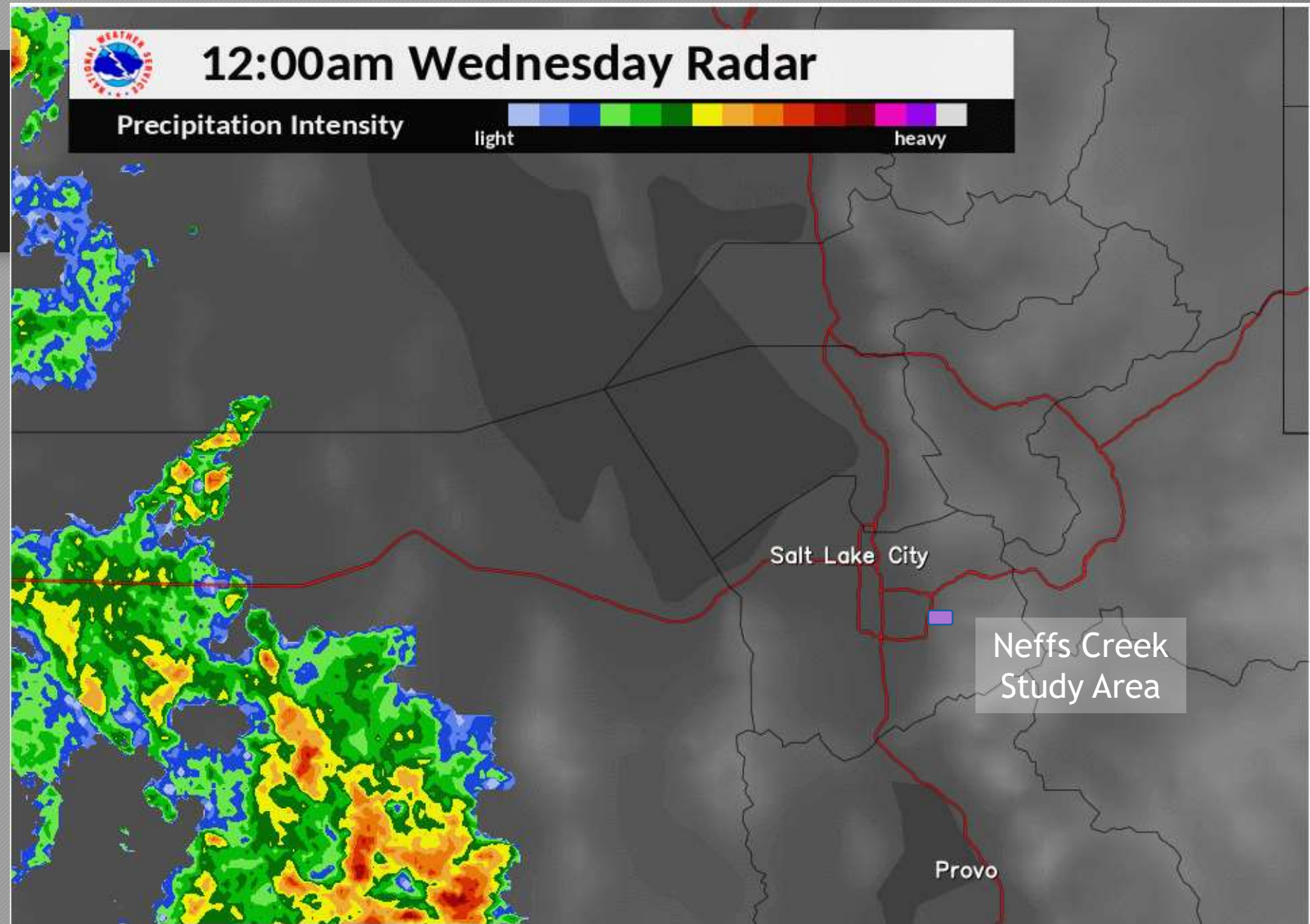
AECOM



www.jefuller.com



July 2017



Challenges

- Developed area at high risk
- Age of structures
 - New development requirements
- Connected Community
- Area voted into Millcreek City in 2015
- Insurance requirements & need
- Debris Basin voted down by residents
- New CTP



Coordination to Date

- Study Outreach

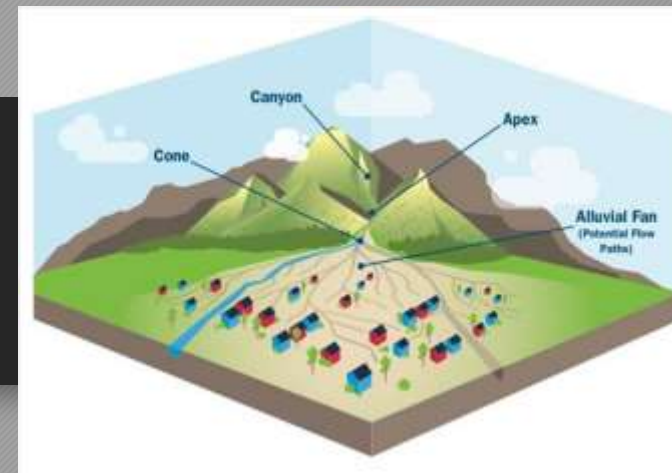
- Jordan Watershed Discovery, June 2013
- Grant Awarded Sept. 2014
- Study Kickoff Meeting Nov. 2014
- Neffs Study Progress Meeting Mar. 2015
- Neffs Flood Study Review Meeting Oct. 2015

- Socialization of Study

- Neffs Public Communication Strategy - Jan. - May 2016)
- Salt Lake County - Neff's Study Website
- Congressional Outreach Mar. - Apr.
- CERC development of (8) alluvial fan & insurance Fact Sheets
- (2) Public Outreach Meetings May 2016
- Insurance Training Sept. 2016
- Insurance Public Open House Sept. 2016

Ongoing Outreach

- Millcreek joined NFIP
- Flood Risk Review
- Preliminary FIRM release est. fall 2018
- Neffs Coordination Team
- CERC support
- Preliminary FIRM Open House
- Study identified need for state-wide inventory



Neff's Canyon Floodplain

FLOOD INSURANCE COMMUNITY OPEN HOUSE

Flood maps for the Neff's Canyon area are being updated. Learn how the new flood maps will affect your property's flood insurance.

SEPTEMBER 20, 2018
6-8 p.m.

CHURCHILL JUNIOR HIGH
3450 Oakview Drive
Midvale, UT
84134



Neff's Creek Flood Mapping Study

AN OVERVIEW



What Is An Alluvial Fan?

FOR NEFF'S CREEK



An Introduction to Flood Risk

FOR NEFF'S CREEK



FREQUENTLY ASKED QUESTIONS

Neff's Creek Flood Mapping Study



WHAT PROPERTY OWNERS NEED TO KNOW

Flood Insurance and Flood Mapping Changes for Neff's Creek



FREQUENTLY ASKED QUESTIONS

Flood Insurance and Flood Mapping Changes for Neff's Creek



WHAT IS A FLOOD MAP AND WHY IS IT MORE CHANGING?

Flood maps, known as Flood Insurance Rate Maps (FIRMs), depict the flood risk for communities across the country. Created by the Federal Emergency Management Agency (FEMA) in collaboration with state and local governments, flood maps are used to determine flood insurance rates, to identify areas at risk of flooding, and to guide the development of floodplain management regulations.

HOW ARE FLOOD MAPS USED?

- Communities use flood maps to help inform property and flood loss planning to help protect and building investments in the community.
- Flood maps are used to determine flood insurance rates for properties in a community.
- Insurance professionals use flood maps to help inform their underwriting of a property's flood insurance risk.



Lessons Learned

- Coordination team of experts
- Coordination early & often
- Think outside the messaging box
- Don't be afraid to communicate with:
 - Internal Leadership
 - Community Leadership
 - Legislators
 - Congressionals



Data Contact & Questions

To obtain study report and/or data please contact:

Jamie Huff

Risk MAP Program Manager

Utah Division of Emergency Management

jhuff@utah.gov

801-538-3752



AECOM

For technical questions:

Mike Kellogg, PG, CFM, GISP

mike@jefuller.com

480-222-5712

