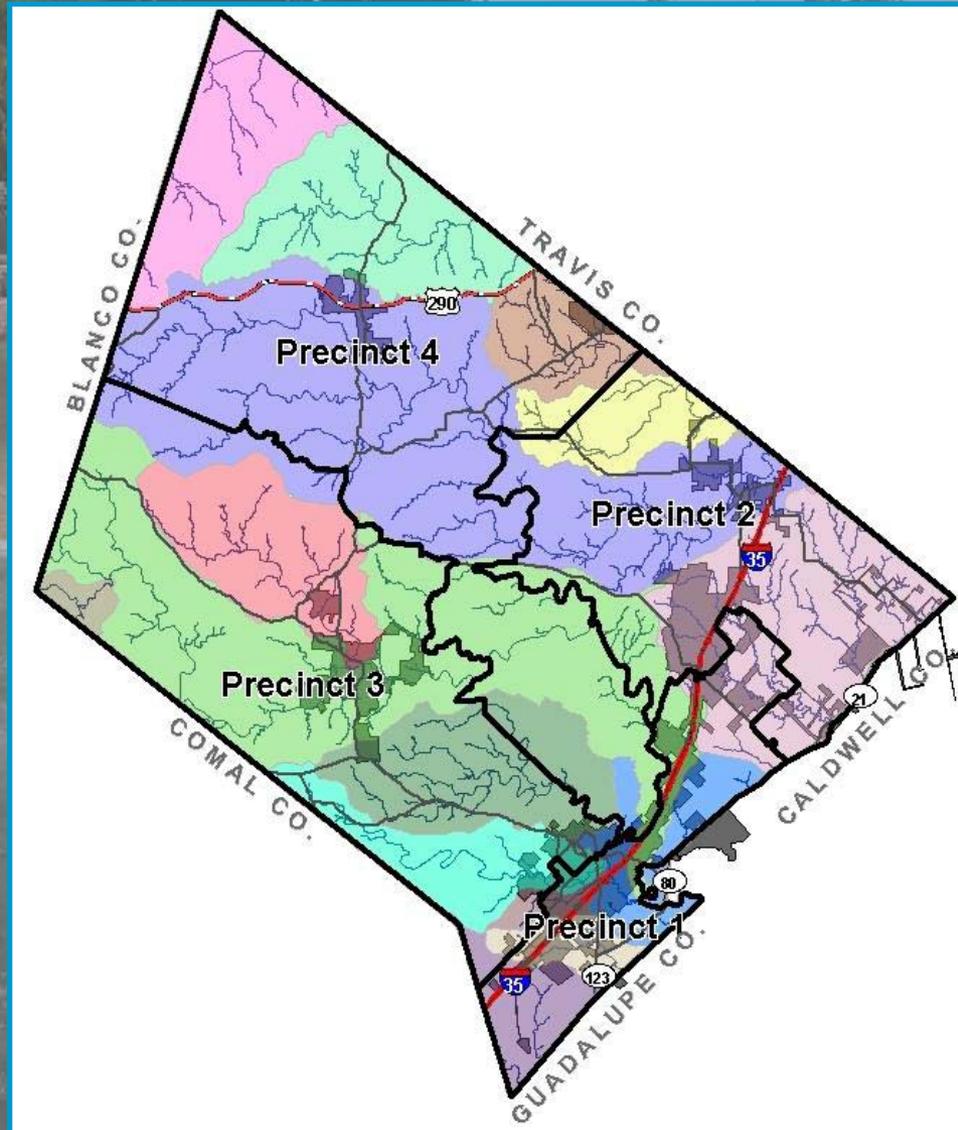


# Hays County Drainage Master Plan



March 8, 2012



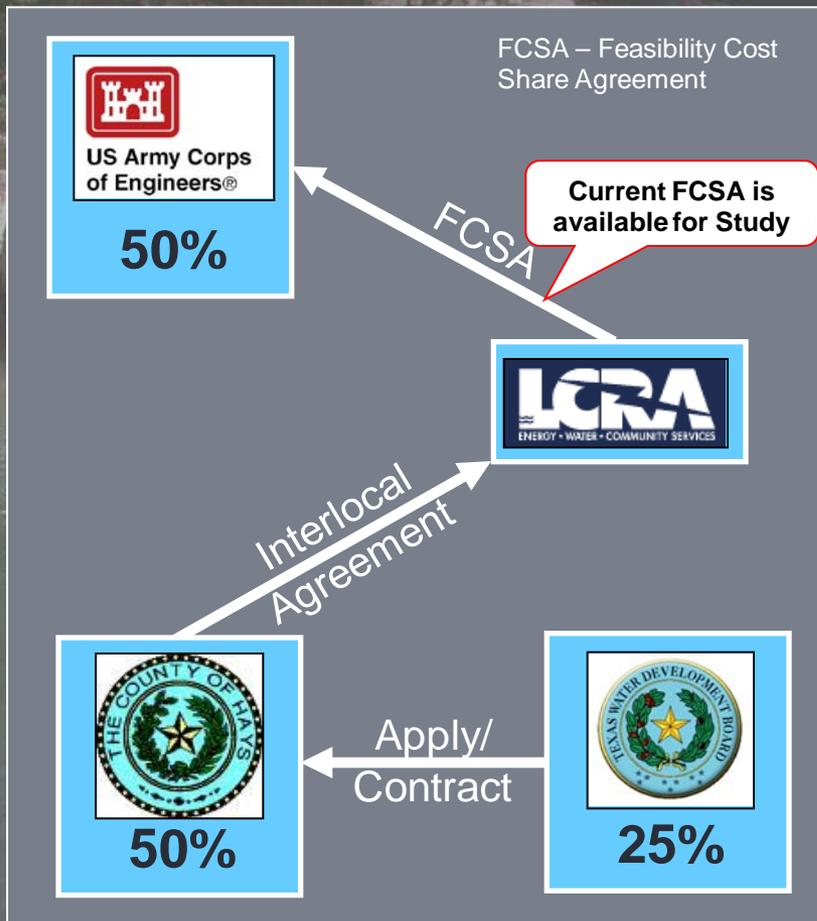
US Army Corps  
of Engineers®



# Project Funding

## Colorado River Basin

## Guadalupe/Blanco River Basin



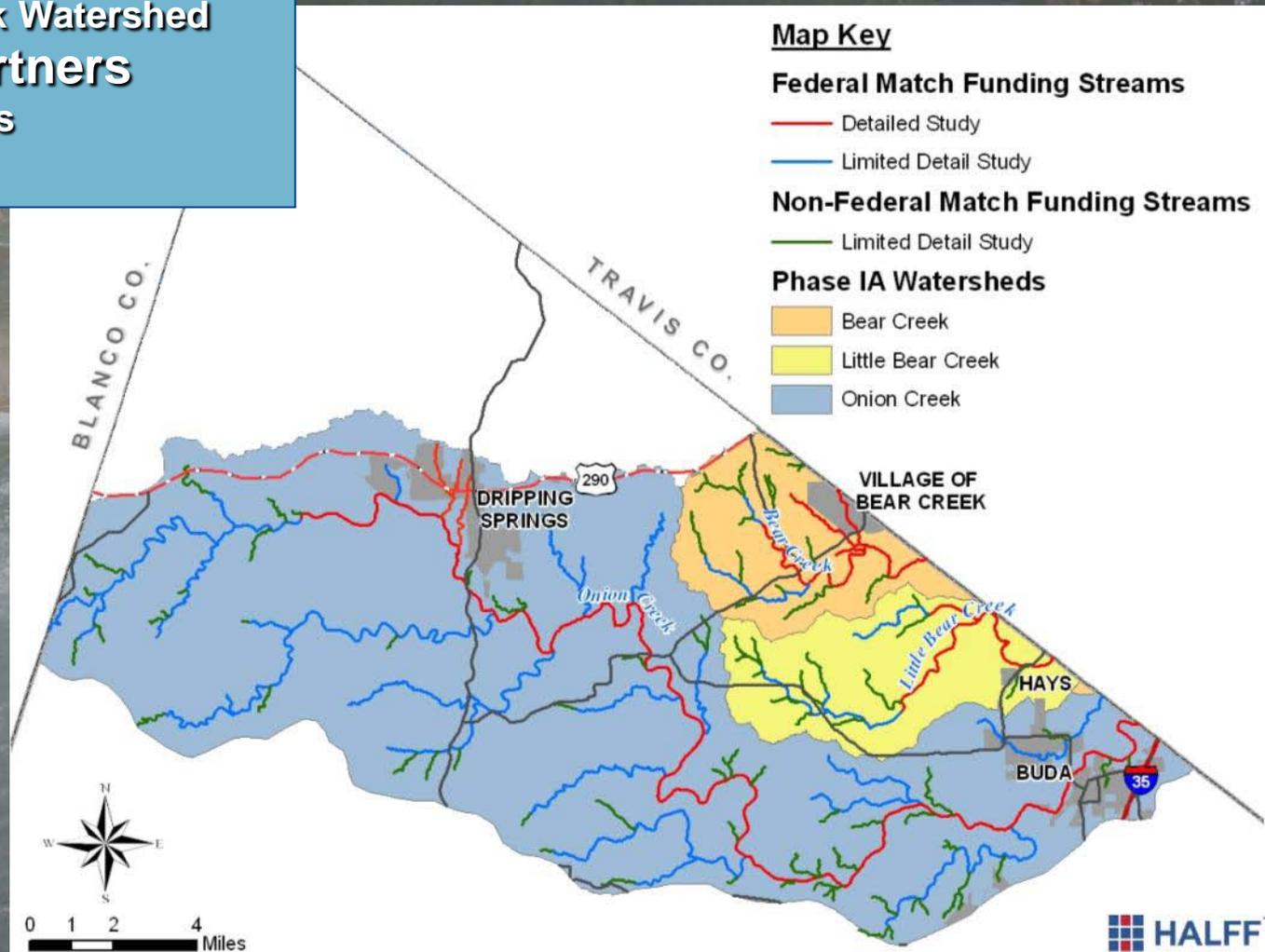
# Phase Ia (2010-2012)

## ■ Study Area

- Onion Creek Watershed
- Bear Creek Watershed
- Little Bear Creek Watershed

## ■ Local Study Partners

- Dripping Springs
- Buda



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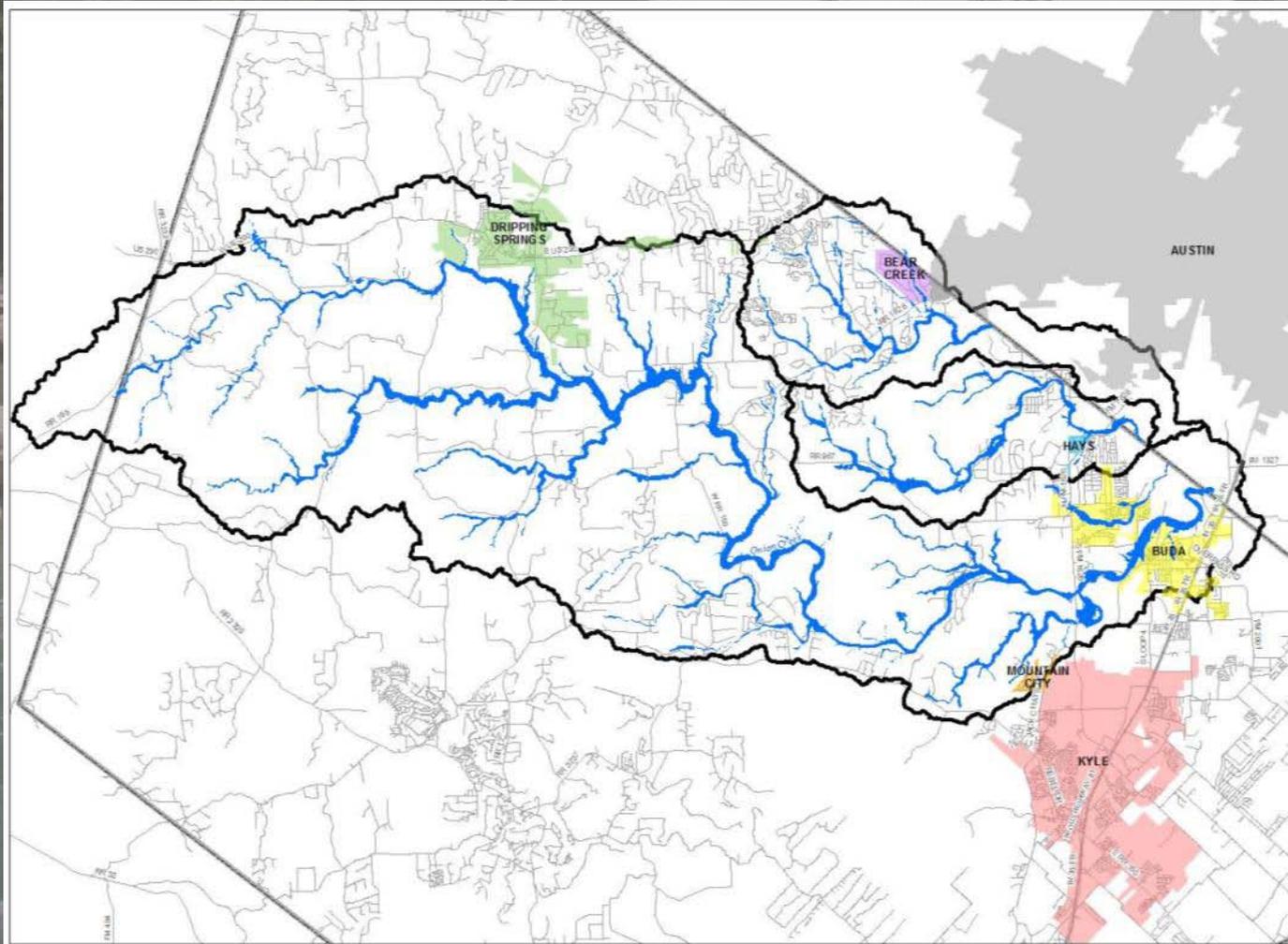


# Project Timeline

Task	2010				2011				2012				2013				2014				2015				2016			
	Quarter				Quarter				Quarter				Quarter				Quarter				Quarter							
	1st	2nd	3rd	4th	1st	2nd	3rd	4th																				
Ia. Onion Creek				█	█	█	█	█	█	█																		
Ib. Barton & Pedernales									█	█	█	█	█	█	█	█												
II. Guadalupe & Blanco																	█	█	█	█	█	█	█	█				
County Drainage Master Plan																									█	█		



# Onion Creek Watershed Preliminary Results



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# Project Services

## ■ Interim Services

- Uniform Terrain Model (2006-2009 data)
- Collection of Survey Data
- Update to Existing Hydrologic Analysis
- New Hydraulic Analysis
- Preliminary Flood Damage Analysis

## ■ Ultimate Services

- Flood Damage Assessment
- Flood Reduction Alternative Analysis
- Environmental Assessment
- Recommended Cost-Effective Projects
- Analysis of Additional Beneficial Uses of Water



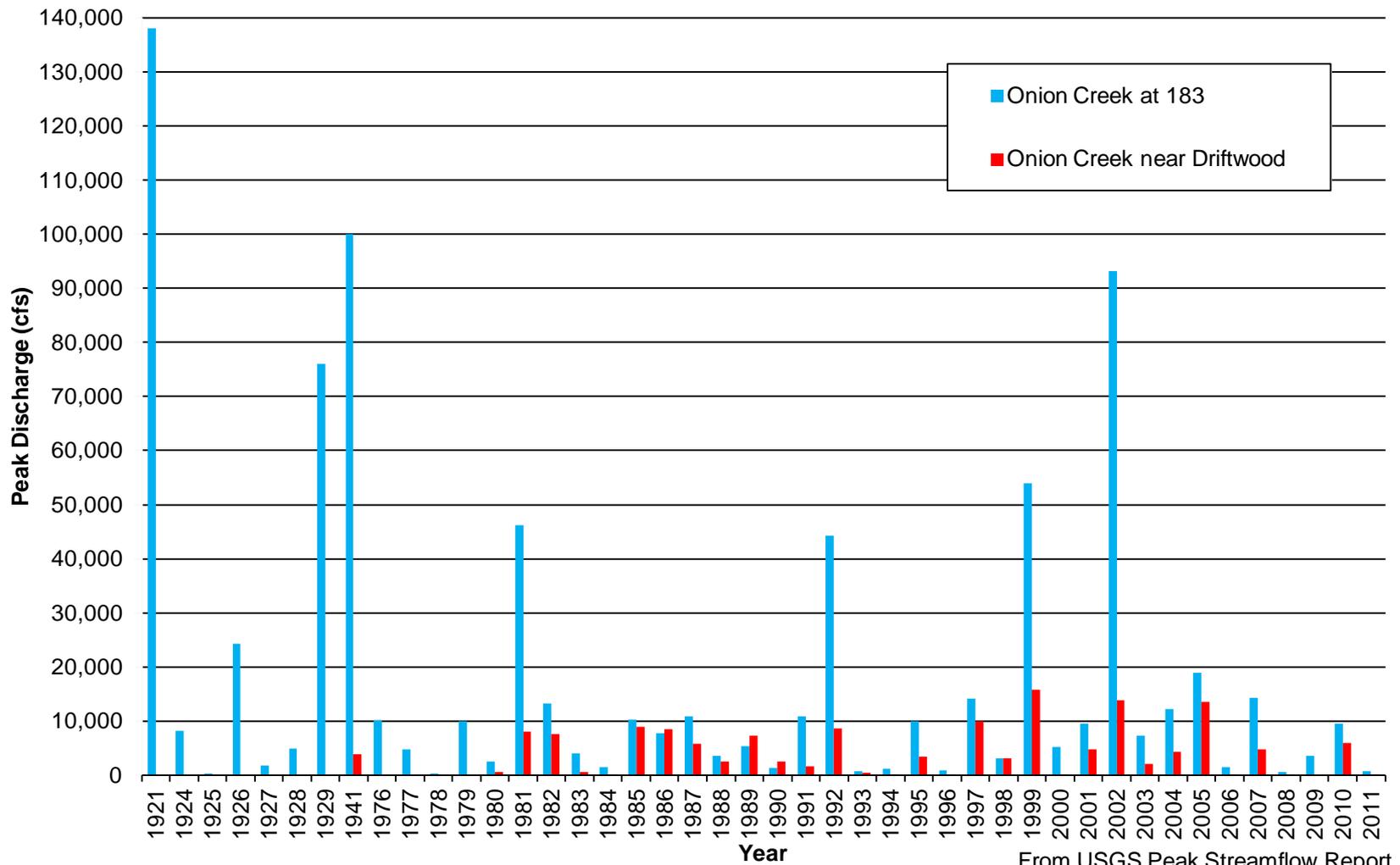
# Interim Study Methodology

- **Terrain Development**
  - LiDAR and Survey
- **Hydrology**
  - How much runoff?
- **Hydraulics**
  - How high is the water in the creek?
- **Mapping**
  - How wide is the floodplain?



# Onion Creek History

## Annual Peak Discharge in the Onion Creek Watershed



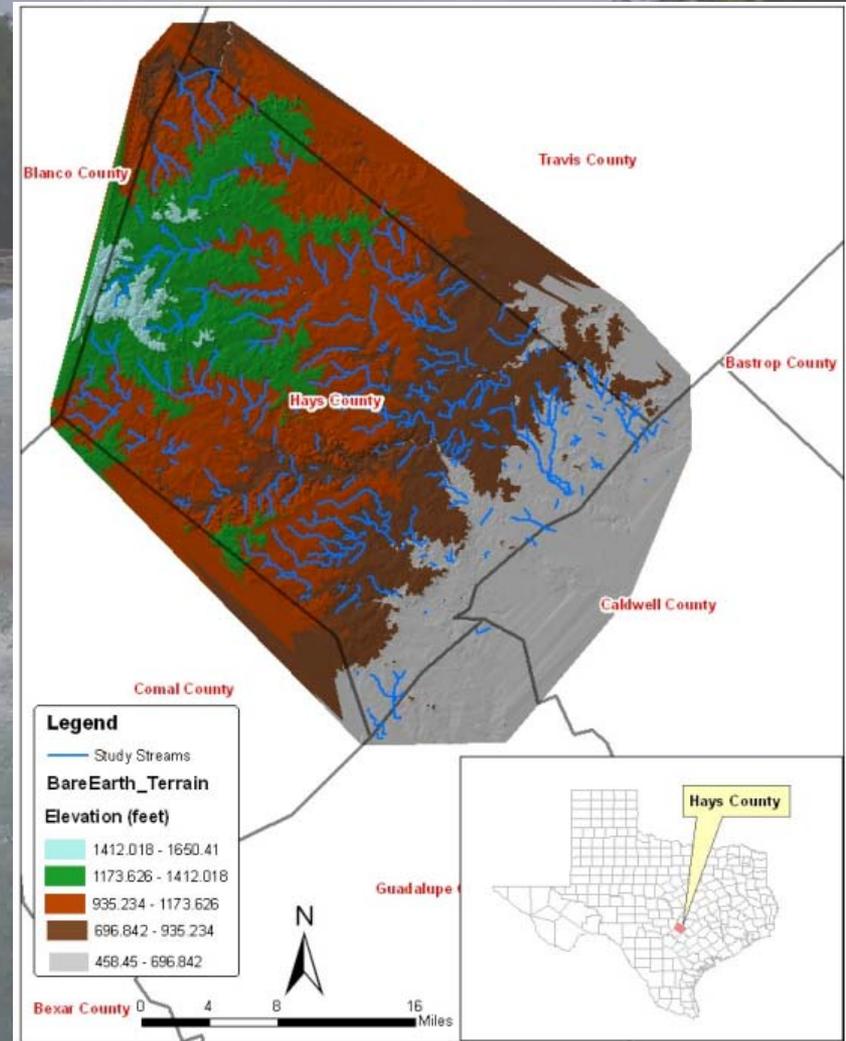
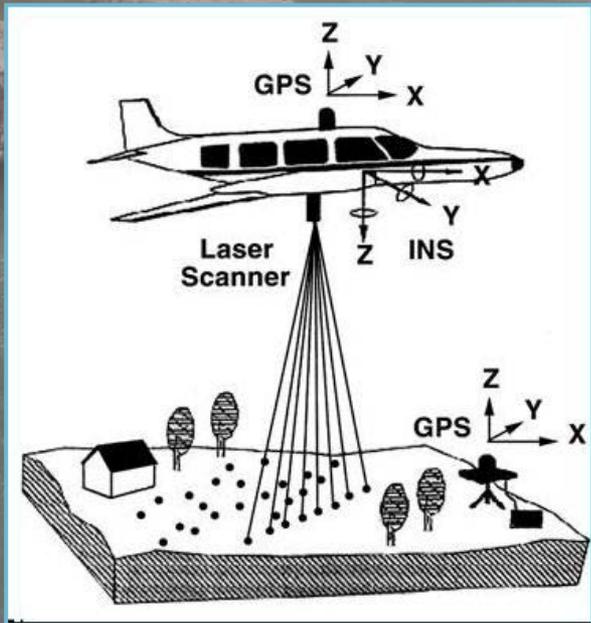
From USGS Peak Streamflow Report



# LiDAR

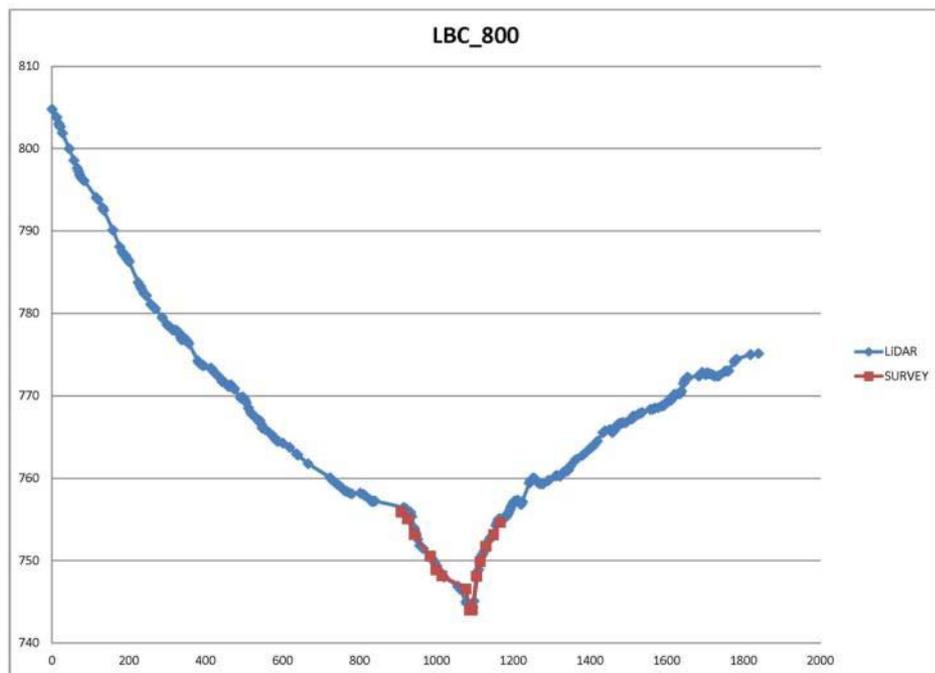
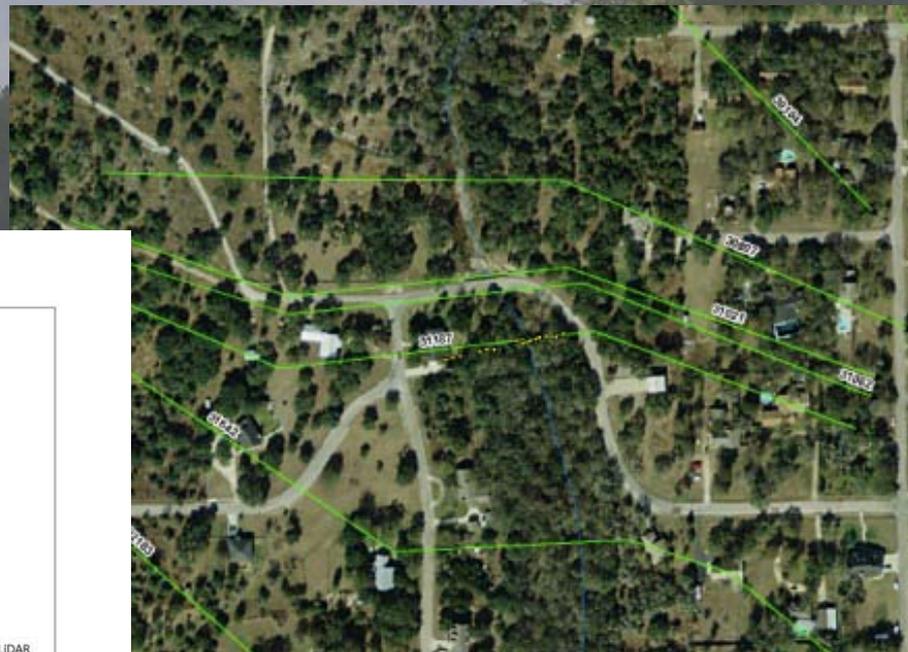
## Light Detection and Ranging

- Remote sensing system that uses laser light to measure distances.





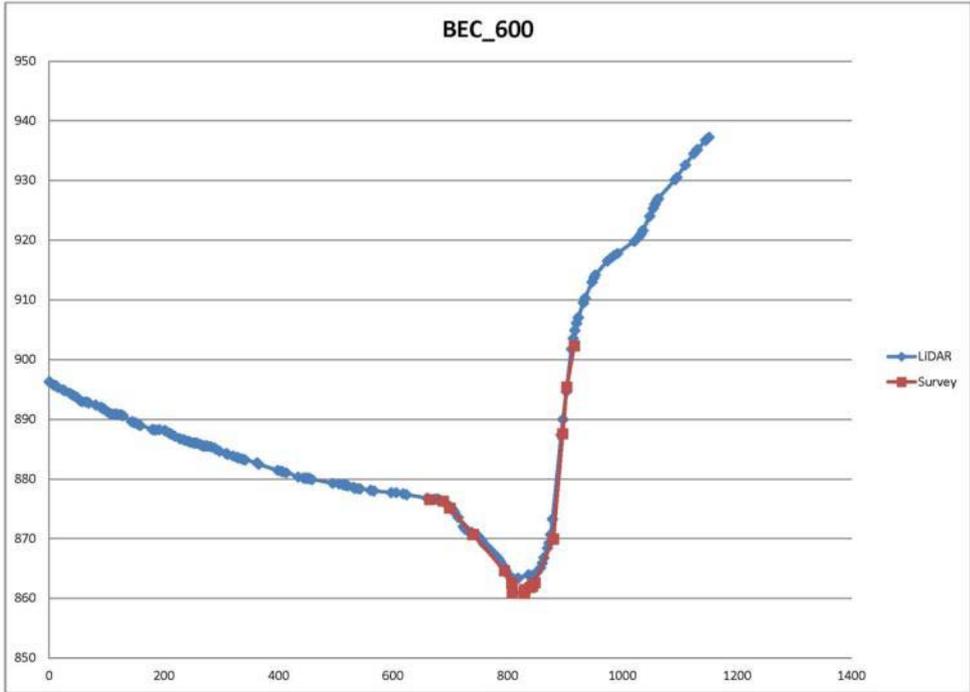
# LiDAR Validation



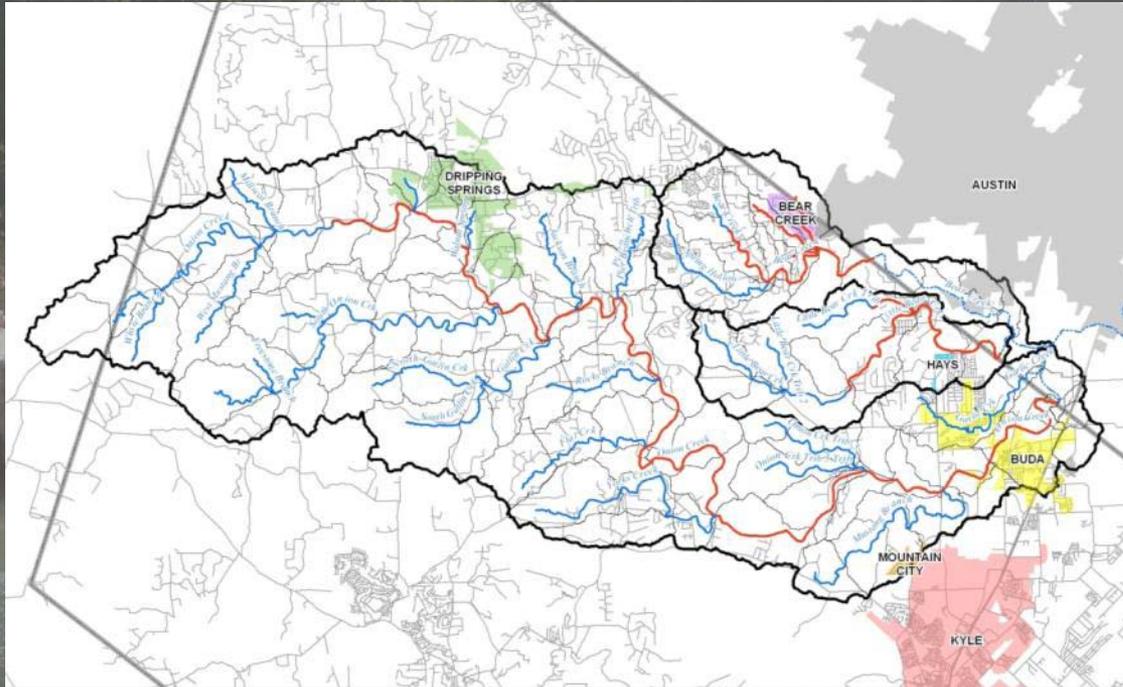
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# LiDAR Validation



# Hydrology



## Storm Frequency

- Rainfall Intensity

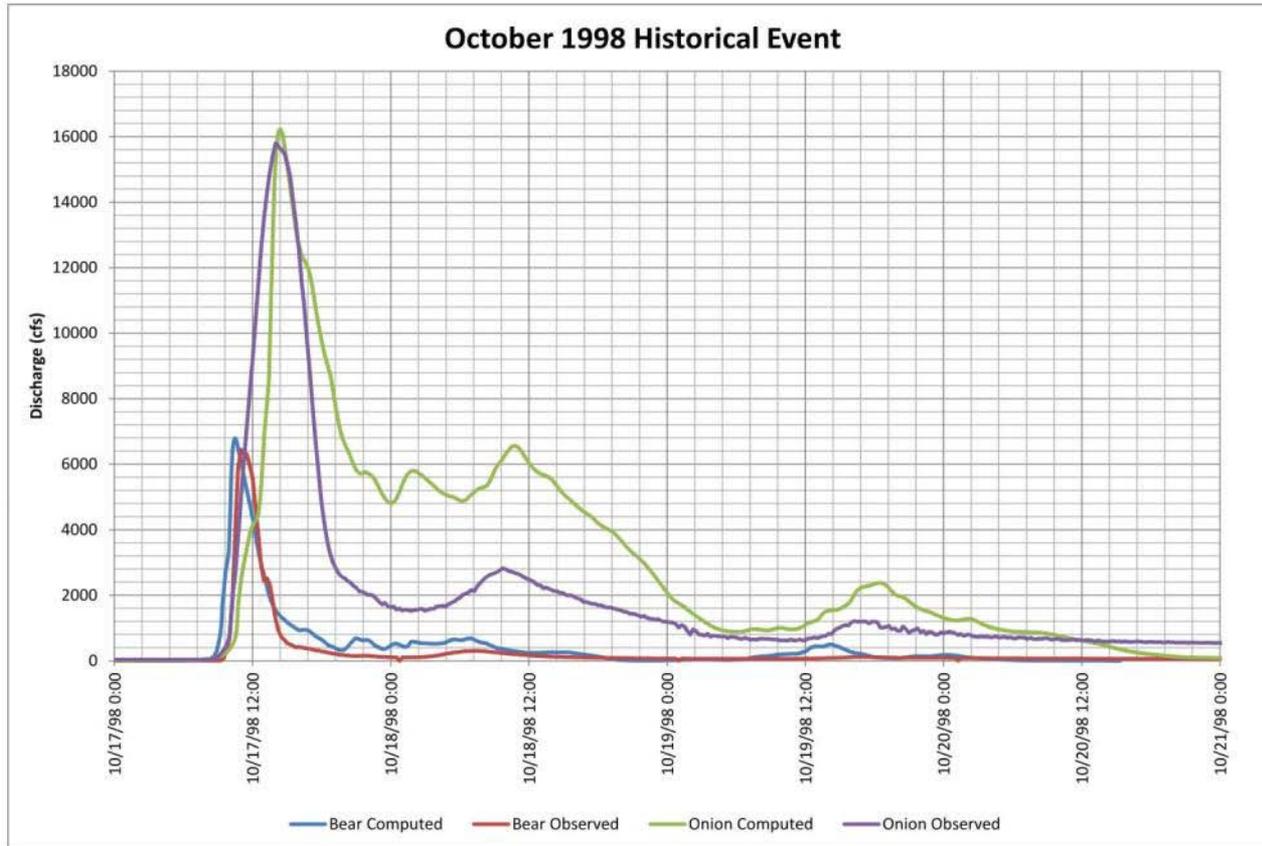
## Validation of Results

- Calibration
  - October 1998
  - November 2001
- Gage History
- Area Studies
- USGS Regression Analysis



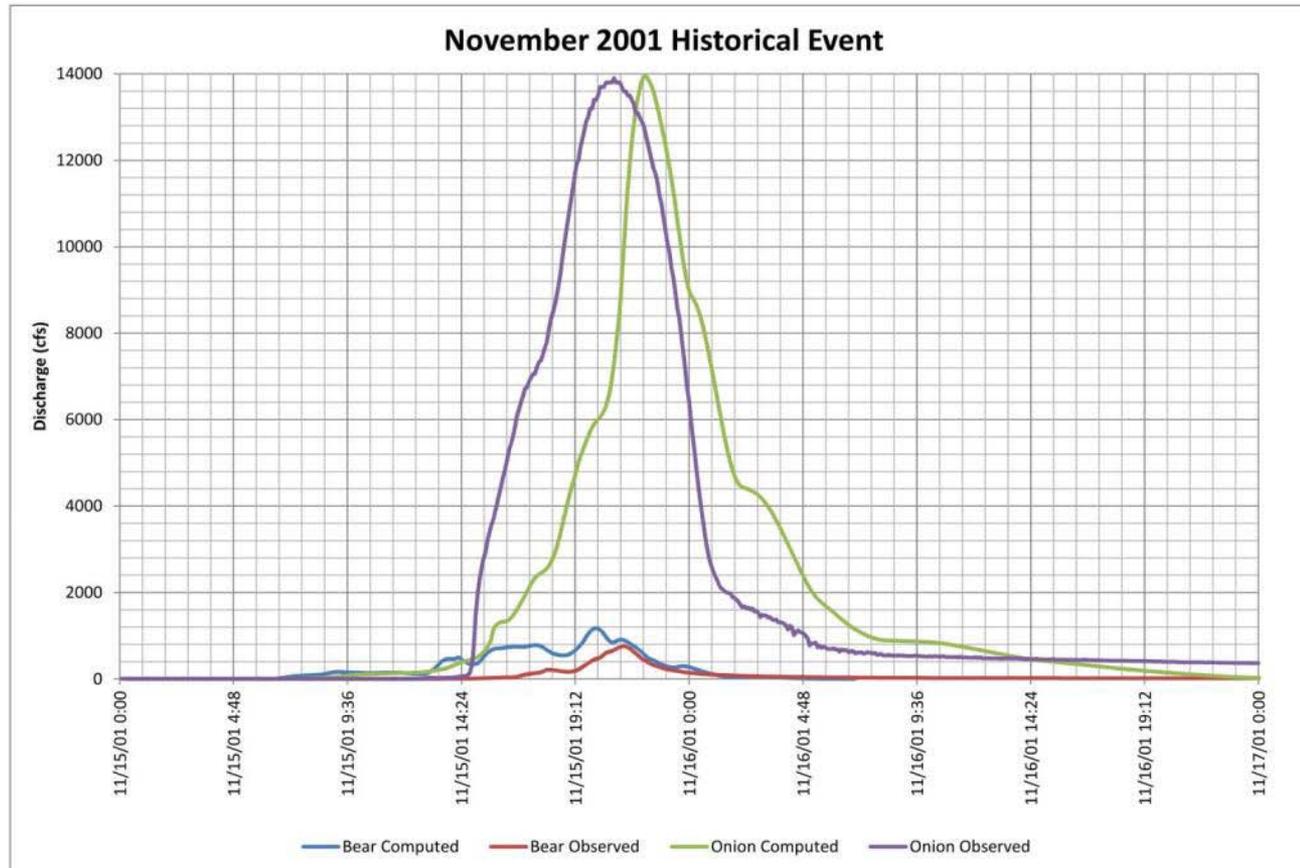
# Hydrologic Calibration – October 1998

Hays County Interim Feasibility Study  
Onion, Bear and Little Bear Watersheds  
TRN – Phase IA Hydrology

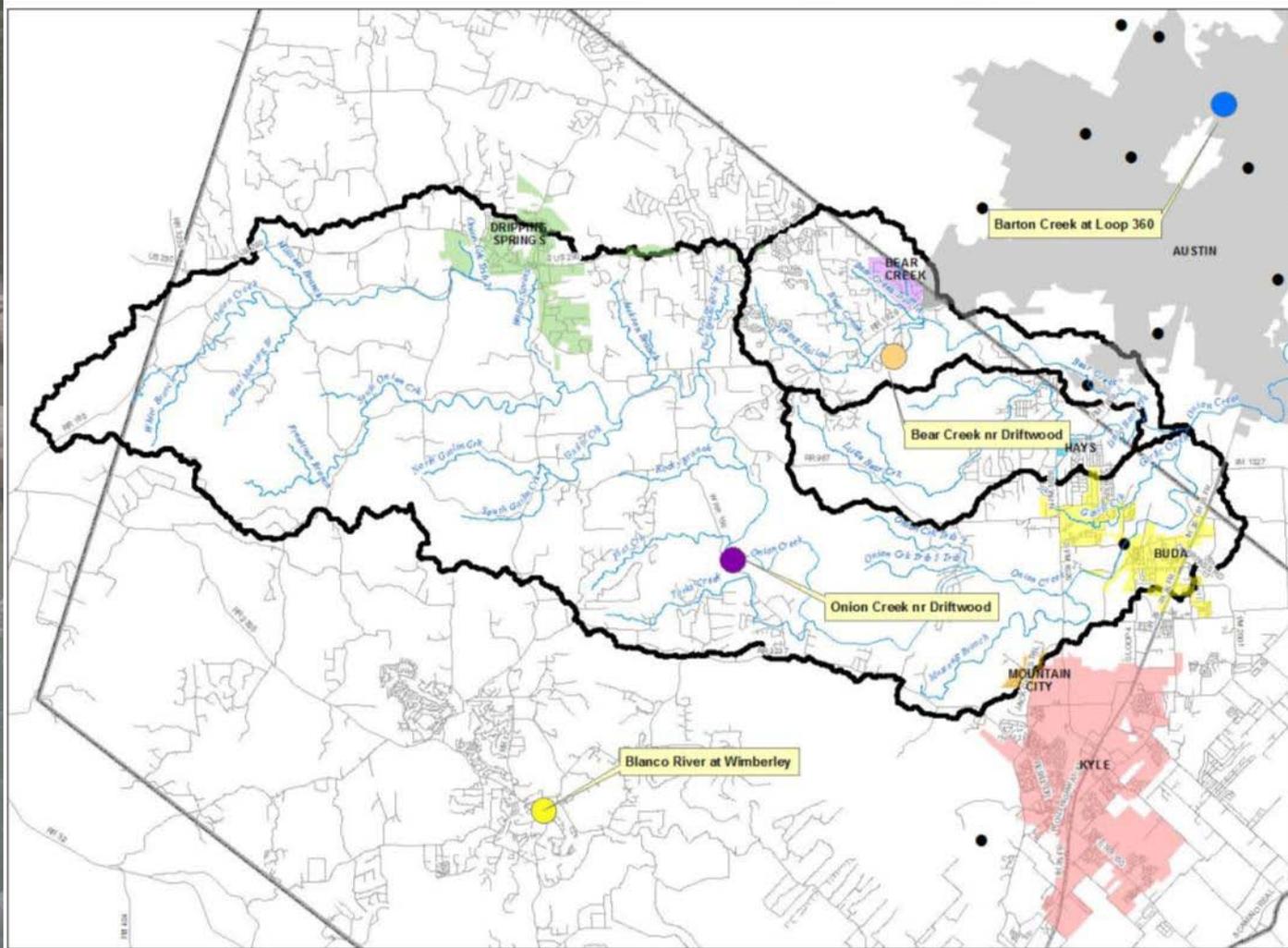


# Hydrologic Calibration – November 2001

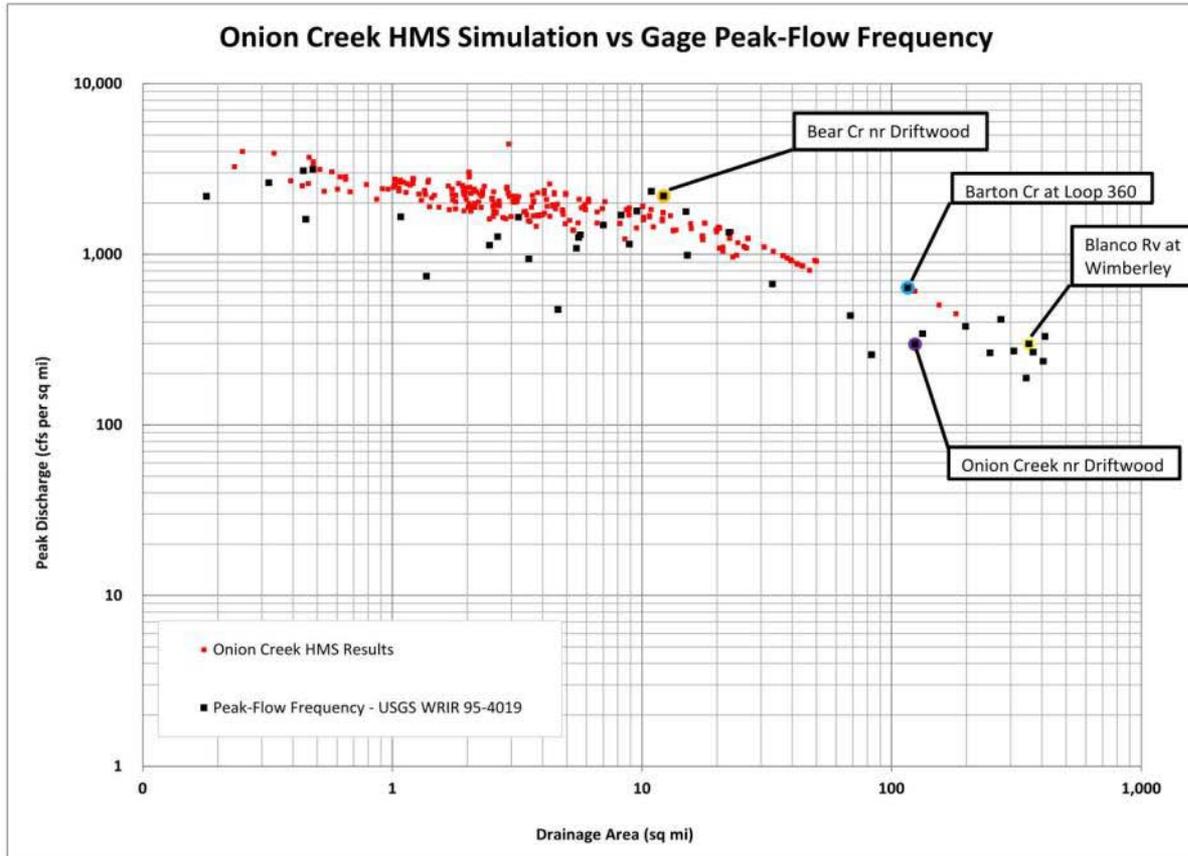
Hays County Interim Feasibility Study  
Onion, Bear and Little Bear Watersheds  
TRN – Phase IA Hydrology



# Comparison with Gage Frequency Analysis

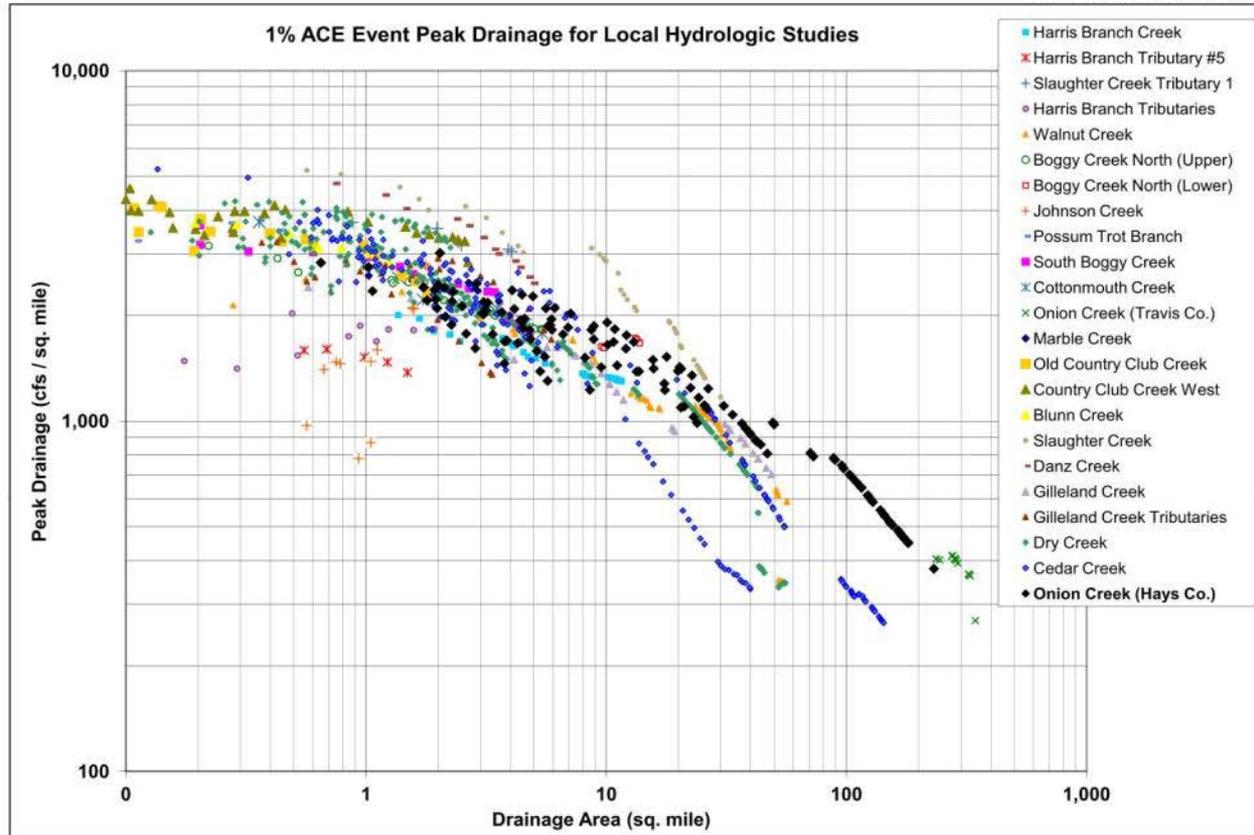


# Comparison with Gage Frequency Analysis

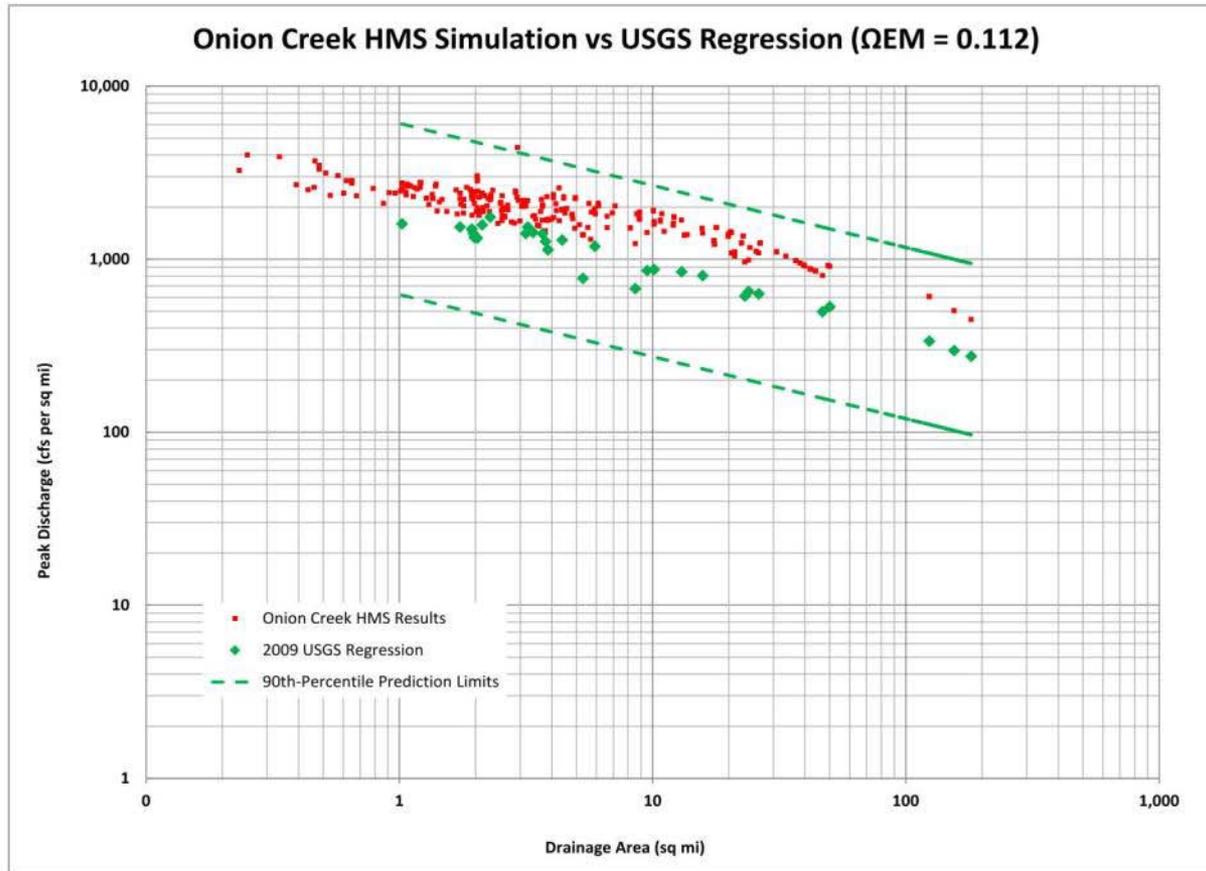


# Comparison to Nearby Watershed Studies

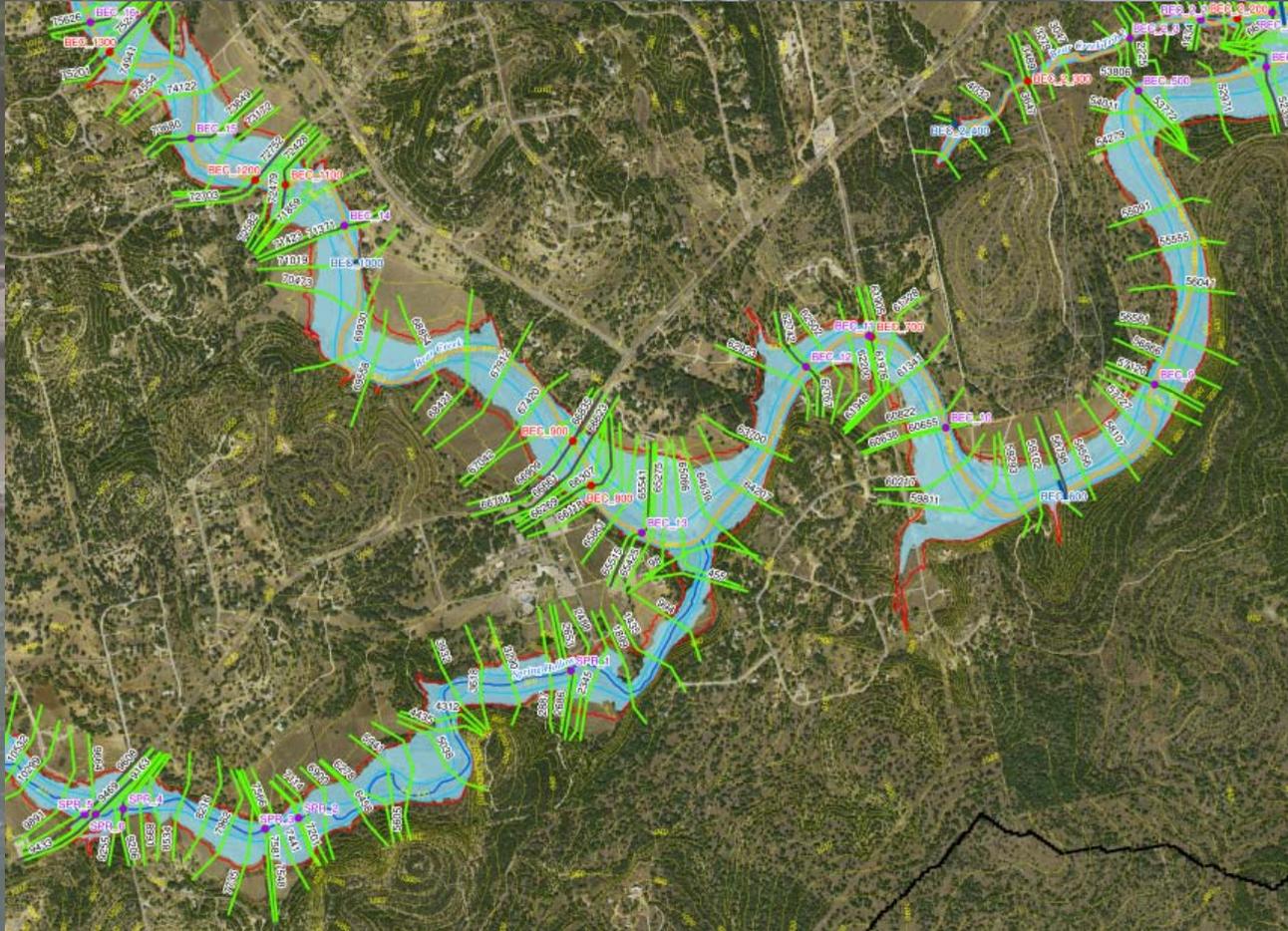
Hays County Interim Feasibility Study  
Onion, Bear and Little Bear Watersheds  
TRN – Phase IA Hydrology



# Comparison to USGS Regression Equation



# Hydraulics, Mapping and Calibration



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# September 2010 – T. S. Hermine

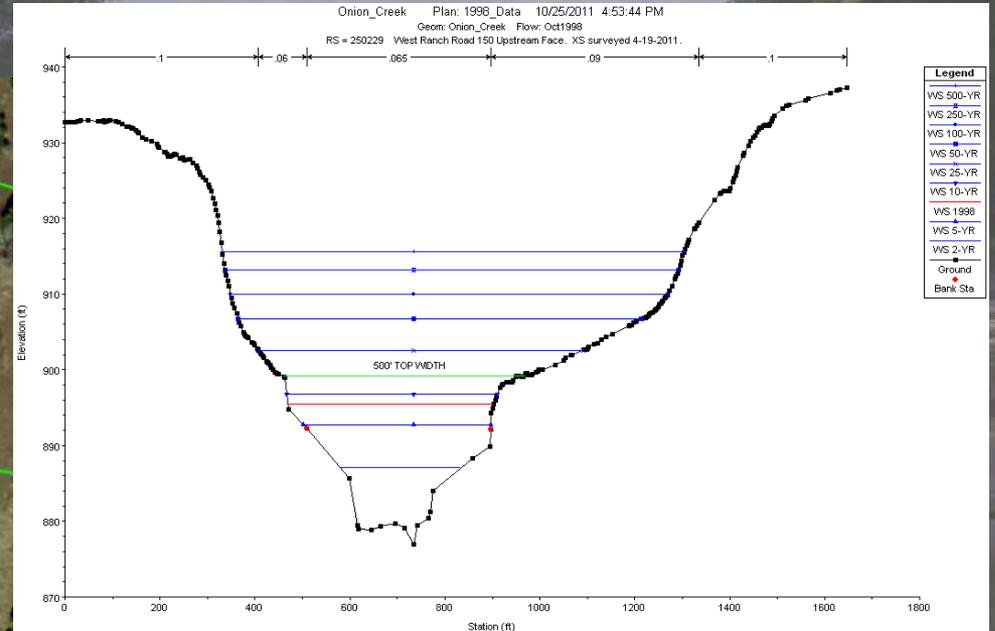
## Onion Creek at FM 150



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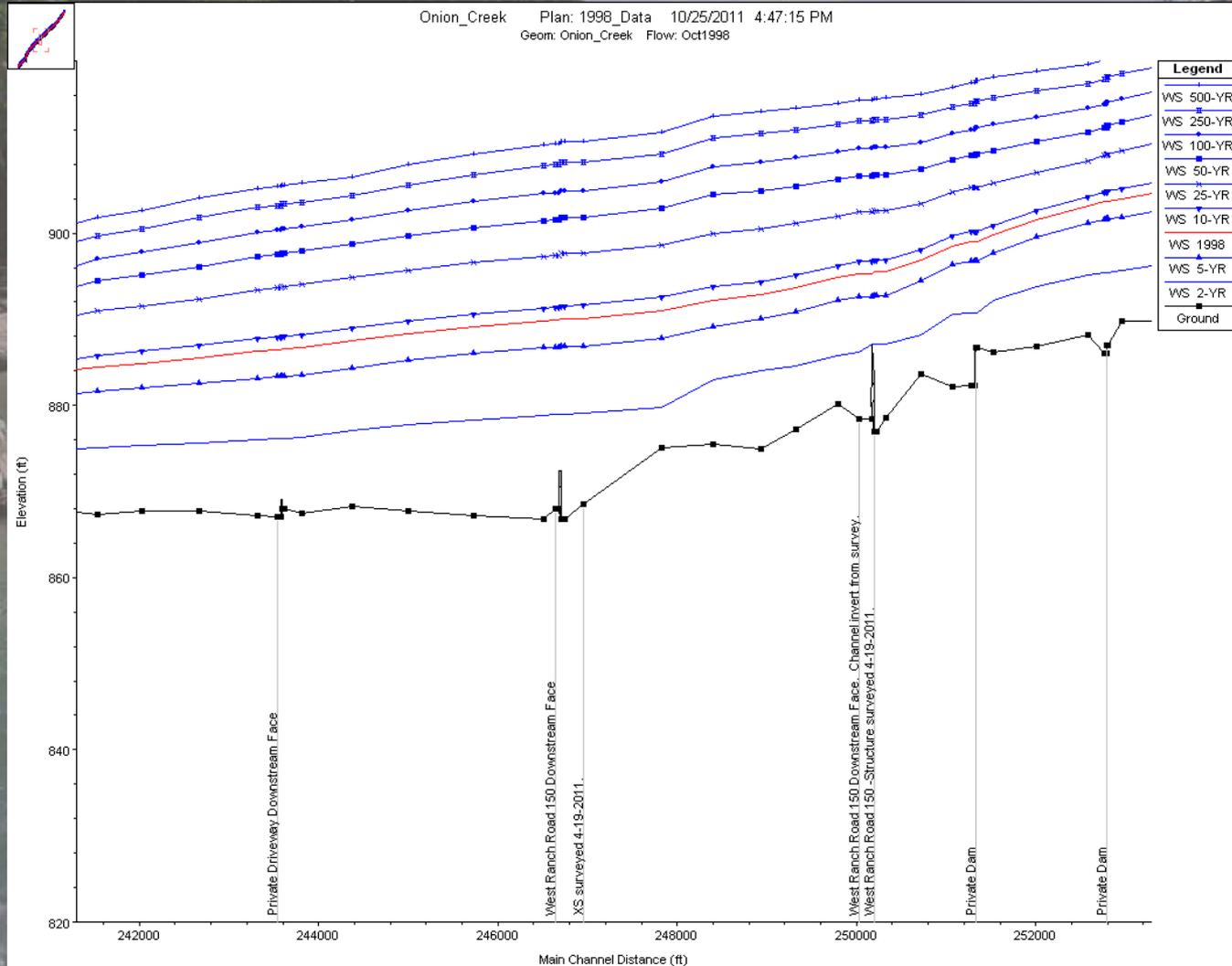


# September 2010 Onion Creek at FM 150



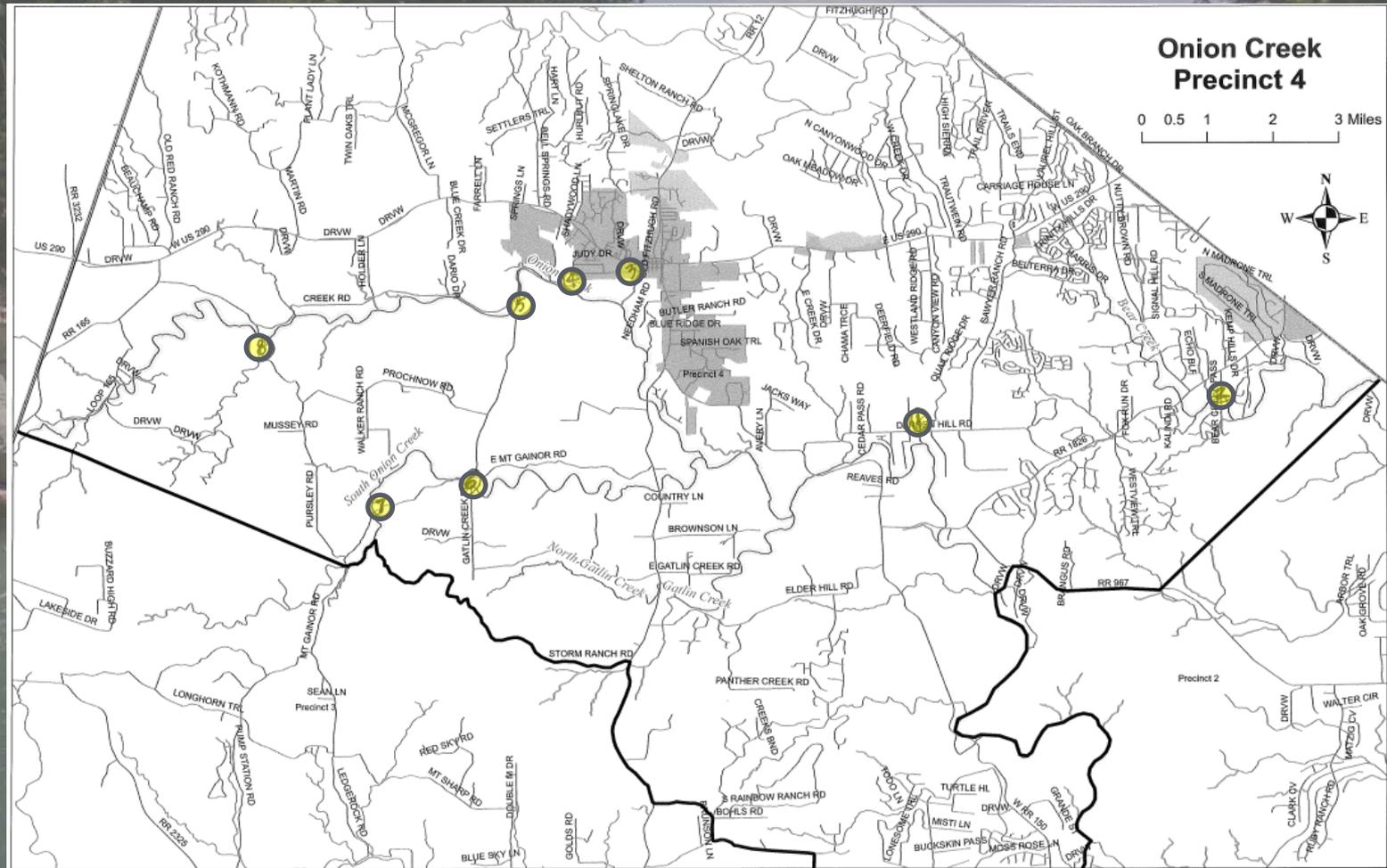
# Hydraulic Model Results

## October 1998



# High Water Mark Documentation

## Betty Lambright and Mark Dorman



# High Water Mark Documentation

Betty Lambright and Mark Dorman



# Project Status

## ■ Interim Services

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## ■ Ultimate Services

- Flood Damage Assessment
- Flood Reduction Alternative Analysis
- Environmental Assessment
- Recommended Cost-Effective Projects
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# Questions?

For additional inquiries regarding this project, please contact:

Marie Vanderpool

Project Manager, Hays County Interim Feasibility Study

Fort Worth District Corps of Engineers

[marie.j.vanderpool@usace.army.mil](mailto:marie.j.vanderpool@usace.army.mil)

817 886 1424



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