BANDERA COUNTY RIVER AUTHORITY
AND GROUNDWATER DISTRICT

OCTOBER 28, 2017 FLASH FLOOD PUBLIC
INFORMATION MEETING
Mission statement

The principal mission of the Bandera County River Authority and Groundwater District is to protect and preserve the County’s water and natural resources for the citizens of Texas. The District is also tasked with maintaining local accountability of the County’s water resources to help safeguard the property rights of the citizens of Bandera County.
PRESERVING AND PROTECTING THE AQUIFERS
PRESERVING AND PROTECTING THE HEADWATERS
Flood Events
Update of Progress on TWDB Awarded Flood Protection Grant for Bandera County in Cooperation with USGS
Local Funding Partners

Bandera County
City of Bandera Economic Development Coop
Bandera County River Authority and Groundwater District
The following 15 slides are a USGS presentation on the scope of the flood project for Bandera County.
Development of a Flood Warning Tool Set for Bandera County, Texas

U.S Geological Survey, South Texas Program Office
Outline

Introduction

Key elements of a FWS

Where can the USGS help

Questions
Introduction

What is a Flood Warning System?
Subsystems used to monitor, predict and warn of an impending flood or flash flood.

What is a Flood Atlas?
A series of sequential maps that help communicate where flooding may occur over a range of river levels.
Key Elements of a FWS
Where Can The USGS Help?

- Installation of additional stage-only gages
Install Two Additional Stage-Only Gages
Where Can The USGS Help?

Creation of Flood Inundation Maps and Flood Atlas.
Creation of Flood Inundation Maps

Hydraulic Modeling

Geospatial Processing

Series of sequential maps showing probable areas of flooding (Flood Atlas)
Flood Inundation Maps translate a hydrograph, at different stages, into operational maps that communicate risk and consequences.

Develop Flood Atlas
Flood Atlas

A Flood Atlas becomes a tool for flood...

- Preparedness
  - “What-if” scenarios

- Response
  - Tied to gage & forecast data
  - Road/Bridge Closures

- Recovery
  - Damage assessment

Photo Courtesy of Jerry Sides
FIM Web Mapping Application

http://wim.usgs.gov/FIMI/
Where Can The USGS Help?
Decision Support System

• A mapping application interface that provides a basin-wide common perspective for water resource managers

• DSS will incorporate data from:
  • National Weather Service
  • USGS
  • After Action Reports (AAR)

• Similar to a Texas Water Dashboard

Summary

• Key Elements of a FWS
• Where Can the USGS Help - General Approach
  o Installation of Additional Gages
  o Create Hydrologic Atlas
  o FIM Web Mapping Application
  o Decision Support System (DSS)
End of USGS presentation slides

Medina River at Bandera City Park, Bandera, Texas

South Texas Program Office
210-691-9219

Photo courtesy of Larry B. Thomas
Flood Project Updates & Additional Resources

OCTOBER 28, 2017 FLASH FLOOD PUBLIC INFORMATION MEETING
West Prong Medina River @ Carpenter Creek

- Installed and Operational as of September 2017
- USGS site # 08178871

https://nwis.waterdata.usgs.gov/nwis/uv/?site_no=08178871
North Prong Medina River @Brewington Crossing

*Expected Installation start by end of November 2017*
Rainfall & River Gauges

Click on the links to the following locations in Bandera County to access real-time data:

- Weather Station at Bandera County River Authority Office
- USGS Medina River Gauge at Medina Rv in Bandera, TX
- USGS Medina River Gauge above English Crossing
- Rain Gauge at Hwy 187 (North of Lost Maples)
- USGS Sabinal River Gauge
- USGS Medina River Gauge at Patterson Ave. (Moffett Park) in Medina, TX
- USGS Gauge at Medina Lake, Texas
- USGS West Prong Medina River at Carpenter Road Crossing

For a view of state-wide river gauge data, click below:

TWDB TexasFLOOD
Weather Station
@ BCRAGD
440 FM 3240
Bandera, TX
Weather Station online viewing

**Latest Conditions**

**Smart Sensors**
- **Rain:** 0.00 in
- **Temperature:** 82.75 °F
- **RH:** 34.90%
- **Dew Point:** 52.27 °F
- **Pressure:** 28.480 inHg
- **Wind Speed:** 6.8 mph
- **Gust Speed:** 19.6 mph
- **Wind Direction:** SSW 201°
- **Solar Radiation:** 0.721 KW/m²
- **Water Content (Shallow):** 0.2683 m³/m²
- **Water Content (Deep):** 0.3240 m³/m²
- **Battery:** 4.418 V

**Activity Log**
- [View Log](#)

**Graphs**

**Past Day**
- **Rain in Past Day:** 0.00 in

**Past Week**
- **Rain in Past Week:** 10425643.1
  - **Hourly Totals**

**Past Month**
- **Temperature:** 68.7°F
  - **values**
Medina River @ Patterson Ave Medina, TX (Moffett Park)
Online Stream Gage Example from 2012 flood event:
Medina River @ Patterson Ave Medina, TX (Moffett Park)

Discharge, cubic feet per second
Most recent instantaneous value: 72.5 10-27-2017 11:15 CDT

Gage height, feet
Most recent instantaneous value: 4.47 10-27-2017 11:15 CDT
Subscribe to USGS WaterAlert from any gauge link

http://www.bcragd.org/river-gages/
Subscription Form

The U.S. Geological Survey WaterAlert service sends e-mail or text (SMS) messages when certain parameters, as measured by a USGS real-time data-collection station, exceed user-definable thresholds. The development and maintenance of the WaterAlert system is supported by the USGS and its partners, including numerous federal, state, and local agencies.

Real-time data from USGS gages are transmitted via satellite or other telemetry to USGS offices at various intervals; in most cases, 1 to 4 times per hour. Emergency transmissions, such as during floods, may be more frequent. Notifications will be based on the data received at these site-dependent intervals.

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| Streamflow Parameter(s): | about this... | Recent value: 23.4 [peak chart] |
|--------------------------|--------------|
| Discharge, in ft³/s      |              |

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<td>Inside a range (&gt; and &lt;)</td>
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Real-time value is greater than:   ft³/s

☐ I have read and acknowledge the Provisional Data Statement and Disclaimer.

Submit  Reset  Cancel
Additional Resource: USGS WaterWatch
https://waterwatch.usgs.gov/
TWDB- “Are the Rivers Near Me Rising?”
You can subscribe to mobile alerts via USGS gages by going to texasflood.org. From there, click "Are the rivers near me rising?" and zoom into your area. Then click the dots near you to see river gage info along with the option to subscribe to mobile alerts.

Road conditions can also be accessed from texasflood.org. From there, click "I need to evacuate, which roads are open?"
Connect on Social Media

Follow @USGS_TexasFlood and @USGS_TexasRain on Twitter to get current water level and precipitation data during flooding or severe rainfall events.
Texas Floodplain Management Association (TMFA)

Organization of professionals with a wide range of experience and expertise in:

- Floodplain Management
- Flood Hazard Mitigation
- National Flood Insurance Program (NFIP)
- Flood Preparedness
- Flood Warning
- Flood Awareness
TFMA Major Programs

➢ Professional Certified Floodplain Managers (CFM) Program
➢ Education and Training
➢ Mentor Program
➢ Governmental Relations
➢ Freeboard Survey
➢ Public Outreach
This is Flash Flood Alley because of a Repeated Reality

**Video by Travis County STAR Flight**

NEVER drive into a flooded roadway, it only takes ONE foot of moving floodwaters to carry away a car.

*Also, be aware that roads may be damaged underneath floodwaters.*
Contact TFMA

P.O. Box 1237
Cedar Park, Texas 78630
Phone: (512) 260-1366
Fax: (512) 260-1409
Web Site: tfma.org
NEW Email: tfma@tfma

Follow @TexasCFM

https://www.facebook.com/TXFMA
Thank you to Today’s Collaborators!

National Weather Service

Bandera County Emergency Management

Bandera Electric Cooperative (host)