

# Integrated Disaster Prevention

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# Integrated Disaster Prevention

Photo: Varrella, 2009



## Today's Agenda

1. Colorado Disaster History & Challenges
2. Drop Everything & Do This NOW

# Integrated Disaster Prevention

## Colorado Disaster History & Challenges



Photo: Lucas Mouttet, 2013.



# Colorado Disaster History & Challenges

## WILDFIRES, 2010-2013:



# Colorado Disaster History & Challenges

## WILDFIRES, 2010-2013:



Photo: RJ Sangosti, published  
in the Denver Post, 2012.



# Colorado Disaster History & Challenges

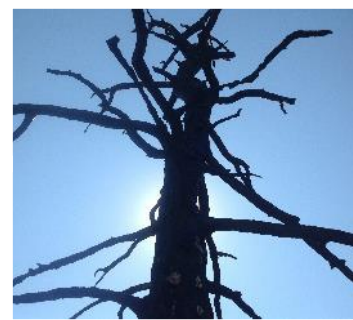
**WIDLFIRE;** From 1 Disaster, Many:



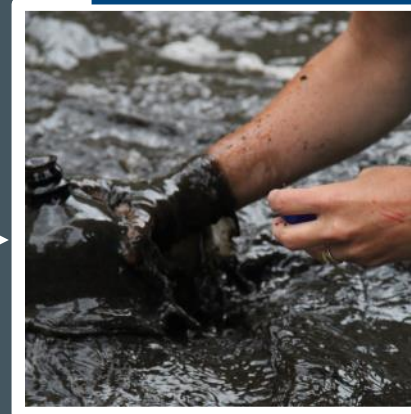
Flash Floods



Erosion



Water Quality



Debris



# Colorado Disaster History & Challenges

## FLOODING, 2013:

Photo: Varrella, 2013

### A **Costly** Disaster

- **10 fatalities**
- **> 2,000 sq. miles affected**
- **\$3+ billion in damage**
  - Gov. Hickenlooper's Office (2014)
- **20,000 homes damaged or destroyed**
  - The Denver Post (2014)





# Colorado Disaster History & Challenges

## FLOODING, 2013:



Photo: Var

Photo: Varrella, 2013

arrella, 2013



# Colorado Disaster History & Challenges

## FLOODING, 2013:

*3" gas lines*

*Broken sanitary sewer*

*Fish Creek (open sewer)*

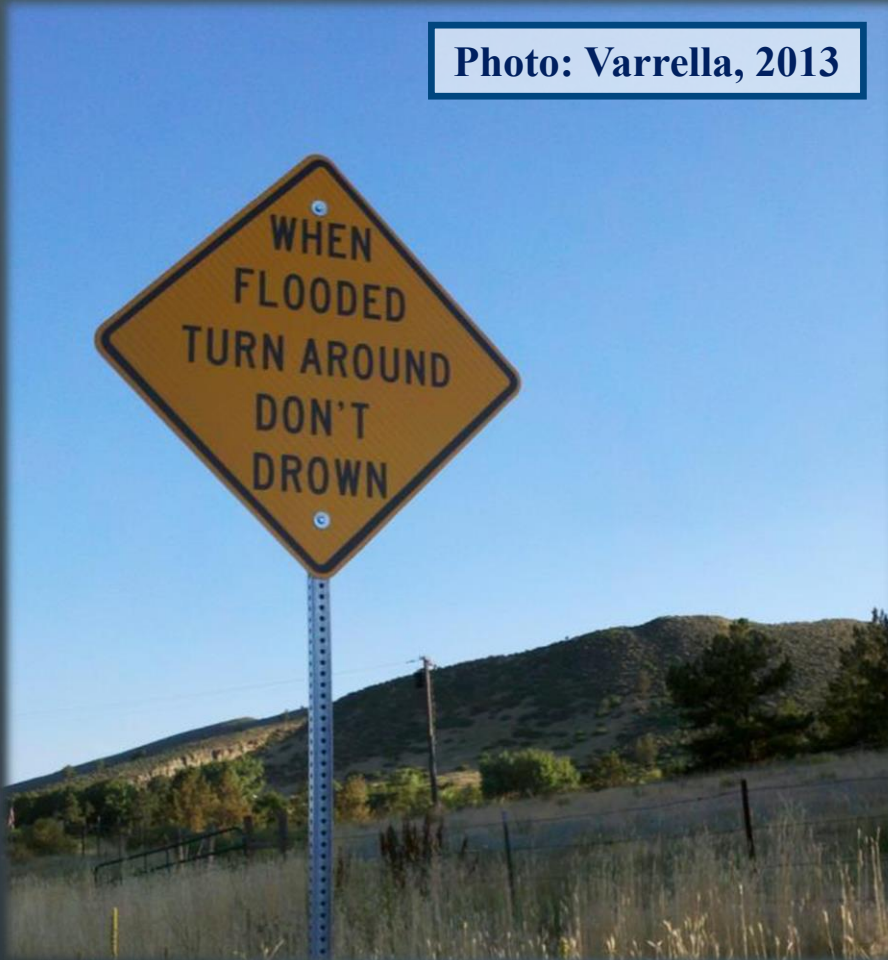
Exposed utilities, open  
sewage, and roadway  
damage on Fish Creek in  
Estes Park (Varrella 2013)

*Road &  
Trail*



# Integrated Disaster Prevention

Photo: Varrella, 2013



**Drop Everything  
&  
Do This NOW**



# Drop Everything & Do This NOW

## 1. **MAKE A FRIEND** (or friends):

- Know your **neighbors & colleagues**
  - They want to help
- **Mutual Aid** Agreements –
  - Get 'em NOW
  - Allows neighbors to help
  - Aid \$\$\$ flows easier
- **Get involved** outside your office
  - CASFM, CML, Flood TAP, etc.
  - Friends = resources & support



**The Suz**

# 1. Make A Friend (or Friends)

## Collaborate as neighbors (*like Watershed Coallitions*)

- One watershed, many resources, many solutions
- Private stakeholders + govt. agencies + special districts



Photo: Mouttet, 2013



Photo: Varrella, 2013



# 1. Make A Friend (or Friends)

Mutual interests & goals = greatest asset

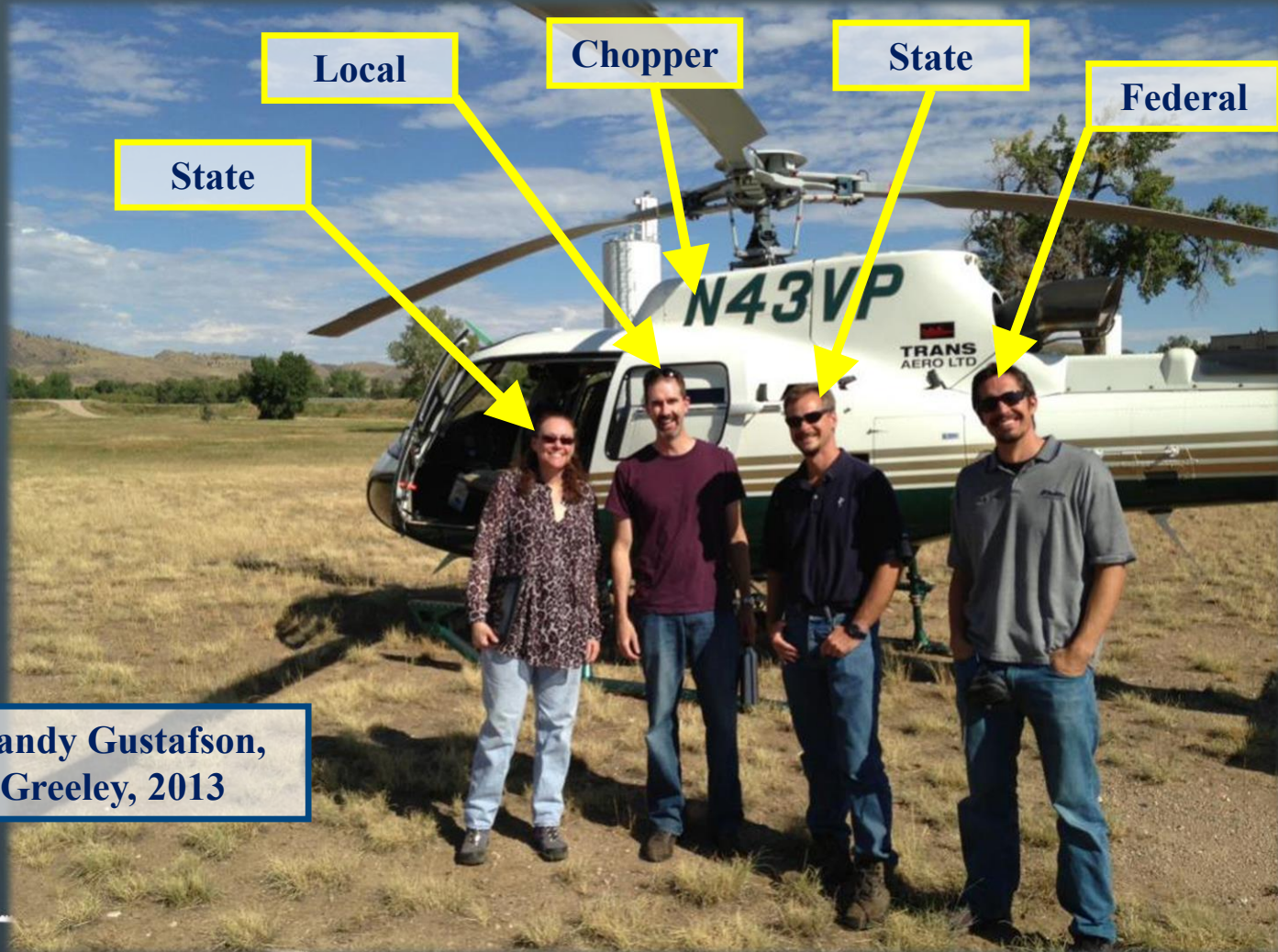


Photo: Randy Gustafson,  
City of Greeley, 2013

# Drop Everything & Do This NOW

## 2. GET A PLAN:

- Flood warning systems save lives
- Master Plan for all hazards
  - Erosion, fire, flood, acts of terrorism, pandemic
  - Preserve floodplains, use buyouts, use freeboard
- Use the Incident Command System (ICS)
- Know your assets & liabilities
- Set up a digital data platform
  - It's at your fingertips
  - It's at others' fingertips



CHSRM

Photo: Varrella, 2013



## 2. Get a Plan

### Flood Warning Systems Save Lives:



Photo: Chris Lochra, 2013

## 2. Get a Plan

### Master Plan for All Hazards

- **FIRMs** don't show all flood hazards
- **Erosion** ignores boundaries
- **Setbacks** save lives

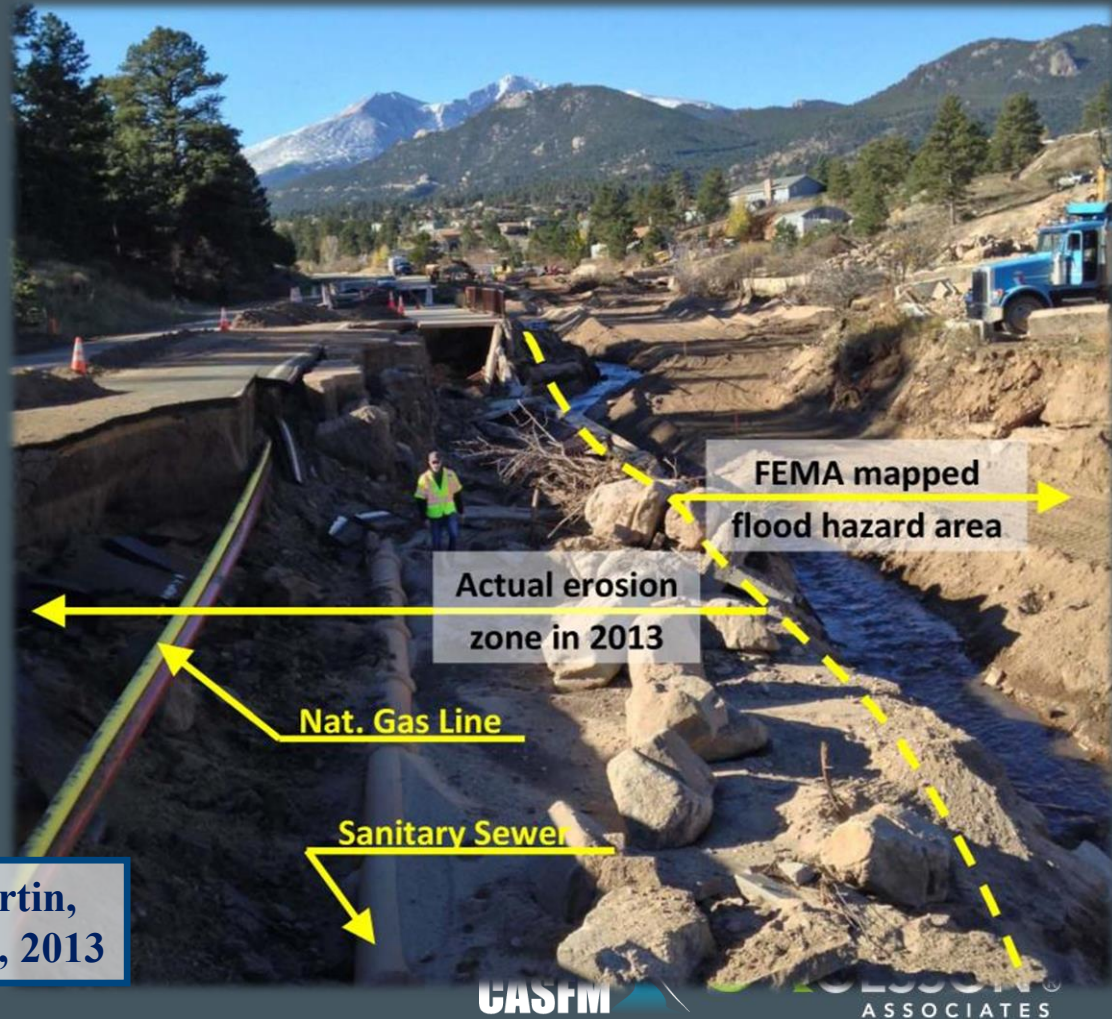


Photo: Terry Martin,  
ICON Engineering, 2013



## 2. Get a Plan

### Master Plan for All Hazards

- Preserve open spaces for flooding
- Freeboard prevents damage

**Photos & Statistics:  
City of Fort Collins  
Stormwater, 2013**



Parks in 100-year Floodplain (acres)	Natural Areas in 100-year Floodplain (acres)	Total Open Space Preserved (acres)	100-year Floodplain Inside City Limits (acres)	66% of the 100-year floodplain is preserved as Open Space
55	924	979	1,485	

*Dry building entrance*



*High water mark*

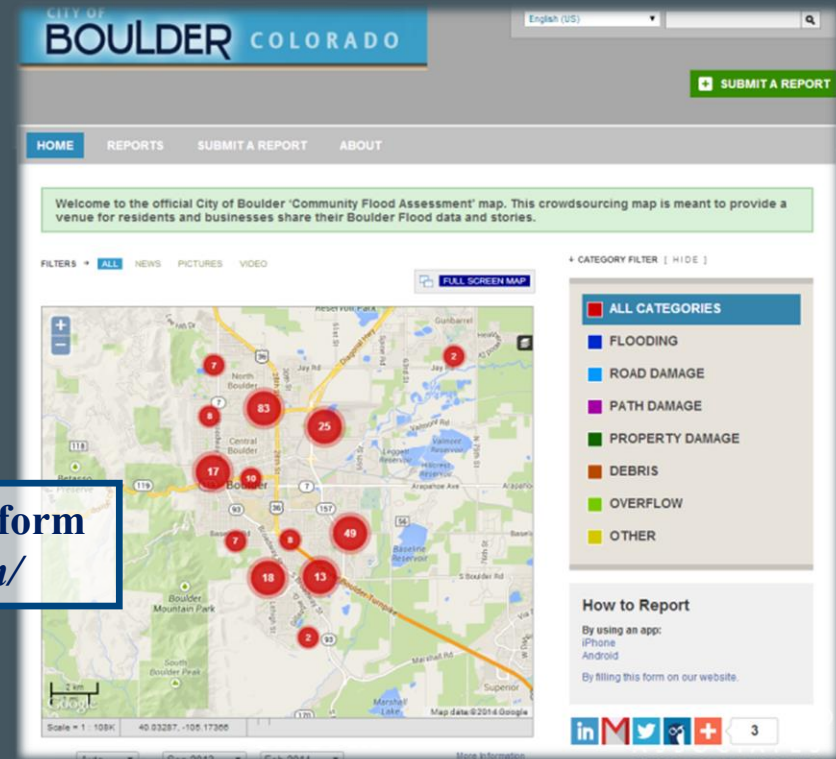
## 2. Get a Plan

### Set Up a Digital Platform

Leverage free technology to save time & resources

- Special **websites** can be set up now
- **Mobile technology** captures real-time info
- Public likes to share...
  - Photos & videos
  - Location, dates & times

Boulder, CO; free Ushahidi crowdmap platform  
<https://boulderflood2013b.crowdmap.com/>



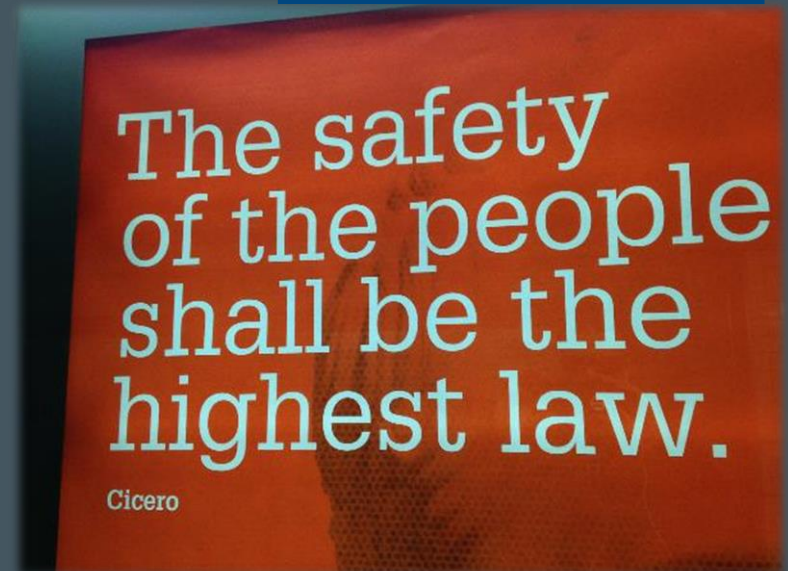


# Drop Everything & Do This NOW

## 3. PRACTICE:

- Drill, drill, *DRILL*
  - Apply the plan before disaster...
  - ... so you know it cold
- Talk it up
  - Use all media available
  - Get an audience today
- Update your plans annually
- MAKE IT A PRIORITY

Photo: Varrella, 2014



# 3. Practice

## Drill your staff in peacetime

- Fake it before the disaster (*simulation*)
- Learn how to apply your plan





# 3. Practice

Talk it up now!!

Photos:  
Varrella, 2013



# 3. Practice

## Find your audience when all is quiet

- If they don't look for you, they won't hear you
- Use social media. Seriously... use it!!

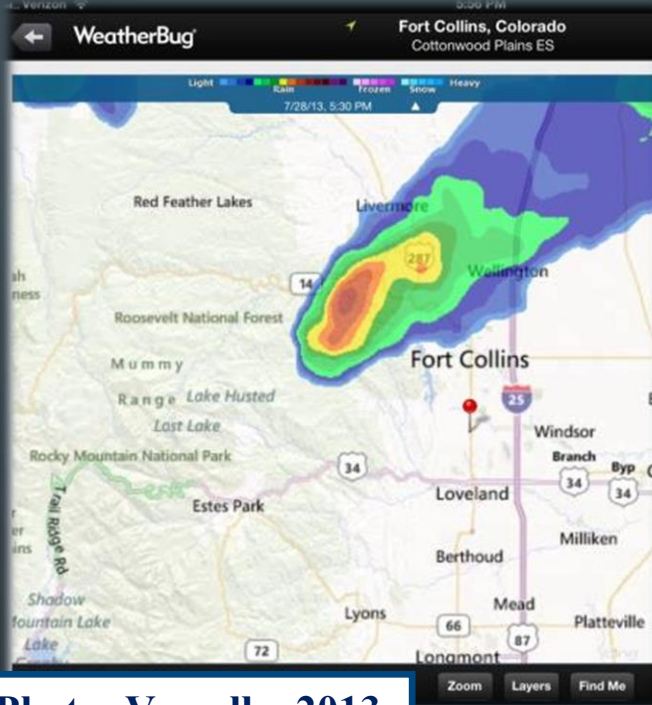


Photo: Varrella, 2013



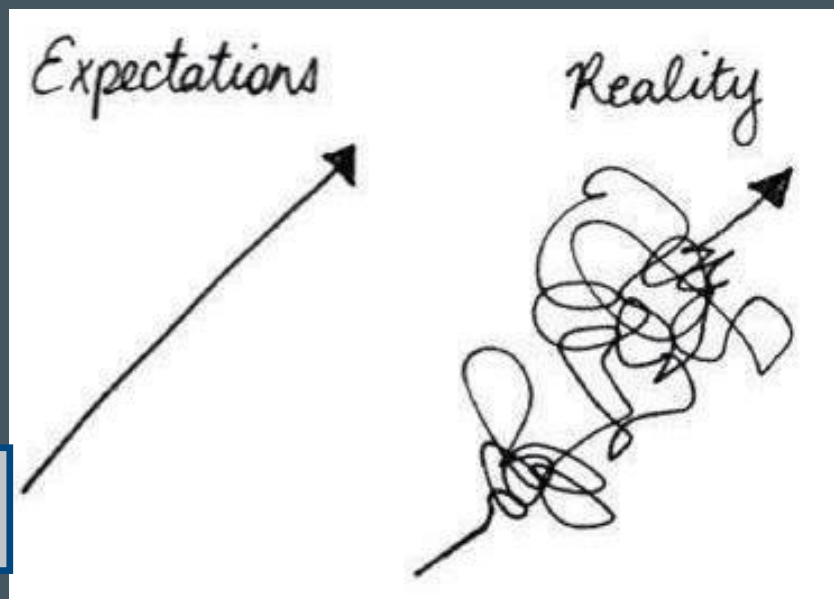
Facebook Post from the Larimer Co. Sherriff, 2013



# Drop Everything & Do This NOW

## 4. TAKE COMMAND of YOUR DISASTER:

- Locals = this is **your mess** to clean up
  - Feds & State will support...
  - But, the work of recovering is yours
- **Stick to the plan** during the disaster
- Record all **decisions**
  - Keep your records simple
  - Critical during FEMA staff changes

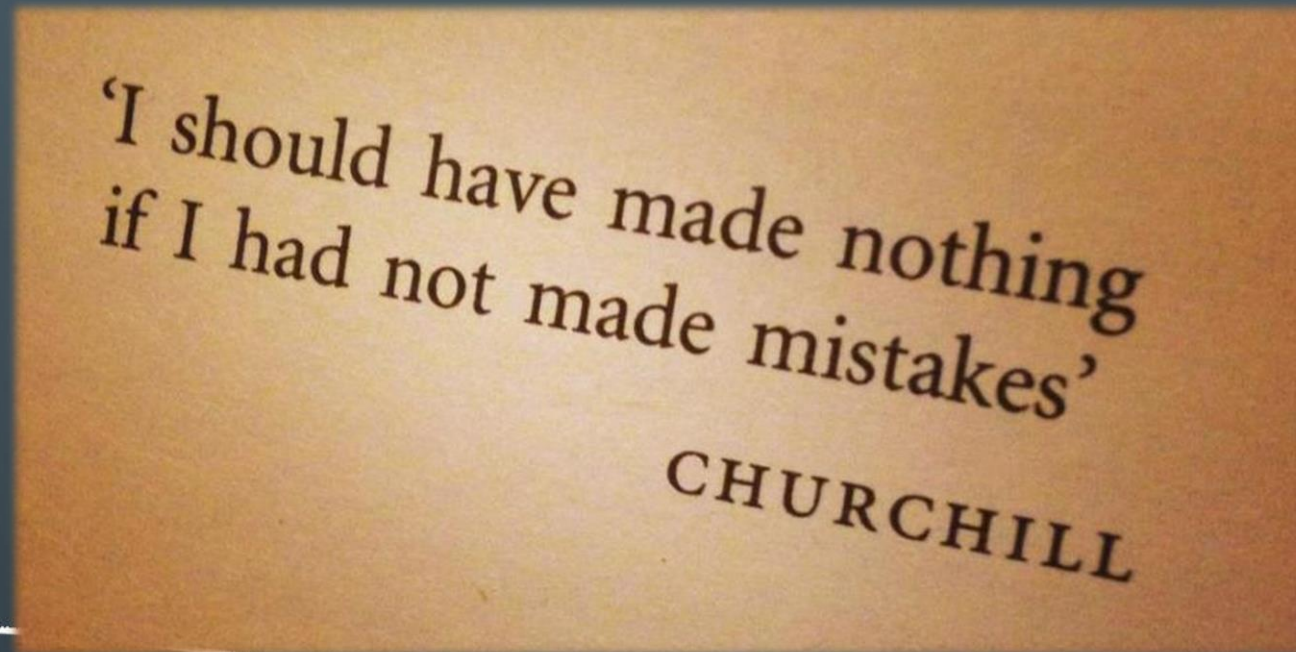


Doodle by Jessica Hagy,  
@JessicaHagy, 2014

# Drop Everything & Do This NOW

## 5. COLLECT DATA & UPDATE PLANS:

- Collect **high water marks** for historic records
  - Will help guide future decisions
- Prepare a **after-action** reports (*and be honest*)
- **Update Master Plans** with knowledge gained





# 5. Collect Data; Update Plans

## High Water Marks

- Can be used for interim decision-making
- Will be used later to update hazard maps



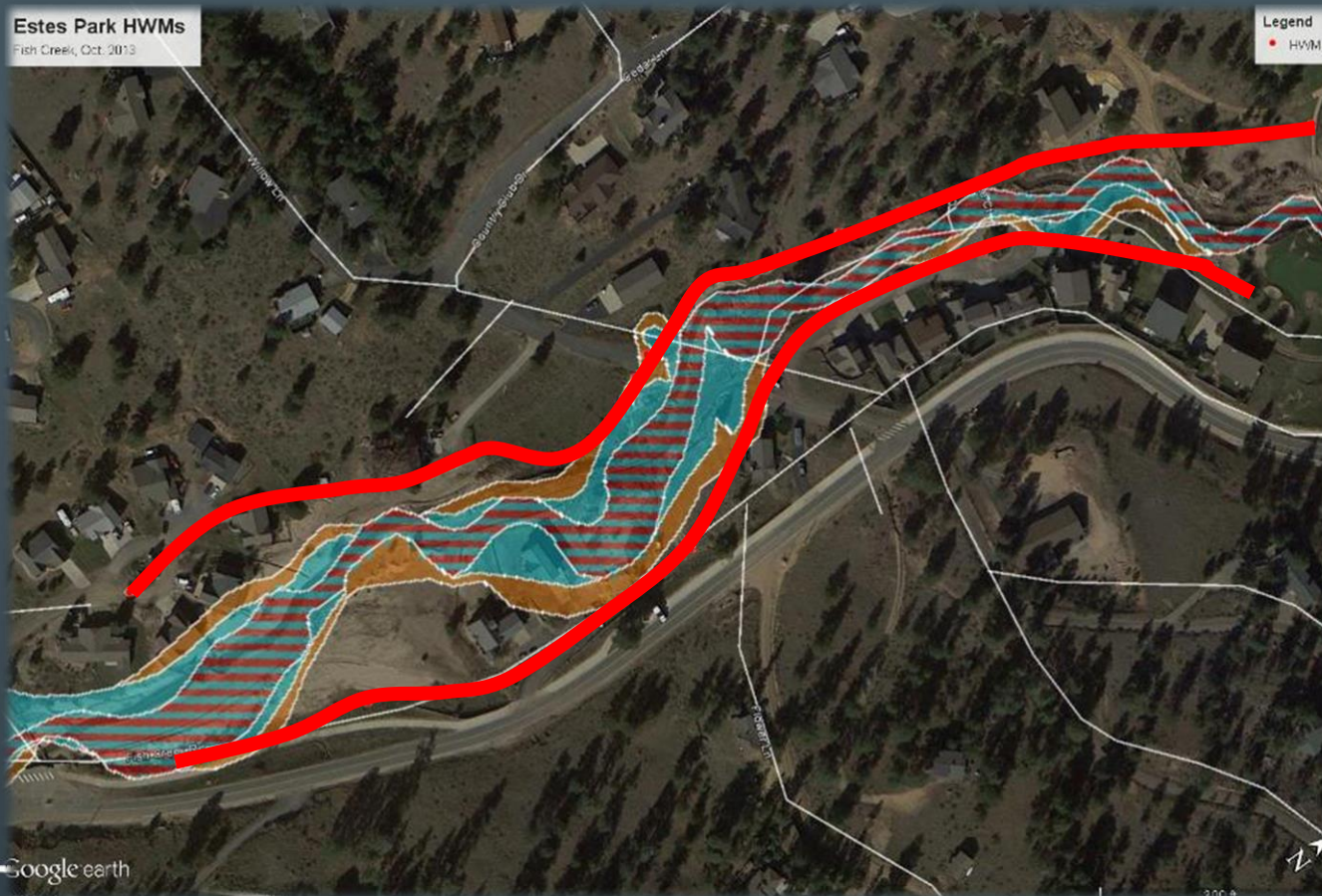
Photos: Varrella, 2013



# 5. Collect Data; Update Plans

## Interim Decision-Making

- Moratorium on permits; *wait, think, then move*
- HWMs = best available data until Master Plans updated

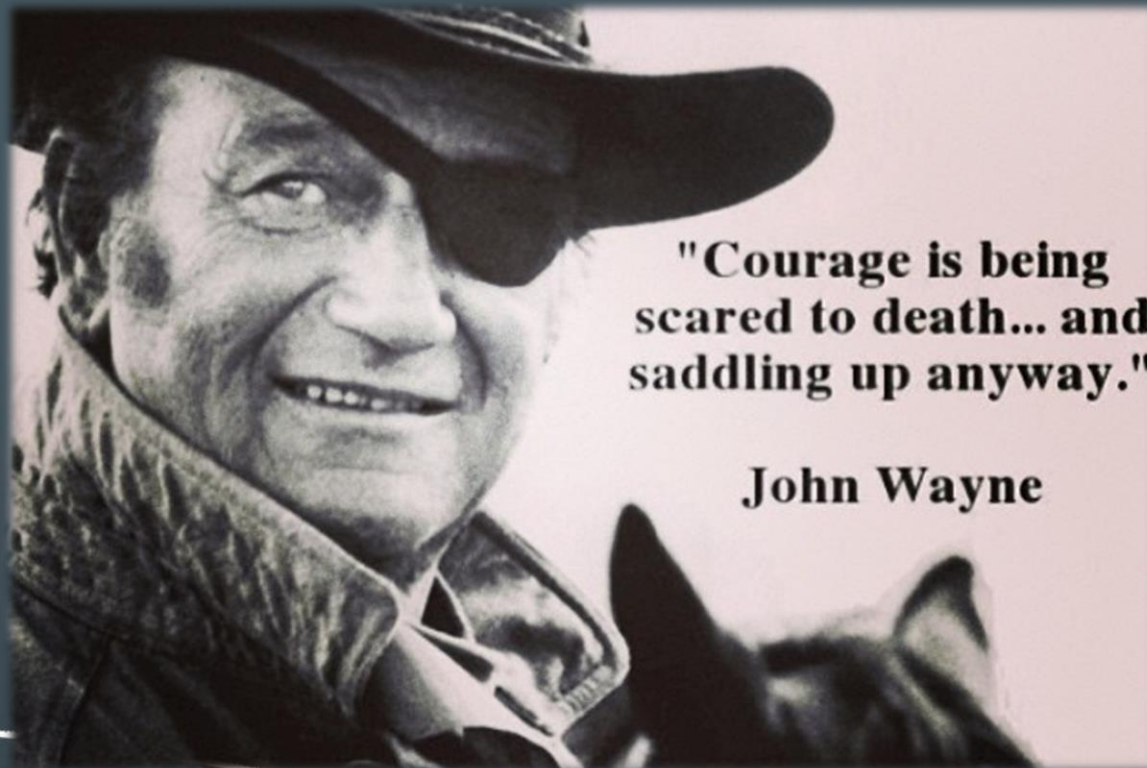




# Drop Everything & Do This NOW

## 6. DON'T GIVE UP:

- Do the right thing, and don't look back
  - Public health, safety & welfare are in your hands
  - Fear no fallout; **paralysis kills**



# **Drop Everything & Do This NOW**

## **TIME FOR REVIEW:**

- 1. Make a Friend(s)**
- 2. Get a Plan**
- 3. Practice**
- 4. Take Command**
- 5. Collect Data; Update Plan**
- 6. Don't Give Up**



# Preventing Flood Disasters from Becoming Disastrous



**Thanks for  
Listening**

**Questions?**

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