Hays County 2015 Flooding Events
After Action Report

Hays County / San Marcos
Joint EOC Operations

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Executive Summary

Historic flash and river flooding occurred on two separate occasions within a six-month time period in Hays County. What is now being called the "Memorial Day Floods" started on Saturday, May 23rd and went into Sunday, May 24th affecting a large portion of South-Central Texas. The two rivers basins that were impacted by the Memorial Day event were the Blanco and San Marcos Rivers. Running through Wimberley and San Marcos, TX, the flash flooding caused a tragic loss of life and extreme property damage. Following the flash flood on May 23rd and 24th, another round of severe weather caused additional flash flooding and tornados on Memorial Day, May 25th, 2015, affecting large areas of Williamson, Travis, Bastrop, and Caldwell counties. This same event hampered rescue and recovery efforts within Hays County.

October 30, 2015, another catastrophic flood event occurred, referred to as the "All Saints Day Flood", where water caused portions of Interstate 35 to be closed for a second time that year and the closing of Austin-Bergstrom International Airport.

"Nearly 6 inches of rain fell within an hour at the airport", the National Weather Service said, "flooding the ground floor of the Austin Air Traffic Control Tower and Terminal Radar Approach Control facility. Elsewhere in Texas, some areas received more than 10 inches of rain and more is expected throughout the Halloween weekend", according to an alert from the National Weather Service.

During the All Saints Day Flood once again the waters destructive power affected Cypress Creek in Wimberley, the Blanco River, and San Marcos River causing additional property damage and delaying recovery efforts from the previous flood. Heavy rains also caused flooding of the Guadalupe River in New Braunfels, Texas, washing away RVs, boats and trailers. It is important to acknowledge, there was no loss of life during the All Saints Day Flood. This was due, in part, to the communities heightened sense of awareness to weather warnings and improved reactions to alerts.

Both events were considered historical flood events for Central Texas, but for different reasons. The Memorial Day Flood was noted for its extreme water velocities, analogous to the velocities of Niagara Falls. The All Saints Day flood was noted for the extreme volume of precipitation in such a short period of time in various locations around the County quickly inundating the rivers, ditches and ephemeral streams. While both floods had their specific idiosyncrasies, public warnings, emergency service operations, sheltering, first responder communications, and recovery efforts were similar.

Hays County, in conjunction with the DPS Emergency Management, Texas National Guard, State of Texas, as well as, other local and state entities exercised the strategic deployment of regional and state teams and their assets for these events. This effort involved multiple jurisdictions within the ten county region (CAPCOG) and tested numerous endeavors related to a catastrophic natural weather event.

The joint Emergency Operations Center (EOC), under direction of the chief elected officials established the objectives for each event and the Operation Divisions were broken up geographically based on water conditions. The Hays County's Emergency Management Plan was used as a guide to request and manage mutual aid resources as well as deploy strike teams and personnel.

During both events, the EOC facility required teams to work outside normal space requirements and adapt to local issues as might be found in disaster. Several major strengths were demonstrated during this event, including, but not limited to:

1. Emergency unification of multiple dispatch centers to combine into a single source EOC response for the event.
2. Response package arrangements and deployment of separate and multi-sized teams from multiple jurisdictions.
3. Communications capability between VHF, 800 Mz and 900 Mz radio systems outside of typical response areas.
4. Utilization of a Joint Information Center
5. Transfer of command and operations function under specific ICS branches.

On June 24, 2015 members of the County and interested parties from the four primary responding agencies; communications center representatives, Hays County OEM, and City of San Marcos, and multiple fire officials met to determine action items related to the events.

During this meeting, several areas of improvement were identified and discussed:

1. Collaboration between the County and the State teams needs better coordination. Operationally, over the last two years, the County has not directly worked with the State groups. The County was at a disadvantage during the events, having to work with a lack of technology and personnel resources while at the same time trying to oversee multiple command posts.
2. Jurisdictions need to be updated on the TDEM protocol on resource requests.
3. Jurisdictions need to establish a future training effort that will involve more incident command system implementation across multiple disciplines.

Acronyms

AAR	After Action Reports
CAPCOG	Capital Area Council of Governments
CRC	County Resource Coordinator
DDC	Disaster District Committee
DOC	Department Operations Center
DPS	Department of Public Safety
EOC	Emergency Operation or Operating Center
EMS	Emergency Medical Service
ESD	Emergency Service District
FEMA	Federal Emergency Management Agency, an element of the U.S. Department of Homeland Security
HCOEM	Hays County Office of Emergency Management
HCOES	Hays County Office of Emergency Services
HCPHEP	Hays County Public Health Emergency Preparedness
HCSO	Hays County Sheriff's Office
HR	Human Resources
LCRA	Lower Colorado River Authority
ICP	Incident Command Post
ICS	Incident Command System
IPAWS	Integrated Public Alert Warning System
IP	Improvement Plan
JFO	Joint Field Office
JIC	Joint Information Center
NIMS	National Incident Management System
NRP	National Response Plan
NWS	National Weather Service
OEM	Office of Emergency Management
PIO	Public Information Officer
RMOC	Regional Medical Operations Center
SMOEM	San Marcos Office of Emergency Management
SMPD	San Marcos Police Department
SOGs	Standard Operating Guidelines
SOPs	Standard Operating Procedures
SOC	State Operations Center
STAR	State of Texas Assistance Request
USDHS	United States Department of Homeland Security

Definitions

Disaster District Committee. The DDC consists of a Chairperson (the local Highway Patrol captain or command lieutenant), and agency representatives that mirror the membership of the State Emergency Management Council. The DDC Chairperson, supported by committee members, is responsible for identifying, coordinating the use of, committing, and directing state resources within the district to respond to emergencies.

Emergency Operations Center. The physical location at which the coordination of information and resources to support domestic incident management activities normally takes place. An EOC may be a temporary facility or may be located in a more central or permanently established facility, perhaps at a higher level of organization within a jurisdiction. EOCs may be organized by major functional disciplines (e.g., fire, law enforcement, and medical services), by jurisdiction (e.g., Federal, State, regional, county, city, tribal), or some combination thereof.

Emergency Situations. As used in this plan, this term is intended to describe a *range* of occurrences, from a minor incident to a catastrophic disaster. It includes the following:

a. Incident. An incident is a situation that is limited in scope and potential effects. Characteristics of an incident include:

1. Involves a limited area and/or limited population.
2. Evacuation or in-place sheltering is typically limited to the immediate area of the incident.
3. Warning and public instructions are provided in the immediate area, not community-wide.
4. One or two local response agencies or departments acting under an incident commander normally handle incidents. Requests for resource support are normally handled through agency and/or departmental channels.
5. May require limited external assistance from other local response agencies or contractors.
6. For the purposes of the NRP, incidents include the full range of occurrences that require an emergency response to protect life or property.

b. Emergency. An emergency is a situation that is larger in scope and more severe in terms of actual or potential effects than an incident. Characteristics include:

1. Involves a large area, significant population, or important facilities.
2. May require implementation of large-scale evacuation or in-place sheltering and implementation of temporary shelter and mass care operations.
3. May require community-wide warning and public instructions.
4. Requires a sizable multi-agency response operating under an incident commander.
5. May require some external assistance from other local response agencies, contractors, and limited assistance from state or federal agencies.
6. The EOC will be activated to provide general guidance and direction, coordinate external support, and provide resource support for the incident.
7. For the purposes of the NRP, an emergency (as defined by the Stafford Act) is "any occasion or instance for which, in the determination of the President, Federal

assistance is needed to supplement State and local efforts and capabilities to save lives and to protect property and public health and safety, or to lessen or avert the threat of catastrophe in any part of the United States."

c. Disaster. A disaster involves the occurrence or threat of significant casualties and/or widespread property damage that is beyond the capability of the local government to handle with its organic resources. Characteristics include:

1. Involves a large area, a sizable population, and/or important facilities.
2. May require implementation of large-scale evacuation or in-place sheltering and implementation of temporary shelter and mass care operations.
3. Requires community-wide warning and public instructions.
4. Requires a response by all local response agencies operating under one or more incident commanders.
5. Requires significant external assistance from other local response agencies, contractors, and extensive state or federal assistance.
6. The EOC will be activated to provide general guidance and direction, provide emergency information to the public, coordinate state and federal support, and coordinate resource support for emergency operations.
7. For the purposes of the NRP, a *major disaster* (as defined by the Stafford Act) is any catastrophe, regardless of the cause, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster federal assistance.

Catastrophic Incident. For the purposes of the NRP, this term is used to describe any natural or manmade occurrence that results in extraordinary levels of mass casualties, property damage, or disruptions that severely affect the population, infrastructure, environment, economy, national morale, and/or government functions. An occurrence of this magnitude would result in sustained national impacts over prolonged periods of time, and would immediately overwhelm local and state capabilities. All catastrophic incidents are *Incidents of National Significance.*

Incident Action Plan (IAP): An oral or written plan containing general objectives reflecting the overall strategy for managing an incident. It may include the identification of operational resources and assignments. It may also include attachments that provide direction and important information for management of the incident during one or more operational periods.

Incident Command Post (ICP): The field location at which the primary tactical
-level, on-scene incident command functions are performed. The ICP may be co-located with the incident base or other incident facilities and is normally identified by a green rotating or flashing light.

Joint Information Center (JIC): A facility established to coordinate all incident-related public information activities. It is the central point of contact for all news media at the scene of the incident. Public information officials from all participating agencies should collocate at the JIC.

WebEOC. Web-based crisis information management software, which provides emergency response teams, decision-makers and organizations with real-time access to critical information that, can be simultaneously shared during the planning, response and recovery phases of an event.

Location

Blanco, Hays, Caldwell, and Guadalupe County, Texas were identified as impact areas with direct information feeds in and out of the Emergency Operations center.

Participants

Wimberley Fire Department
South Hays Fire Department
Kyle Fire Department
Buda Fire Department
North Hays Fire Department
Chisholm Trail Fire Department
San Marcos SMART Divers
San Marcos Fire Rescue
Hays County HAZMAT
San Marcos Hays County EMS
San Marcos Police
San Marcos Police Communications
San Marcos OEM
Hays County Sheriff Department
Travis County Search and Rescue
City of Austin Water Utility
City of Austin
City of Austin Fire Department
Travis County OEM
Texas State University
Oak Hill Fire Department
Bastrop County OEM
Hays County OEM
Austin OEM
Texas DPS Local System
Texas Military Forces
United States Border Patrol
Texas Department of Transportation
Texas Health and Human Services
TXST University Police
Kyle Police Department
Alamo Area SAR
Texas Forest Service
TDEM
Texas Parks and Wildlife
USDA
FEMA
DPS
Texas National Guard
Texas Task Force 1 and 2
Comal County Sheriff's Office
TEXSAR
Texas A&M Veterinary Team
San Marcos Hays County EMS
Wimberley EMS
Austin EMS
Austin Health Department
DHHS lab
Texas DEM Communications

The May Weather Event Summary:

A persistent weather pattern from the beginning of May began to set the stage for a more concentrated and more impactful flash and river flooding event (Figure 1). May 2015 has been documented by the National Weather Service as the wettest month in Texas History. For the first two to three weeks of the month, most locations across south-central received well-above normal rainfall that saturated the soils.

By the time Memorial weekend arrived, much of the region was at least 2-4 inches (100-300%) above normal. A persistent area of low pressure over the western United States brought multiple rain events throughout the month of May. These wet antecedent conditions meant that any new rain and especially heavy rain would become rapid run-off directly into rivers, streams, and flash flood prone areas. Ingredients came together during the Memorial Weekend with several rounds of very heavy rain and severe thunderstorms. A thunderstorm cluster became organized west of Hays County on Saturday afternoon and produced upwards of 12 inches of rain in less than 6 hours. The majority of this rain fell in the upper reaches of the Blanco River watershed which saw rain rates that exceeded 4 inches per hour as thunderstorms merged and regenerated for hours over southern Blanco and eastern Kendall Counties.

Widespread 6-8 inches fell across Bandera, Kerr, Kendall, Blanco and far west portions of Comal and Hays counties with a max of 10 to 13 inches of rain across southern Blanco and extreme NE Kendall counties. Most of this rain fell from Saturday afternoon into the overnight hours of early Sunday morning, leading to a rapid rise in the Blanco and San Marcos Rivers (Figure 2).

The Blanco River at Wimberley rose from near 5 feet at 2100 on May 23rd to near 41 feet by 0100 on May 24th. One staggering statistic is that the Blanco River rose 5 ft. every 15 minutes from 2245 to 2345 on May 23rd. This equates to a 20ft rise along the river within a one-hour time frame. The river gauge hydrograph for Wimberley can be seen in Figure 3 depicting this rapid rise. Numerous high water rescues occurred throughout the late evening and morning hours along the banks of the Blanco River and eventually the San Marcos River. Active search and rescue efforts remain underway for a few missing victims. To date, 12 fatalities have been confirmed.

Emergency Events by Time

Memorial Weekend Flood

- A Flash Flood Watch was issued for the entire area Friday May 22nd at 1352hrs through 1900hrs Sunday evening given the favorable set up for heavy rainfall across the already saturated region. Several informational graphics were posted to Twitter, Facebook, and sent to Emergency Managers/Partners via email indicating very high confidence in heavy rainfall and high confidence in both river and flash flooding.

- Saturday morning discussion highlighting heavy rain and flash/river flooding threat. Issued at 0314hrs.

- Saturday Morning Hazardous Weather Outlook issued at 0453hrs.

- Saturday Afternoon Area Forecast Discussion reinforcing the river and flash flood threat. Issued at 1426hrs.

- Hays County Emergency Management received information from local residents in Blanco County advising of the substantial rise in the Blanco River around 1600hrs and responded to activate the Emergency Operations Center with the City of San Marcos Office of Emergency Management.

- Hays County and City of San Marcos Officials opened the Joint Emergency Operations Center 1730hrs.

- Saturday evening at 1826hrs the National Weather Service Issued a Flash Flood Warning for Center Blanco County indicating flooding is occurring or is imminent.

- Hays County Emergency Communications issued the first Emergency Notification Message and to start Emergency Personnel in a door to door notification of residents along the Blanco River advising of the rise and to monitor and seek higher ground if in a low lying area at 1955hrs.

- The National Weather Service issues a Tornado Warning for Hays County at 2013hrs.

- Hays County EOC receives reports of collapsed residence in the Dripping Springs area. Local Emergency Responders are deployed to assist and an emergency shelter is opened for displaced residents.

- A River Flood Warning was issued at 2013hrs for the Blanco River at Wimberley which forecasted minor flooding at a height of 16 feet.

- Flood Warning is issued by the National Weather Service at 2013hrs for the Blanco, Guadalupe and San Marcos Rivers followed by a Flash Flood Warning for Hays County at 2023hrs.

- The River Forecast Center updated the forecast height at 2127hrs to 17.2 feet and then again at 2324hrs to 26.6 feet.

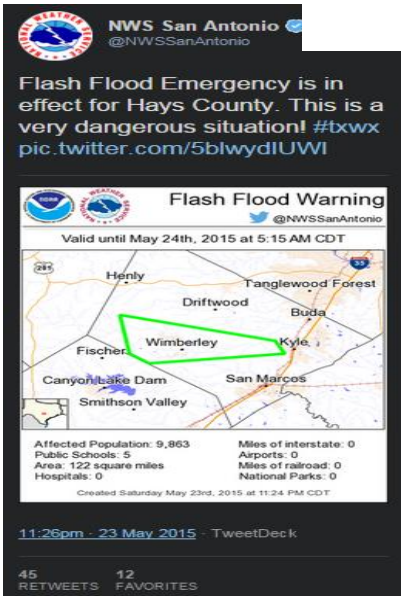
- Hays County issued additional Emergency Notifications at 2022hrs, 2056hrs, 2303hrs and 2350hrs urging residents along the Blanco River to seek higher ground. The Wimberley Community Center was opened as an emergency shelter.

- An additional Tornado Warning was issued for Hays County by the National Weather Service at 2055hrs 2145hrs

- At 0013hrs the river forecast was updated to a projected height of 34.5 feet and updated again at 0116hrs to the forecasted crest of 41.5 feet.

- Several additional warnings were issued by the National Weather Service over the following hours for Severe Thunderstorms, Flash Flooding, and Flood Warnings. At 0511hrs, another Flash Flood Emergency was issued for the Blanco River Basin in Southern Hays County.

Below are examples of the National Weather Service Alerts that were sent out during the flood event via social media.



Emergency Events by Time

All Saints Weekend Flood:

- Internal communication begins Thursday 10/29/2015 night at 2138hrs with a Situational Report from San Marcos Office of Emergency Management that there were concerns moving into the weekend, of a "potential heavy rain event along with the marginal possibility of severe thunderstorms" according to media meteorologists, but no advisories, watches, or warnings were issued by the National Weather Service.

- Hays County Office of Emergency Management issued a Situational Report at 0341hrs on Friday 10/30/2015 informing about the predicted forecast of scattered showers and thunderstorms later that afternoon and into the night but no more than 2 inches of precipitation were expected. At that time there were no advisories, watches, or warnings issued by the National Weather Service.

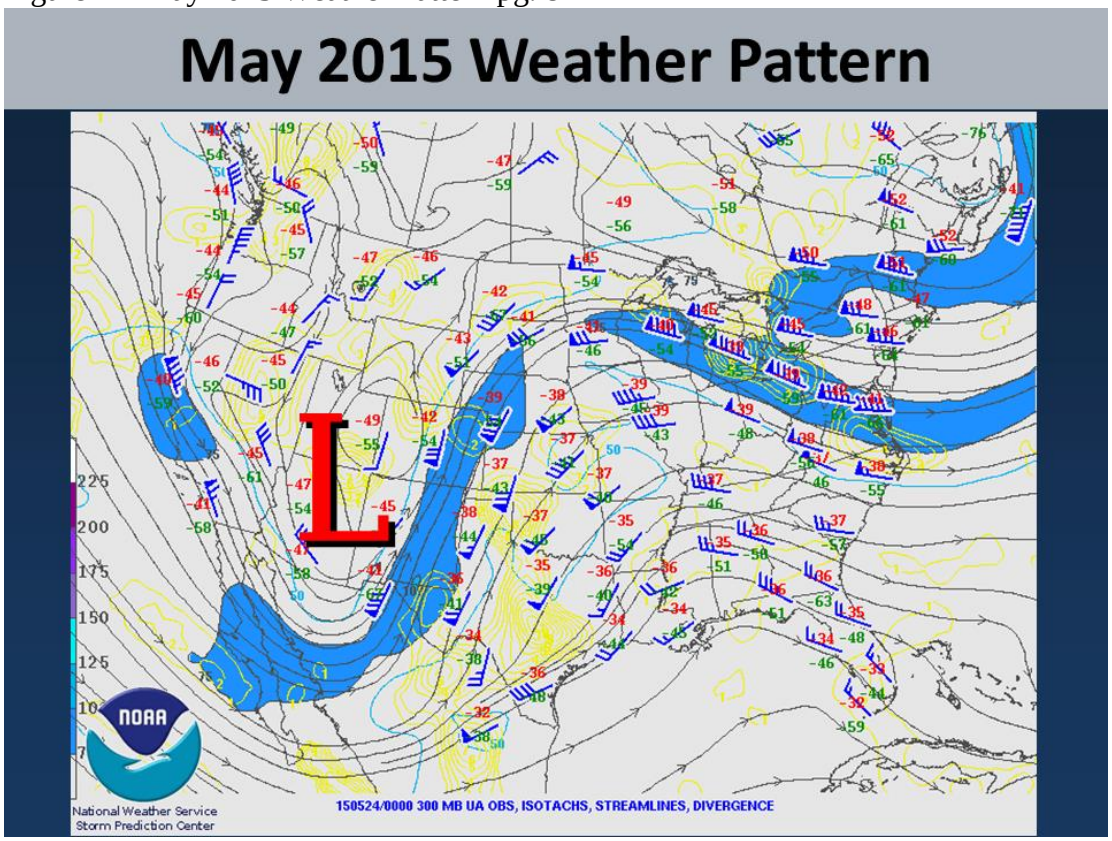
- At 0439hrs the National Weather Service issued a Flash Flood Watch for most of the Hill Country, including Hays County.

- At 0607hrs a Tornado Watch was issued for Hays County and at 0734hrs. A tornadic signature was indicated on radar traveling toward IH-35 on the southwest side of San Marcos.

- Beginning at 0632hrs and over the next 13 hours Emergency Responders in County departments were dispatched to over 151 calls for water rescues or public assists related to flooding.

- Hays County Emergency Communication Division issued the first emergency notification to residents at 0841hrs, with additional alerts being sent out at 0859hrs, 1349hrs, 1353hrs, and 1355hrs.

List of Figures



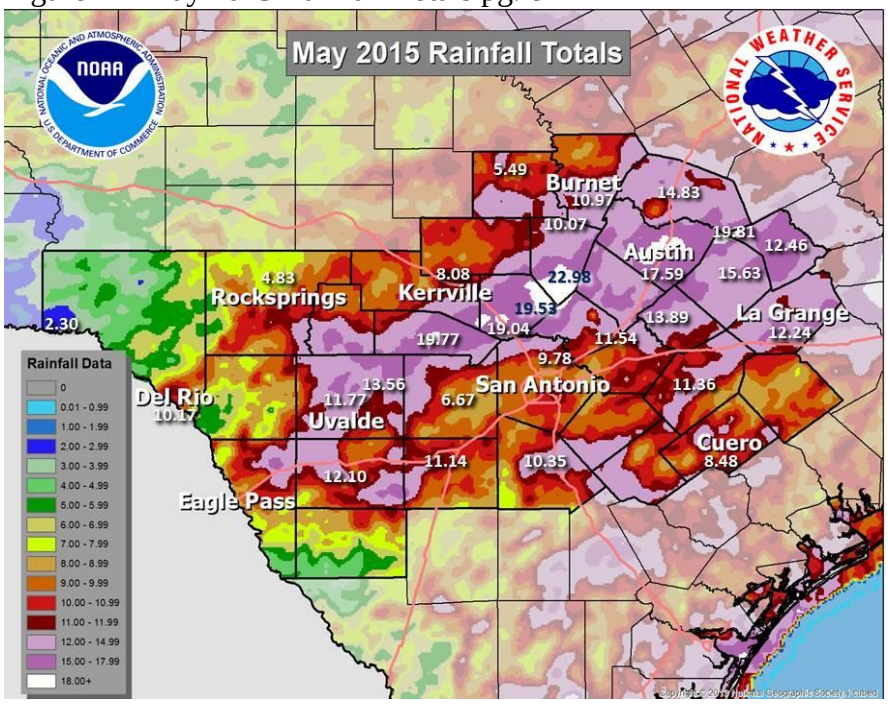


Figure 3 – USGS Blanco River at Wimberley, TX pg. 8

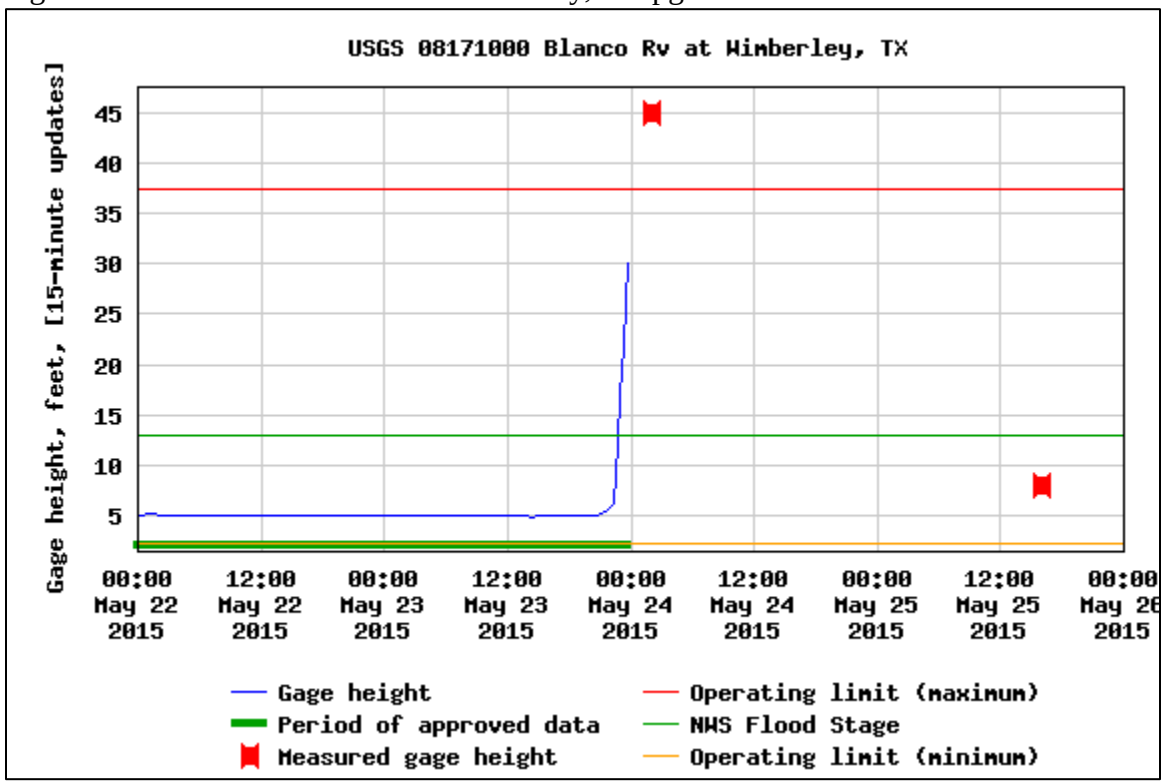


Figure 4 – 2015 Halloween Weekend Rain Totals pg. 11

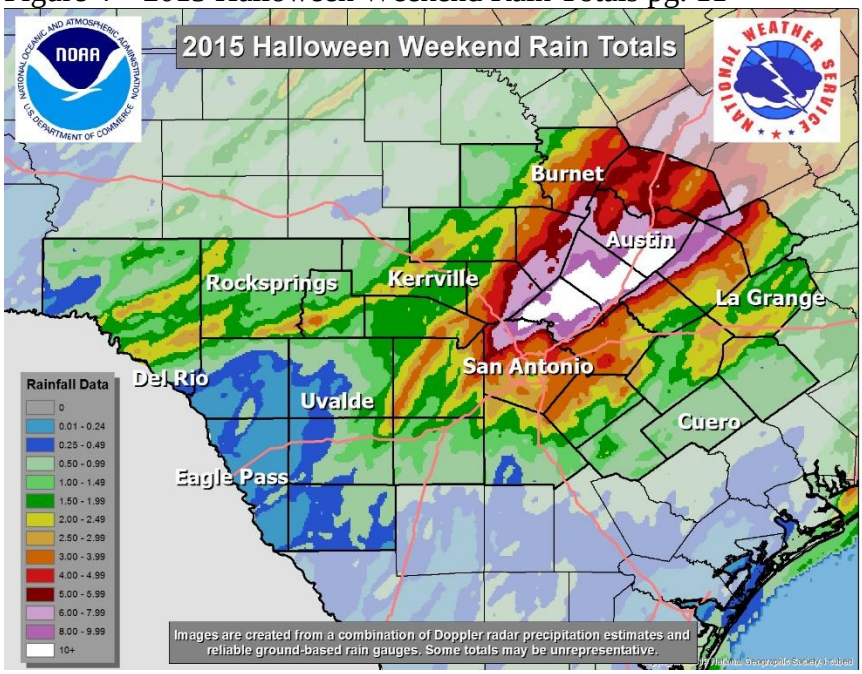
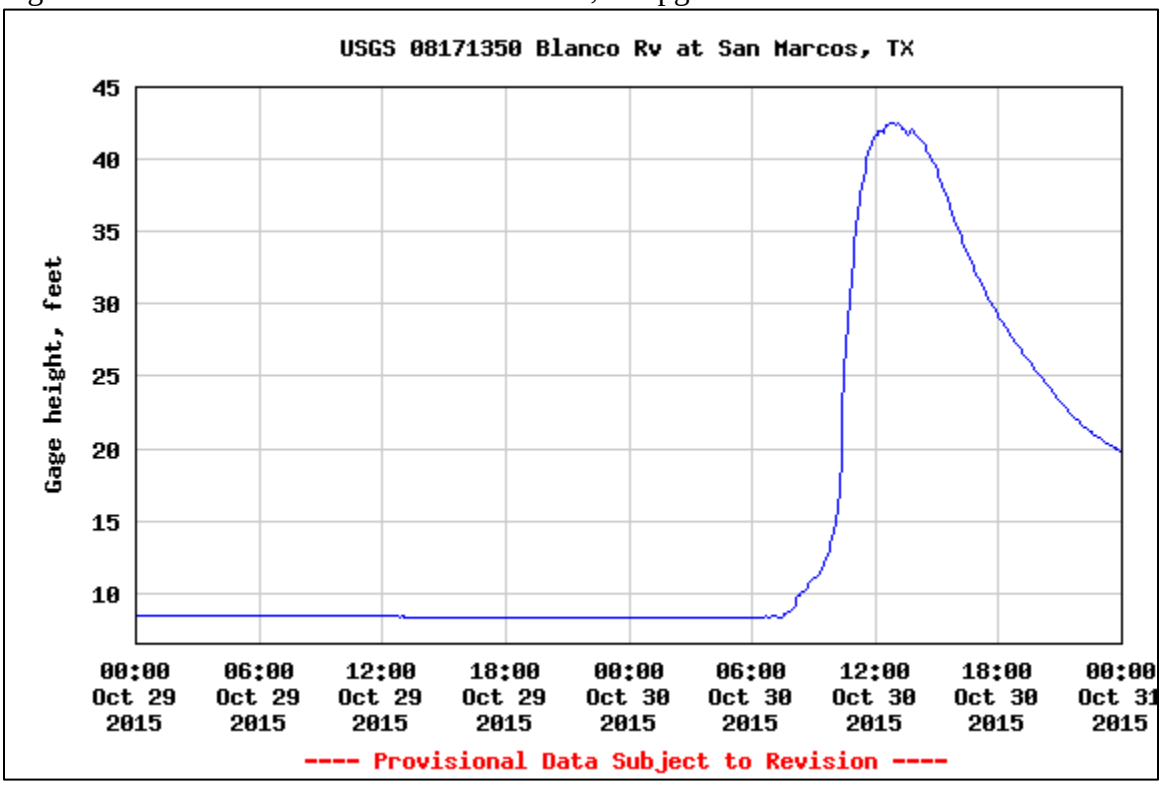


Figure 5 – USGS Blanco River at San Marcos, TX pg. 11



Overall Evaluation Components

Notification and Response

The initial notification and response to the emergency was evaluated. In order to focus on specific needs, the evaluations were broken down into the following categories:

The initiation and dispatch of emergency notification through First Call - Emergency Notification System;

Initiation of IPAWS through national weather service and local activation;

Use of 900MHz LCRA radio system for emergency communications;

Door to door notice of evacuation;

Media (TV and Radio) communication;

Use of social media for evacuation;

Reliability of internet service in major event;

Cooperation and use of weather service for notifications.

Direction and Control

Direction and control efforts of each team, including, but not limited to, coordination between local, state and federal assets. The following areas were evaluated:

Use of combined EOC for the first time in county history;

Communication with cities within the county;

Communication with adjoining counties;

Communication with outside agencies;

Use of the STAR for resource requests;

Incident Assessment

Evaluate the capability of regional teams to identify hazards as well as, maintaining situational awareness;

Determine potential needs to strengthen flow of information related to weather events;

Online resources;

River water and rain gauges;

Access to national Weather Service;

Communication and verification on the ground

Resource Management

Validate interoperable communications with all agencies. Used three existing radio systems VHF, 900, and 800;

Evaluate radio, phone and computer server communication capability with outside resources such as DEM, Austin EOC, RMAC's, EMC's and health department agencies;

Examine interoperability with field equipment such as WebEOC;

Report capability of working with private vendors and outside response teams;

Coordinate response with local CRC;

Examine potential uses and job functions for Homeland Security, health agencies, Fire service, and EMS after emergency response.

Evaluation Tools

Response agencies, as well as EOC staff, were asked to provide feedback on the following specific functions:

Response	Mutual Aid	Fire
Telephone use	Outside equipment	Search and rescue
Radio use	Emergency Support	Equipment availability
Cellular	Recovery personnel	Succession of leadership
Satellite	Public information	Emergency action steps
Internet on site	EMS	long-term operations
Fax on site	Public health	Planning
Incident Command	Mass casualty	Logistics
Unified Command	Law Enforcement	Operations
Command and Control	Communications	Command post operations

In addition, evaluations were conducted using the USDHS, NIMS, EOP guides and standards to review the team operations. Specifically reviewed by geographical area:

Identification	Safety
Response	Science
Team alignment	Incident Command
PPE selection	Interface with private vendors
Operational approach	Application of response equipment
Communications	Staging
Evaluation of Hazard	Equipment use
Zone configuration	Decon
Entry	

A hot wash was conducted after each operational period during the event. Coordination meetings were held in the operational periods to validate communication between EOC and Command elements.
On Wednesday, June 24th an After Action meeting was held at the Hays County Chiefs Meeting in Driftwood, Texas to evaluate the overall outcomes of this event. Subsequent meetings were held on:

1) July 15, 2015
2) August 19, 2015
3) September 16, 2015
4) October 21, 2015
5) November 18, 2015
6) December 16, 2015
7) January 20, 2016
8) March 16, 2016

Additional evaluation tools provided through Hays County Departments and/or partner agencies included daily Incident Action Plans, Public Health's CASPER, Red Cross Damage Assessments, FEMA Damage Assessments, and Hays County Development Services Damage Assessments.

Event Objectives Review

Objective:

Notification and Response

The initial dispatch of response agencies and/or the notification to respond to the EOC was efficient and clear;

	May	October	% Improvement
Points of review available:	58	58	
Objective Met:	82.5%	87.5%	5.0%

Responses:

- Responders in the field and those with roles in the EOC responded positively to the notification process. Concerns were noted from those without a response role that were not notified promptly of the EOC activation.

Recommendations:

- Develop a failsafe for improper contact protocol
- Utilize the agency specific call down number for dispatching
- Solidify EOC response personnel as to eliminate confusion on who is expected to respond
- Clarification on the ICS structure regarding what constitutes an EOC vs an ICP vs a DOC

Notification and Response

Initiation of IPAWS through national weather service and local activation

	May	October	% Improvement
Points of review available:	58	58	
Objective Met:	70.8%	71.2%	0.4%

Responses:

- Specific concerns were raised on over notification through the National Weather Service and the need for education on notification systems in general.

Recommendations:

- Develop a verification procedure for call deployment
- Continue to use Weather Service as primary activation point
- Identify an Emergency Notification Team and train on all methods of notification

Notification and Response

Use of 900MHz LCRA radio system for emergency communications

	May	October	% Improvement
Points of review available:	58	58	
Objective Met:	79.0%	82.1%	3.1%

Responses:

- Interoperability between systems effective but radio coverage on the west side of the county was limited and channel allocation was inefficient.

Recommendations:

- Look at long term tower redundancy
- Evaluate potential for mobile repeater units
- Continue implementation of the 700 MHz overlay to increase coverage for Wimberley area.

Notification and Response

Door to door notice of evacuation;

	May	October	% Improvement
Points of review available:	58	58	
Objective Met:	79.0%	77.2%	-1.5%

Responses:

- Door to door notifications were effective in areas that were reached but the method is not an efficient use of resources. Further education on notification services and the expansion of emergency notification methods is necessary.
- Neighborhood leaders were extremely helpful in these efforts.

Recommendations:

- Utilization of additional response departments if door to door notification is required.
- Continued training for neighborhood disaster response teams.

Notification and Response

Media (TV and Radio) communication;

	May	October	% Improvement
Points of review available:	58	58	
Objective Met:	76.1%	87.5%	12.4%

***Responses*:**

- The daily press conferences held during the Memorial Weekend Flood proved beneficial; that process was lacking in October.
- The local San Marcos and Wimberley radio stations were very beneficial in reporting real time local emergency information.

Recommendations

- Continued development of a countywide JIC.
- Daily media briefings whether in person or print.

Notification and Response

Use of HaysInformed.com and social media sites;

	May	October	% Improvement
Points of review available:	58	58	
Objective Met:	85.2%	87.8%	2.6%

Responses:

- HaysInformed.com was kept up to date and utilized appropriately.

Recommendations:

- Additional public education on the site and its use is needed.
- Additional staff trained in updating information is necessary to offer relief shifts to PIOs.

Notification and Response

Reliability of internet and phone service in major event;

	May	October	% Improvement
Points of review available:	58	58	
Objective Met:	82.5%	90.0%	7.5%

Responses:

- Internet and cell phone service was limited in the Wimberley area during and after the Memorial Weekend Flood.
- Within days the EOC had secured a mobile cell tower from Verizon Wireless to increase coverage in the Wimberley area which resolved the issue.

Recommendations

- Redundant providers should be explored.

EOC Operations

Logistical support was available for EOC operations (within);

	May	October	% Improvement
Points of review available:	58	58	
Objective Met:	85.3%	88.3%	3.0%

Responses:

- Resource requests within the EOC were filled adequately but concerns were noted in supply availability within ICPs and DOCs during both disasters.

Recommendations:

- Further training on the resource request process of command and operations centers outside the EOC is necessary.

EOC Operations

Communication for EOC Operations (internal & external);

	May	October	% Improvement
Points of review available:	58	58	
Objective Met:	69.0%	82.2%	12.3%

Responses:

- Noted confusion over the EOC and the ICP in Wimberley. Multiple responses indicate further training on ICS and the role of each facility is necessary.
- Requests for use of more efficient technology that would allow satellite operations and command centers to communicate during daily briefings.

Recommendations

- Identified assignments and positions within the EOC should be identified in advance.
- Utilization of WebEOC and standardized SitReps are necessary.

EOC Operations

Adequate and redundant staffing;

	May	October	% Improvement
Points of review available:	58	58	
Objective Met:	82.7%	79.4%	-3.3%

Recommendations

- Identified positions and backups are necessary.

EOC Operations

Just in time training was provided

	May	October	% Improvement
Points of review available:	57	57	
Objective Met:	82.0%	91.7%	9.7%

Responses:

- Job specific training for EOC staff was adequate.

Recommendations

- Continued development of regional and state EOC support teams will supplement local staff and serve as subject matter experts.

Field Operations

Coordination of dispatching for field response units

	May	October	% Improvement
Points of review available:	57	57	
Objective Met:	77.2%	85.8%	8.6%

Responses:

- Initial radio operations in May were noted as inefficient due to overwhelming calls for assistance and a lack of coordination between multiple Dispatch Centers. First Responders indicated that communication improved after co-location was implemented and all branches of ICS were established.
- Due to lessons learned in May, radio operations in October were more efficient and coordinated across multiple centers.

Recommendations:

- Determination of communications needs review. Several items must be completed at the county level to facilitate communications and resource management.
- Communication plan should be continued in similar events – worked well

Field Operations

Communication between field units and EOC;

	May	October	% Improvement
Points of review available:	57	57	
Objective Met:	85.8%	86.2%	0.4%

Responses:

- Again, noted confusion over the EOC and the ICP in Wimberley regarding operations vs policy and resources.
- Response departments that had representation within the EOC commented that communication was efficient.

Recommendations:

- Further training on EOC operations and roles is necessary.
- Municipalities affected by the incident should assign an EOC liaison to respond to the EOC.
- Additional communication on assigned channels through the EOC should be established early on.

Field Operations

Shift from jurisdictional dispatching to geographical dispatching;

	May	October	% Improvement
Points of review available:	57	57	
Objective Met:	96.8%	96.9%	0.1%

Responses:

- First Responders note confusion over the transition but the necessity of shifting due to isolated areas.

Recommendations

- The coordination in a co-located communications center and more advanced technology will improve upon this process.

Field Operations

Resource allocation for field response;

	May	October	% Improvement
Points of review available:	57	57	
Objective Met:	75.0%	81.6%	6.6%

Responses

- First Responders noted that resource requests through the EOC were filled adequately but that local resources were exceeded.
- The regional response plan was successful in deploying additional assets promptly and the State Operations Center filled requests made through the EOC efficiently.

Recommendations

- Further training on the resource request process for regional and/or state assets is needed.
- Additional ICS training is needed for response agencies, government departments, and dispatch centers to clarify the resource request process.

Field Operations

Response units had consistent radio communication;

	May	October	% Improvement
Points of review available:	57	57	
Objective Met:	70.6%	80.0%	9.4%

Responses:

- First Responders noted substantial concerns with the 700 MHz radio coverage on the west side of the county.
- Appropriate channel allocation was lacking and First Responders noted a lack of direct channels to conduct operations.

Recommendations:

- Installation of a 700 MHz overlay for the Wimberley radio tower is in process.
- Response departments have developed updated communications plans and have relayed those channel requests to HCSO Communications.

Search and Rescue

Effective coordination through the EOC for emergency search and rescue;

	May	October	% Improvement
Points of review available:	57	57	
Objective Met:	93.6%	93.6%	0%

Responses:

- Noted improvement from May to October in coordination through the EOC.

Recommendations:

- An established check in, briefing and debrief process is needed for outside response agencies.

Search and Rescue

Logistical support was adequate during emergency search and rescue;

	May	October	% Improvement
Points of review available:	57	57	
Objective Met:	95.5%	100%	3.5%

Responses:

- Logistical support was noted by all to be adequate.

Search and Rescue

Coordination through EOC for ongoing search & recover;

	May	October	% Improvement
Points of review available:	57	57	
Objective Met:	88.9%	97.2%	8.3%

Responses:

- Outside agencies indicated efficient coordination.

Recommendations:

- EOC Officials need to continue to engage local department with outside teams responding to conduct continued searches.

Direction and Control

Utilization of combined EOC;

	May	October	% Improvement
Points of review available:	57	57	
Objective Met:	82.5%	92.4%	9.9%

Responses:

- With the exception of the confusion over the ICP in Wimberley, all responses were in support of continued combined operations within an EOC.
- Noted as the most efficient use of resources.
- Allows for open communication and ease of policy decisions.

Recommendations:

- All agencies/municipalities need to have representation within the EOC.
- Further training on positions and roles is necessary.

Direction and Control

Utilization of combined call center;

	May	October	% Improvement
Points of review available:	57	57	
Objective Met:	96.8%	100%	3.2%

Responses:

- A combined center was the most efficient use of resources and streamlined call processing.
- A single answering point allowed for current, accurate situational awareness.

Recommendations:

- The continued forward momentum on a co-located communications center is essential.
- Further standardized policy and protocol development between all communications centers in the county is necessary.

Direction and Control

Communication with county/city leadership;

	May	October	% Improvement
Points of review available:	57	57	
Objective Met:	96.8%	89.2%	-7.6%

Responses:

- Communication with cities represented in the EOC was noted as affective.

Recommendations:

- Further training on emergency response and EOC operations is needed for those in leadership roles at the County and Cities.
- EOC representation for departments and municipalities is essential.

Direction and Control

Communication with adjoining counties;

	May	October	% Improvement
Points of review available:	57	57	
Objective Met:	72.0%	91.2%	19.2%

Responses:

- Communication between counties was affective due to pre-existing relationships and planning.

Recommendations:

- During the May event, Area Command should have been established earlier.

Direction and Control

Coordination with outside agencies;

	May	October	% Improvement
Points of review available:	57	57	
Objective Met:	76.5%	85.3%	8.5%

Responses:

- Local First Responders noted some confusion in working with State response teams due to limited daily briefings and representation.

Recommendations:

- The EOC needs to serve as the check in point for outside agencies to effectively coordinate responses.

Direction and Control

Utilization of STAR through WebEOC for resource requests;

	May	October	% Improvement
Points of review available:	57	57	
Objective Met:	91.7%	100%	8.3%

Responses:

- Experience issues with the regional server and routing of the requests.
- The State Operations Center allow unauthorized individuals to order State resources outside of existing protocols which confused response capabilities.

Recommendations:

- CAPCOG is currently moving to a hosted solution which should eliminate many of the issues experienced in May.
- Further training and clarification on who is authorized to request assets from the State is needed.

Area Command

Communication between the EOC, ICP and DOCS;

	May	October	% Improvement
Points of review available:	57	57	
Objective Met:	95.5%	95.5%	0%

Responses:

- Inefficient communication early on in the May event.
- Several DOCs and ICPs were identifying themselves as an EOC which confused First Responders and complicated resource requests.

Recommendations:

- Establish representation within the EOC.
- Further technological advancement to facilitate real time communications between locations.
- Utilization of WebEOC to post mission tasks and resource requests.
- Additional ICS training

Area Command

Logistical support to outside response agencies;

	May	October	% Improvement
Points of review available:	57	57	
Objective Met:	100%	100%	0%

Responses:

- Noted as adequate.

Area Command

Daily briefings, planning meetings, and debriefs;

	May	October	% Improvement
Points of review available:	57	57	
Objective Met:	82.1%	83.8%	1.7%

Responses:

- Meetings were noted as very effective for those that attended.

Recommendations:

- Adequate representation for all municipalities and agencies in the EOC is necessary.

Recovery

Damage assessments;

	May	October	% Improvement
Points of review available:	56	56	
Objective Met:	81.2%	86.2%	5.0%

Responses:

- Were noted as inefficient with duplication of efforts.
- The process was very slow to begin after the October event.

Recommendations:

- Damage assessment teams consisting of County staff need to be identified and trained.
- Technology that would allow for more efficient collection of data should be explored.

Recovery

Emergent debris management through ROW collection;

	May	October	% Improvement
Points of review available:	56	56	
Objective Met:	96.3%	95.5%	-0.8%

Responses:

- Overall citizens were satisfied with the immediate availability of dumpsters in affected areas.

Recommendations:

- Monitoring protocols need to be established to maximize efficiency.
- Contracts for vendors need to be pre-established.
- Hays County needs to have a State and FEMA approved Debris Management Plan developed to minimize the financial impact to the County.

Recovery

Intermediate collection of debris through contract companies;

	May	October	% Improvement
Points of review available:	56	56	
Objective Met:	100%	100%	0%

Responses:

- Responses indicate efficiency taking into account the magnitude of the operations.

Recommendations:

- Established contracts with an approved Debris Management Plan is needed.

Recovery

Longer term management of debris collection;

	May	October	% Improvement
Points of review available:	56	56	
Objective Met:	100%	100%	0%

Responses:

- PPDR was not utilized as much as initially thought. Could have been due to the October flood distributing the debris over wider areas.
- The approval process through the federal system was very delayed.

Recommendations:

- Established contracts with an approved Debris Management Plan is needed

Recovery

Private property debris removal program has been efficient;

	May	October	% Improvement
Points of review available:	56	56	
Objective Met:	94.8%	88.9%	-6.3%

Responses:

- Noted as a slow program to get started.
- Hays County praised for initiating the program to help Citizens recover

Recommendations:

- Established contracts with an approved Debris Management Plan is needed

Recovery

Overall debris management of the disaster;

	May	October	% Improvement
Points of review available:	56	56	
Objective Met:	92.3%	100%	7.7%

Recommendations:

- Established contracts with an approved Debris Management Plan is needed

Recovery

Communication between EOC, Donation Centers and Public;

	May	October	% Improvement
Points of review available:	56	56	
Objective Met:	96.0%	96.2%	0.2%

Responses:

- Noted difficulty securing locations to utilize as long term donation centers.

Recommendations:

- Identify potential locations to have on hand.

Recovery

Coordination between multiple donation sites;

	May	October	% Improvement
Points of review available:	56	56	
Objective Met:	94.8%	100%	5.2%

Responses:

- Personality conflicts early on limited collaboration but once differences were put aside the facilities operated much smoother.

Recovery

Adequate logistical support for donations management staff;

	May	October	% Improvement
Points of review available:	56	56	
Objective Met:	100%	100%	0%

Recommendations:

- Identify potential sites prior to the need.

Recovery

Communication between the EOC, Volunteer Centers and public;

	May	October	% Improvement
Points of review available:	56	56	
Objective Met:	90.0%	100%	10.0%

Recommendations:

- The need for further development of the EOC Support Team is imperative.

Recovery

Coordination between multiple volunteer reception centers;

	May	October	% Improvement
Points of review available:	56	56	
Objective Met:	100%	100%	0%

Responses:

- There were some challenges initially but they were quickly resolved.

Recovery

Adequate logistical support for volunteer management staff;

	May	October	% Improvement
Points of review available:	56	56	
Objective Met:	100%	100%	0%

Responses:

- Responses indicate logistical support was adequate.
- Volunteers were provided with necessary equipment and supplies.
- There was a delay in streamlining the communication in May but October ran smoothly.

Recovery

Long term recovery efforts are meeting the needs of the public;

	May	October	% Improvement
Points of review available:	56	56	
Objective Met:	97.0%	94.8%	-2.2%

Responses:

- The formation of the four county long term recovery organization Blanco River Regional Recovery Team (BR3T) was the first of its kind and has proven to be a best practice. This model is now being instructed throughout the State.

Recommendations:

- Information dissemination needs to be more widespread.
- Fundraising has been challenging.

CONCLUSION

This report was intended to validate, in an interactive manner, the capability of Hays County to respond and provide emergency management systems to effectively manage a catastrophic event in Hays County. For this event, multiple ICPs were established with the EOC operating as a resource and policy agency. County departments demonstrated their overall capability to:

- Call for and implement the appropriate protection recommendations for the public.
- Identify safe locations for sheltering residents from areas that were directed to evacuate.
- Enter an unsafe atmosphere and mitigate damage to the community.
- Communicate across regional boundaries and radio systems.
- Work with private response teams.
- Command/Control and transfer control to several teams.
- Utilize the NIMS in the operation.
- Interface with local and state responders.
- Interface with local and state health departments.
- Establish a unified command.
- Establish a joint information center.
- Distribute medical countermeasures to the public.
- Provide for immediate security in affected areas.
- Institute a Debris Management program immediately.
- Continued monitoring and previsions for health and safety. (water testing, bathroom facilities, cleaning supplies…)

Evaluation participants identified several key lessons that were learned and will enable Hays County and their respective jurisdictions to apply several immediate corrections to procedures, policies, and systems existing within the cities and ESD's. Major recommendations include:

- Improve coordination in the public information dissemination process.
- The need to respond to mass fatalities.
- Monitoring capabilities along the Blanco and San Marcos Rivers along with a rain gauge system throughout Hays County.
- Collaboration between all jurisdictions to further the goal of a co-location communications center.
- Communication between the EOC's and the ICP needs improvement.
- Continued communication infrastructure redundancy and coverage build out.

Hays County and the respective jurisdictions will be able to use the results of these events to further refine the emergency management plan to bring it in-line with the actual capabilities of personnel and facilities involved in responding to a catastrophic event, as well as, focus training for EOC and Command Post operations. This can be accomplished through:

- Providing training in the National Incident Management System (NIMS) and the Incident Command System (ICS) forms usage.
- Further collaboration with Elected Officials in Hays County and Municipalities.
- Ensuring First Responders utilize the State method of notification in emergency through the DDC

Corrective Action Plan

Disaster #	Action Description	Assigned Dept.	Contact	Status
Notifications				
4223 4245	HCOEM needs to identify the best process for notifying staff of the need to respond to an EOC or of schedule changes countywide.	HCOEM / HR	Kharley Smith/ Laureen Chernow	In Process
4223 4245	Identification and role assignments should be developed for all areas of county government to have representation in the EOC	HCOEM	Judge Cobb / Kharley Smith	On Going
4245	Utilization of Code Red for external notifications and Amatra for internal notifications. Develop comprehensive call out groups in Amatra for response and assignments	HCOEM / Emergency Preparedness	Kharley Smith/ Thomas Browder	Completed
4223 4245	Collaboration with other notification agencies to streamline messages, reduce notification fatigue, and not overwhelm the systems	HCOEM/ Municipalities/ NWS/ CAPCOG	Kharley Smith	In Process
4223 4245	Develop and disseminate information to the public on how they can register to receive warnings and information on where they can seek real time emergency information.	HCOES / HC HR	Kharley Smith/ Laureen Chernow	In Process
4223 4245	Evaluate additional methods of public notification including, but not limited to, outdoor warning sirens.	HCOES / Municipalities	Kharley Smith	On Going

Disaster #	Action Description	Assigned Dept.	Contact	Status
Communications				
4223 4245	Further assess the coverage maps of the 900MHz radio system and the future coverage maps of the 700MHz overlay to ensure maximum coverage of emergency radio communication.	HCOES SMOEM LCRA	Kharley Smith Ken Bell Pat Bandy	Completed
4223 4245	A central call taking and processing center for countywide 911 services is necessary for streamlining communications, operations, and maximum use of resources.	HC Commissioner Pct. 1, HC Commissioner Pct. 3, HCOES, HCSO	Debbie Ingalsbe, Will Conley, Kharley Smith, Brad Robinson, Erica Carpenter	In Process
4223 4245	Utilization of Operational and Multi Agency Channels in a large scale event is necessary. Having adequate staff to monitor those channels is a public safety concern.	HCOES, SMOEM, SMPD Communications, HCSO Communications	Kharley Smith, Ken Bell, Rosanna Wisner, Erica Carpenter	Completed
4223	Evaluation of the FirstCall system to ensure effectiveness to provide the public with emergency information such as evacuations, shelter in place, etc.	HCOES	Kharley Smith	N/A
4245	Evaluation of the CodeRed system to ensure effectiveness to provide the public with emergency information such as evacuations, shelter in place, etc.	HCOES	Kharley Smith	In Process
4223 4245	Improve the timeliness, management of and communications to volunteers assisting with an incident.	HCPHEP	Mike Jones	Completed
4223 4245	Evaluate volunteer tracking software and the need to purchase licenses locally, prior to a disaster.	HCPHEP	Mike Jones	In Process

Disaster #	Action Description	Assigned Dept.	Contact	Status
EOC Operation/Staffing				
4223 4245	Develop the process of EOC staff identification and activation ensuring that all areas of emergency operations are satisfied by a position and backup.	HCOES	Kharley Smith	In Process
4223	Further develop the EOC Support Team coordination for regional support.	HCOES SMOEM	Kharley Smith Ken Bell	In Process
4223 4245	Continue to train and provide opportunities to gain experience in EOC Operations and vital Incident Command System (ICS) positions for all necessary Hays County Employees.	HCOES	Justin McInnis / Clint Browning	On Going

Disaster #	Action Description	Assigned Dept.	Contact	Status
EOC Operation/ WebEOC				
	Conduct training, establish credentials, and develop daily usage for WebEOC for all EOC and Emergency Response Command positions.	HCOES Emergency Preparedness	Laurie Taylor TJ Browder	On Going
4223 4245	Assign a WebEOC Controller immediately after each EOC activation.	HCOES	Kharley Smith	Completed

Disaster #	Action Description	Assigned Dept.	Contact	Status
EOC Operations/ Monitoring				
4223 4245	Assess the need for additional gauges along the Blanco and San Marcos Rivers.	HCOES	Kharley Smith	Completed
4223 4245	Develop a method of receiving raw data from gauges along the Blanco and San Marcos Rivers, resulting in more timely predictions from the NWS and notifications to the public.	HCOES	Kharley Smith	Completed
4223 4245	Assess the benefit and determine the need for a rain gauge system throughout Blanco and Hays County.	HCOES	Kharley Smith	Completed
4223 4245	Evaluate the current low water crossing sensor system and determine the need to expand and/or improve.	HCOES	Kharley Smith Justin McInnis	Completed

Disaster #	Action Description	Assigned Dept.	Contact	Status
EOC Operations/Area Command				
4223 4245	Need to improve lines of communication and contact information for staff at other command centers	HCOES	Kharley Smith	On Going
4223 4245	Identify and implement technology or procedures that will allow ICP personnel to interact with EOC personnel without having to be physically present in the EOC each morning for briefings and at the same time having operational responsibilities at the ICP that needed attention.	HCOES	Kharley Smith	In Process

Disaster #	Action Description	Assigned Dept.	Contact	Status
EOC Operations/Situation Reports				
4223 4245	Create a standardized SitRep template to be used as necessary.	HCOES	Kharley Smith	Completed

Disaster #	Action Description	Assigned Dept.	Contact	Status
Plans and Procedures				
4223 4245	Update the EOC SOG plan to include activation, representation, and shift assignments.	HCOES	Kharley Smith	In Process
4223 4245	Develop a Hays County Damage Assessment Team. Implement proper training and provide team members with appropriate PPE	HCOES HC Development Services	Kharley Smith Clint Garza	In Process
4223 4245	Develop a State and FEMA approved Debris Management Plan with established contracts	Judges Office HC Transportation HCOES	Lon Shell Jerry Borcherding Kharley Smith	In Process
4223 4245	Have a Recovery Coordinator identified or under contract before the FEMA Kickoff Meeting.	HCOES	Kharley Smith	On Going
4223 4245	Create a planning group to design procedures related to triggering a mandatory evacuation as well as reentry procedures.	HCOES	Kharley Smith	In Process