

# Disaster Data Analytics

## HB 2325

State of Texas

November 2020

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## Executive Summary

The Texas Division of Emergency Management (TDEM) extensively utilizes a Crisis Information Management System (CIMS) and a Geospatial Information System (GIS) to produce actionable shared information being generated real time from various systems and processes which is also known as disaster data analytics. Across Texas, 94% of county emergency management offices either have a CIMS that can connect to the TDEM CIMS or they use a CIMS provided to them by TDEM through its Lonestar CIMS program. TDEM projects that the remaining 6% of counties without a CIMS can be supported by the TDEM Lonestar CIMS program by the end of 2021, if those entities choose to request support.

TDEM also maintains several statewide systems that local and regional governments are either required or requested to use depending upon the application that collectively comprise data analytics for Texas Emergency Management. The uniformity and quality of data analytics from these systems is highly dependent on the information reported by the State Emergency Management Council and its local and regional EM partners.

TDEM currently maintains several training programs in partnership with the TDEM Preparedness Division and with the Texas A&M Engineering Extension Service (TEEX). It is recommended that TDEM work with TEEX to further enhance data analytics systems training and to standardize the use and data standards for these systems to ensure disaster data analytics are reported in a uniform manner.

## Overview

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### Goal

To the extent feasible, the division (TDEM) shall use data analytics software to integrate data from federal, state, local, and nongovernmental sources to manage disaster response and recovery more effectively.

### Objectives

- Develop data analytics software to integrate data federal, state, local, and nongovernmental sources to manage disaster response and recovery more effectively.
- Provide recommendations to Governor's Office and Legislature.

### Audience

- TDEM Leadership
- Governor's Office
- State Legislature

# Authority

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House Bill 2325

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Texas Legislature Online

<https://capitol.texas.gov/BillLookup/History.aspx?LegSess=86R&Bill=HB2325>

## Stakeholders

**Members are identified in the chart below. (This should include all stakeholders such as the chain of command, working group members, local official committee members, etc)**

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Agent	Summary
<a href="#">Texas Division of Emergency Management (TDEM)</a>	The Texas Division of Emergency Management is charged with carrying out a comprehensive all-hazard emergency management program for the state and for assisting cities, counties, and state agencies in planning and implementing their emergency management programs.

# Background, Discussion and Recommendations

**This section provides a summary of the project (background, discussion, recommendations, resource requirements, etc.)**

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## Background

Data analytic solutions for Emergency Management Preparedness, Response, Recovery, and Mitigation are unique to each situation. They are further made unique depending upon the type of incident and the agencies and local jurisdictions that are involved, especially given the large size of Texas. The Texas Division of Emergency Management identified this as an issue and has had a longtime standing goal to integrate data from federal, state, local, and nongovernmental sources to manage disaster response and recovery activities more effectively. To date, we have had good success in integration, but have not yet realized a fully automatic means to make the results more process driven.

The need for an integrated data sharing strategy became very evident during the Space Shuttle Columbia accident on February 01 2003, which was a major statewide incident response for Texas that required the coordination of data collection and information dissemination at all levels of government and nongovernmental (NGO) partners.

To better provide decision-makers in Texas with integrated data at all levels from local to state and interaction with Federal partners, TDEM installed a crisis information management system (CIMS) from a commercial off-the-shelf (COTS) vendor software package called WebEOC. WebEOC is used by TDEM, the federal government, including FEMA, and, by nearly 94% of Texas county emergency management agencies.

Crisis information management systems are designed to be customized by the host agency and flexible to allow for quick modification during any type of incident and are standardized to the extent that most states and agencies use the same platforms. The Texas CIMS has a data fusion function whereby incident data can be shared with other local WebEOC systems, federal and NGO partners as required. After Hurricane Harvey in 2017 another enhancement to the CIMS was the addition of a web map system that ties a common operating picture web map and incident dashboards to the CIMS to allow bi-directional data flow between the two systems. Using these standardized systems allows for data integration into custom products that can consume the data and provide proper data analytics.

## **Discussion of Examples of Analysis in Incidents**

Inside of the TDEM CIMS some of the main processes used for all types of incidents are:

- the State of Texas Assistance Request (STAR)
- the Texas Evacuee Tracking Network (ETN)
- the Disaster Summary Outline (DSO)
- the State of Texas Evacuee Assistance Registry (STEAR)

There are also means to communicate in near real time that are tied into WebEOC when needed. This data is then initially analyzed and put into displays within the various Common Operating Pictures (COPS) that TDEM maintains. If further analysis is required, the data can be pushed to other systems as well. Some of these other systems, which are being used for the COVID-19 response, are PowerBI, E2Open, Smartsheets, and Tableau. To provide a better understanding of what each of these processes do, three unique types of incidents and how data was collected and then analyzed is provided below. Because of the disparate nature of incidents, data inputs are likely different but methods in input and operational processes generally stay the same.

### **State of Texas Emergency Assistance Registry (STEAR)**

To ensure the safe and efficient evacuation of Texans with special needs during a disaster, Executive Order RP57 authorized the establishment and implementation of a database to assist in the evacuation of special needs populations. TDEM coordinates with the Department of State Health Services, the Department of Aging and Disability Services, the Governor's Committee on Persons with Disabilities, and other appropriate state agencies to develop a statewide evacuation and shelter plan for persons with special needs.

In March of 2013, TDEM implemented the State of Texas Emergency Assistance Registry (STEAR) program as an online system to provide local emergency planners and responders with information about the specific evacuation support needs of individuals in their community. STEAR maintains a confidential database about what assistance needs an individual may have, including disabilities, functional and access needs, and transportation needs to assist emergency planners in developing appropriate emergency response plans to support individuals with specialized needs. The online registry is completely voluntary and free to local governments and to Texas citizens, although facilities such as nursing homes and certain social service programs which are required to register their clients in the STEAR program.

Information from the STEAR database can be used by local first responders to assist during the evacuation through computer-aided dispatch systems, geographic information systems and global positioning systems. STEAR information can also be used for developing local emergency management plans and assist in preparedness and response activities. STEAR data can also be tied

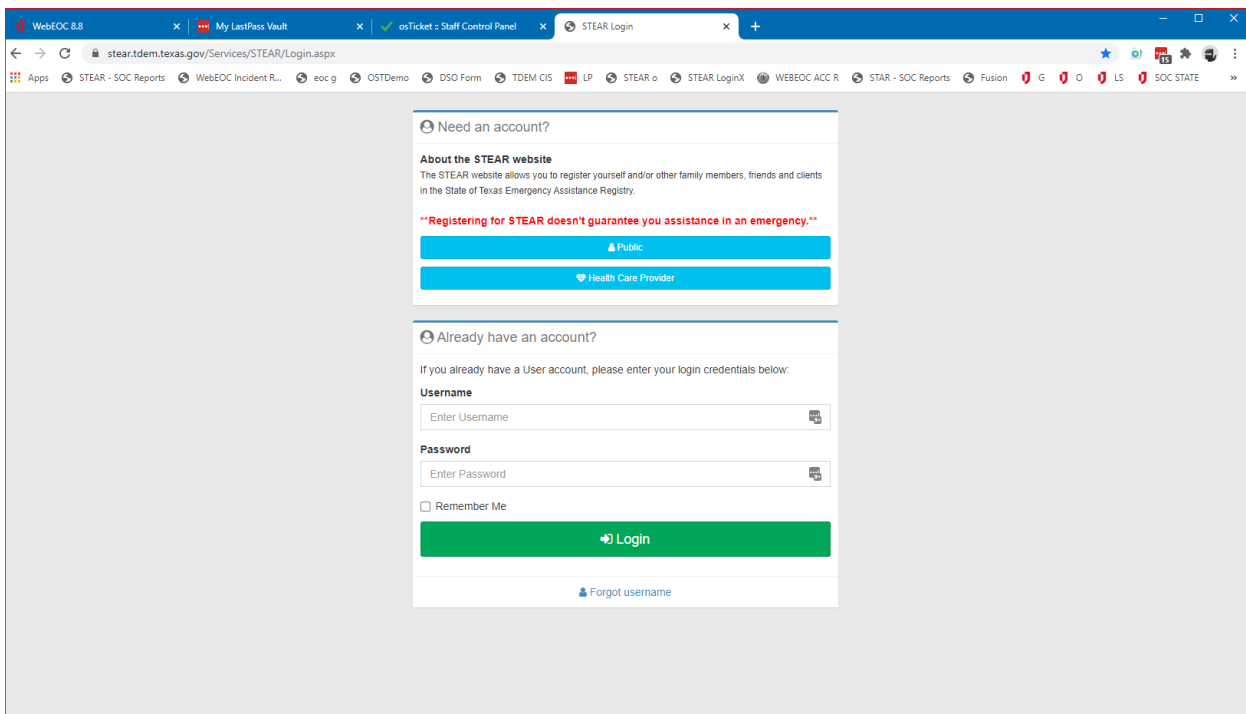


into the TDEM Emergency Tracking Network (see below) once evacuation transportation has been arranged outside of a jurisdiction's area.

The STEAR program is operationally supported by TDEM and a network of local government appointed STEAR database custodian(s) and the Texas Information and Referral Network (TIRN), which maintains the 2-1-1 call system. 2-1-1 helps citizens connect with services they may need and registers callers to the STEAR Program when they report that they may not be able to safely evacuate their homes during a local disaster.

The STEAR program is guided by a committee that is made up of state and local government representatives who have a personal stake in the program. The STEAR committee was developed at the request of Chief Kidd and actively meets throughout the year to discuss recommendations and requests from state and local government representatives.

Below: screenshot of State of Texas Emergency Assistance Registry (STEAR) login display.



Below: screenshot of State of Texas Emergency Assistance Registry (STEAR) enrollment display.

## STATE OF TEXAS ASSISTANCE REQUEST (STAR)

A State of Texas Assistance Request (STAR) is a routable web form within the WebEOC application. Local jurisdictions, regional entities, state agencies and support organizations use the STAR to request and track the filling of needed resources to support disaster response operations from the Texas State Operations Center (SOC), which is managed and operated by TDEM. The Texas SOC uses the STAR to vet, route, authorize and ensure valid resource requests are fulfilled via the STAR routing process in WebEOC. The SOC also uses the STAR to track the status of resource requests, assist with determining incident costs and track the return or demobilization of resources provided to local jurisdictions to support an incident.

STARs connect the needs of first responders in affected disaster areas to personnel working in the SOC. The STAR process was designed to expedite requests for equipment, resources and personnel. Once a STAR is received from an affected jurisdiction, the Texas SOC reviews and fulfills valid requests for assistance with available resources from Emergency Management Council members, available contracts or vendors, and interstate or federal resources.

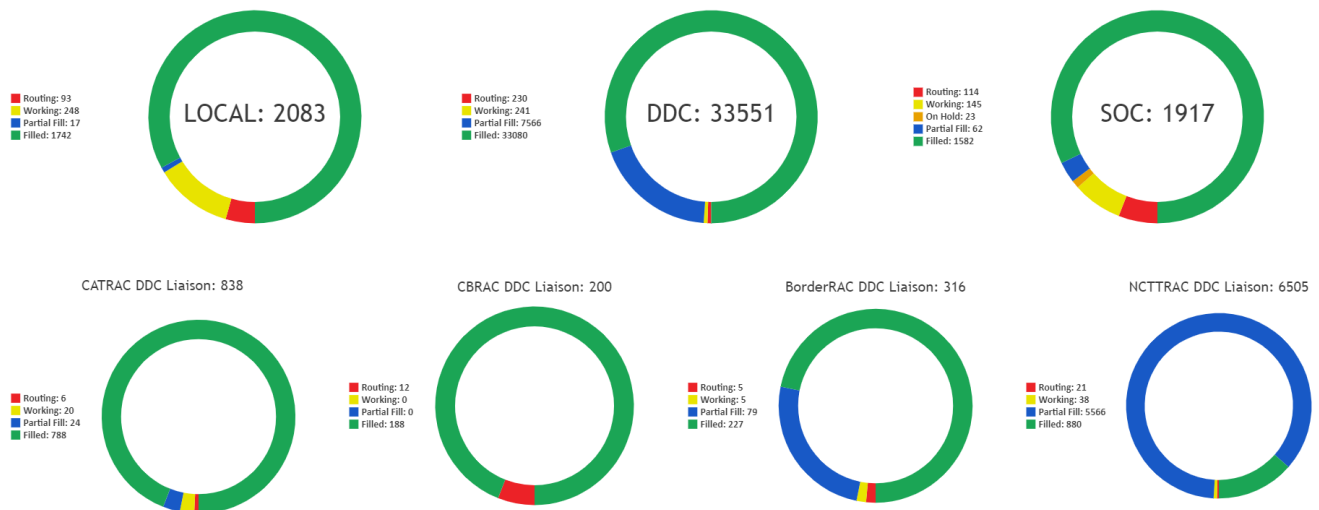
Prior to the advent of the STAR, the State of Texas utilized the FEMA 213-RR paper form, which made request tracking and financial accounting for large incidents particularly challenging. For example, during the first 6-months of the Texas COVID response, TDEM

received over 66,000 individual STAR requests for personal protective equipment, and a multitude of other resource requests, that could have only been managed efficiently with a web enabled interactive form connected to a scalable database.

Below: screenshot of State of Texas Assistance Request (STAR) main display.

Request Number	Requestor Info	Request Description	Request Status	Timestamp	Options
00-136164	Ops HHSC (BrizzolaraDoveEmily1046) 303-638-9097 emily.dove@hhsc.state.tx.us Agency: SOC	<b>Request:</b> Deploy rapid response for testing at Beehive of Lamesa II <b>Qty:</b> 1 (Each) Testing needed...CENSUS: 12 staff, 10 patients...TOTAL TESTING NEEDED: 22 ...More	<b>Incident:</b> 20-0003 nCoV 2020 Submitted to SOC <b>STAR Status:</b> Routing <b>Responsible Party:</b> - SOC Ops Desk	<b>Submitted:</b> 8/13/2020 08:18:25 <b>Last Update:</b> 08/13/2020 08:18:25	Edit Actions [0] Details History
00-136159	Ops HHSC (BrizzolaraDoveEmily1046) 303-638-9097 emily.dove@hhsc.state.tx.us Agency: SOC	<b>Request:</b> Deploy rapid response for testing at Heritage Place Assisted Living <b>Qty:</b> 1 (Each) Testing needed...CENSUS: 112 residents, 70 staff...TOTAL TESTING NEEDED: 162 ...More	<b>Incident:</b> 20-0003 nCoV 2020 Submitted to SOC <b>STAR Status:</b> Routing <b>Responsible Party:</b> DSHS SMOG STAR Intake	<b>Submitted:</b> 8/13/2020 08:02:23 <b>Last Update:</b> 08/13/2020 08:12:40	Edit Actions [0] Details History
21-117221	Cameron County (CasasRolando1234) 955-312-6344 rolando.casas@cco.cameron.tx.us County: Cameron DDC: 21	<b>Request:</b> Hospital Medical Staff <b>Qty:</b> 1 (See description ) Valley Regional resources needed, RN ER - (10) RN ICU - (10) RN Med/Surg - (10) RRT - (20) CNAS ...More	<b>Incident:</b> 20-0003 nCoV 2020 Submitted to STAR <b>STAR Status:</b> Working <b>Responsible Party:</b> DSHS SMOG Finance Chief Incomplete Actions Remain	<b>Submitted:</b> 7/12/2020 11:10:01 <b>Last Update:</b> 08/12/2020 10:00:33	Edit Actions [2] Details History
18B-13635	ARCC Logistics - Section Chief (BlackMark3690) 210-683-3363 mark.black@sanantonio.gov County: Bexar DDC: 18B	<b>Request:</b> Battelle system - site security (Bexar County) <b>Qty:</b> 1 ( ) Site security for Battelle system at Freeman Expo Hall 2 provided by BCISO. SEE ATTACHED SMA STAR ...More	<b>Incident:</b> 2020 01 COVID-19 Regional Monitoring Submitted to SMOG <b>STAR Status:</b> Routing <b>Responsible Party:</b> DSHS SMOG Command IC	<b>Submitted:</b> 4/16/2020 17:39:58 <b>Last Update:</b> 08/13/2020 08:08:09	Edit Actions [0] Details History
18B-13629	ARCC Logistics - Section Chief (BlackMark3690) 210-683-3363 mark.black@sanantonio.gov County: Bexar DDC: 18B	<b>Request:</b> Battelle system - WIFI service at Freeman Expo Hall 2 (Bexar County) <b>Qty:</b> 1 ( ) wifi service at Freeman Expo Hall 2 to support Battelle system provided by Bexar County from 4/23/20 ...More	<b>Incident:</b> 2020 01 COVID-19 Regional Monitoring Submitted to SMOG <b>STAR Status:</b> Routing <b>Responsible Party:</b> DSHS SMOG Command IC	<b>Submitted:</b> 4/16/2020 16:56:27 <b>Last Update:</b> 08/13/2020 08:06:26	Edit Actions [0] Details History

Below: screenshot of STAR real-time request statistics at all levels in Texas during COVID Response.



Below: screenshots of STAR online request portal and training to be deployed for local jurisdictional use over all WebEOC instances statewide.

**Resource Requests: The STAR Process**

04:34

**S.T.A.R.**

A high-level overview that tracks a specific example of a State of Texas Assistance Request (S.T.A.R.) from initial entry to final fulfillment.

**Jurisdiction:** TDEM

**JID:** 0000000

**Type:**

**Incident:** 20-0003 nCoV 2020

Create Request Retrieve Log Out

Request Description Requestor and Delivery Info Submit

Request

The name of the resource requested, similar to an email subject, allowing individuals the ability to understand the request at a quick glance.

Quantity Unit

The number of items being requested and unit of measure. Select "Other" for items without pre-defined type in the dropdown menu and enter a new type if possible.

Date/Time Needed  
08/13/2020 8:28 AM

Consumable Resource Demob / Returnable Resource

Demob/Returnable Resources can be used multiple times and are expected to be released back to the state.

Request Description

Define the specifics of the resources being requested and define the problem being addressed by this resource request.

Justification / Purpose of Request

Provide a general explanation as to why this request is needed.

Provide Spec sheet, Additional Forms, etc, if available

Choose File No file chosen

BACK CONTINUE

## Texas Emergency Tracking Network (ETN)

Texas maintains one of the largest public sector emergency tracking systems in the nation through the Texas Emergency Tracking Network (ETN). The Texas ETN was created in the aftermath of major Texas hurricanes such as hurricanes Katrina, Rita, and Ike during the 2005 – 2008 time period, in which mass evacuations occurred and challenges existed in tracking the location and status of tens of thousands of evacuees as they were transported to safer locations inland. The Texas ETN system tracks evacuated people, pets, medical supplies, and luggage both for evacuations and repopulation to ensure

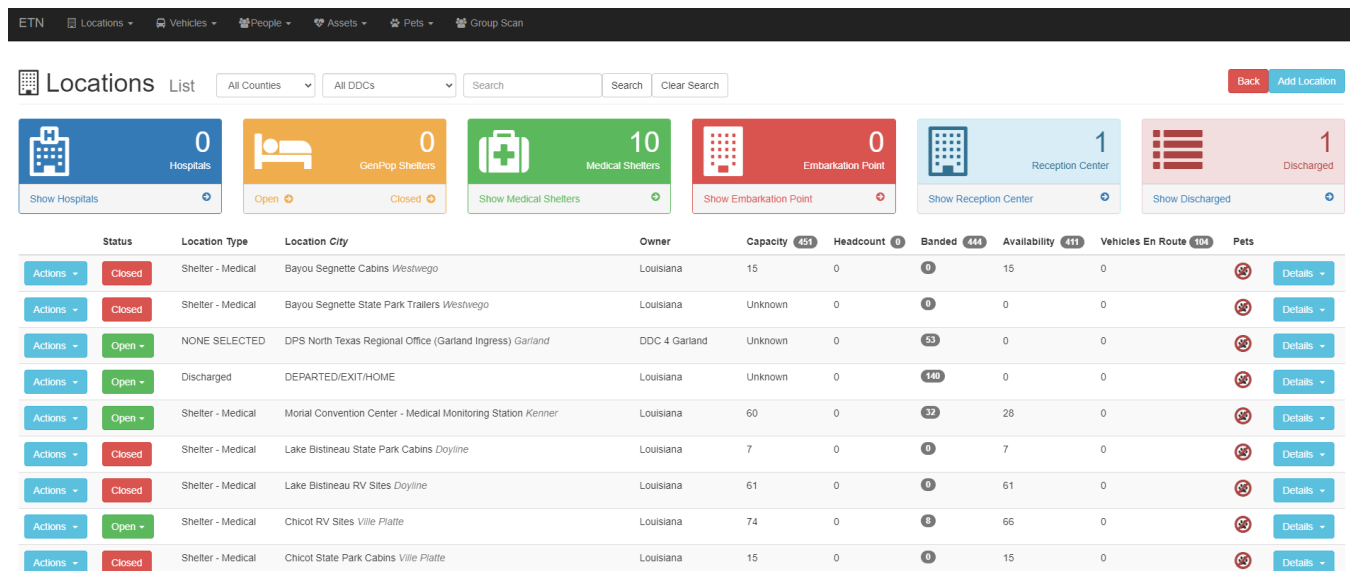
people and their packable possessions are safely delivered to the correct location and returned home safely.

The Texas ETN is a collection of technologies that form a system using TDEM’s WebEOC crisis management information system, geospatial information systems, global positioning technology, bar code scanning and mobile device and mobile application technology. Texas ETN manages critical information, facilitates critical information exchange, and maintains accountability of evacuees, evacuee groups, pets, service animals, evacuee medical equipment, and state-supplied vehicles throughout the evacuation and repopulation process.

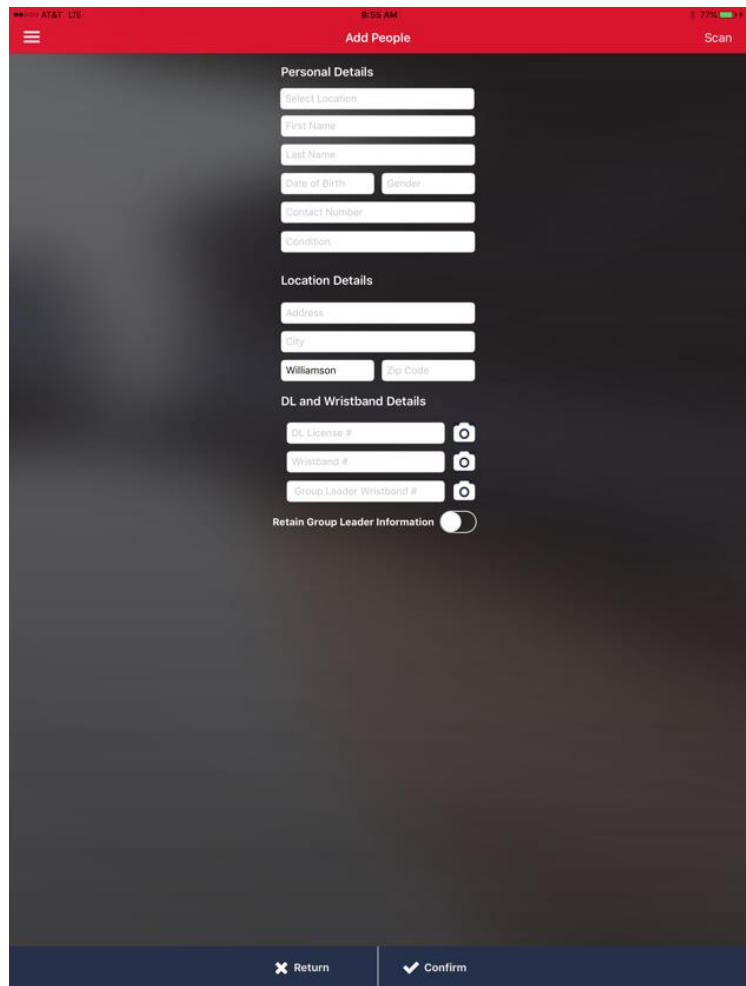
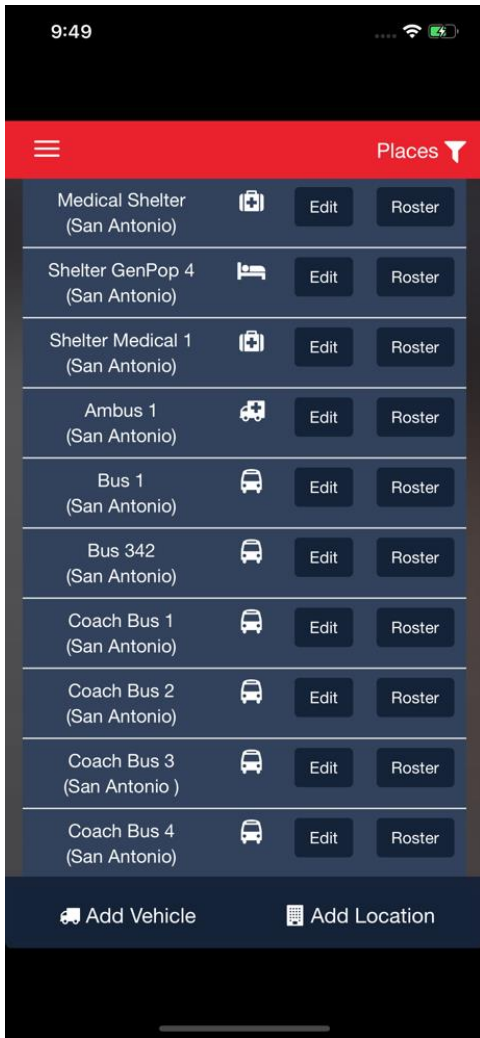
With an activated and properly credentialed ETN application account, first responders and emergency management professionals can use a mobile phone or tablet computing device to locally manage evacuation operations and evacuate, transport, shelter and repopulate all while on scene, in a vehicle or at a shelter. Tracking is initiated using vinyl wrist bands printed with bar codes that are scanned to identify the person, and or, their possessions and their destination. Mobile phones with the ETN app are deployed by TDEM to local evacuation centers whereby they are attached to evacuation buses and tracked with the internal GPS system. All this information goes into the WebEOC system to centrally manage and summarize evacuation status information.

During the 2020 Hurricane Season ETN was used extensively to support evacuation operations for both Texas and Louisiana. ETN was particularly useful in supporting the evacuation challenges during the Covid-19 pandemic and the need to support group and family sheltering and the need to support non-congregate sheltering with motel vouchers.

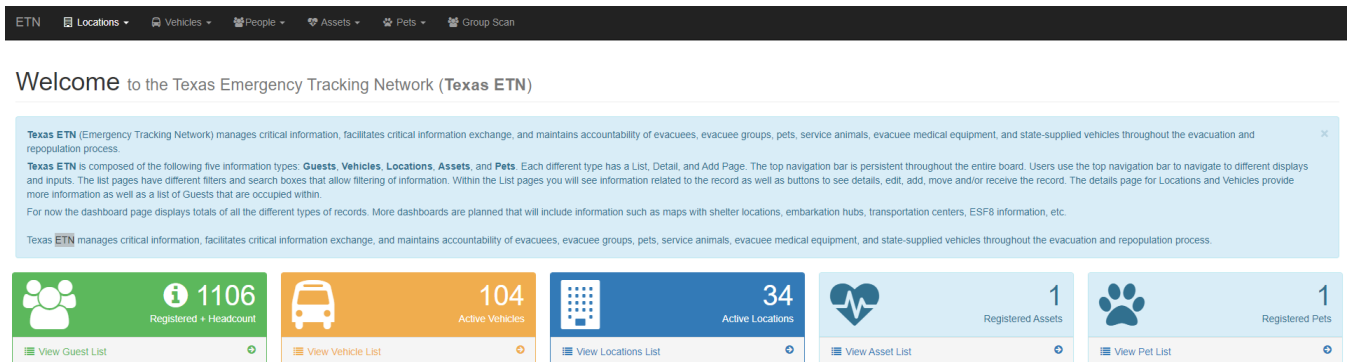
Below: screenshot of STAR real-time request statistics at all levels in Texas during COVID Response



Below: screenshots of the Texas Emergency Tracking Network (ETN) mobile application interfaces for locations, vehicles, and evacuees.



Below: screenshot of the Texas Emergency Tracking Network (ETN) real-time evacuation and sheltering statistics at all levels in Texas during Hurricane Laura Response.



Below: screenshot of a Louisiana shelter list as tracked inside of Texas ETN.

Location People Reports Menu CSV

Location / Search

Lake Bistineau State Park Cabins Search

UPC	First Name	Last Name	Check In/Out	Entered/Updated By	Last Update
SOL352046			N/A	DCFS Region 8 LNO (Louisiana server) on 6/19/2020 12:17:55	6/19/2020 12:17:55
SOL352047			N/A	DCFS Region 8 LNO (Louisiana server) on 6/19/2020 12:15:31	6/19/2020 12:15:31
SOL352047			N/A	DCFS Region 8 LNO (Louisiana server) on 6/19/2020 11:29:54	6/19/2020 11:29:54
SOL352047			N/A	DCFS Region 8 LNO (Louisiana server) on 6/18/2020 16:28:29	6/18/2020 16:28:29
SOL352046			N/A	Westpark (Louisiana server) on 6/15/2020 16:14:28	6/15/2020 16:14:28
SOL352046			N/A	Westpark (Louisiana server) on 6/15/2020 16:14:28	6/15/2020 16:14:28
SOL352046			N/A	Westpark (Louisiana server) on 6/15/2020 16:14:27	6/15/2020 16:14:27
SOL352046			N/A	Westpark (Louisiana server) on 6/15/2020 16:14:27	6/15/2020 16:14:27
SOL352045			N/A	DCFS Region 8 LNO (Louisiana server) on 6/10/2020 18:24:31	6/10/2020 18:24:31
SOL352045			N/A	DCFS Region 8 LNO (Louisiana server) on 6/10/2020 16:58:29	6/10/2020 16:58:29
SOL352045			N/A	DCFS Region 8 LNO (Louisiana server) on 6/10/2020 16:19:00	6/10/2020 16:19:00
SOL352045			N/A	Westpark (Louisiana server) on 6/10/2020 16:15:00	6/10/2020 16:15:00
SOL352045			N/A	Westpark (Louisiana server) on 6/10/2020 16:15:00	6/10/2020 16:15:00
SOL352041			N/A	DCFS Region 8 LNO (Louisiana server) on 5/23/2020 07:27:54	5/23/2020 07:27:54
SOL352044			N/A	DCFS Region 8 LNO (Louisiana server) on 5/16/2020 08:33:23	5/16/2020 08:33:23

## The State of Texas Disaster Summary Outline Report

The State of Texas **Disaster Summary Outline (DSO)** is an online web form that TDEM maintains for local emergency management officials to fill-out after a natural or man-made disaster to report estimated damages within each affected jurisdiction. The completed DSO web form is submitted and routed to TDEM, which compiles the various city and county DSOs into a report that summarizes the total estimated damages for the incident. A DSO can be submitted by a city, county, tribal jurisdiction or other eligible entities described below.

The initial DSO report estimates are necessary to compile the first projected extent of damages for the incident. In accordance with the State Emergency Management Plan, if a mayor or county judge determines that a disaster incident is of such severity and magnitude that an effective response is beyond the affected jurisdiction's capability to recover, a letter outlining the disaster impact and the need for supplemental state and/or federal assistance must accompany the DSO. The DSO is then used as a supporting document for submitting a request for a Presidential Disaster Declaration to obtain federal disaster support.

The DSO reports estimated losses (insured and uninsured losses) for three FEMA program categories: Individual Assistance (IA), Public Assistance (PA), and Other Eligible Entities.

1. The DSO **Individual Assistance** section reports on Residential Losses (Primary Residence Only) and Business Losses & Impacts and details the total number of homes and business damaged or destroyed and insured and uninsured losses.

2. The DSO **Public Assistance** section reports on disaster impacts to jurisdictions and insured and uninsured losses for:
  - a. Debris Clearance
  - b. Emergency Protective Measures (response costs, protection of life & property, temporary repairs, etc.)
  - c. Roads and Bridges
  - d. Water Control Facilities (dams, levees, and dikes),
  - e. Buildings and Equipment (including vehicles and contents of buildings)
  - f. Public Utility Systems (Gas, Electric, Sewer, Water)
  - g. Other Types of Facilities (Recreational Facilities, Airports, etc.)
3. The **Other Eligible Entities** section reports on disaster impacts to non-profit or governmental organizations, and medical, emergency, utility, educational, and custodial care facilities, etc. and insured and uninsured losses.

TDEM provides DSO report training to local jurisdictions and works with them to understand their reporting requirements. TDEM also helps the jurisdictions fill out the forms correctly and combine and sort out which information their jurisdiction should report to prevent duplicative reporting. TDEM then compiles and summarizes the DSO reports for the state to submit to the governor and state leadership.

Below: screenshot of initial input for the Disaster Summary Outline (DSO) for jurisdictions.

Disaster Summary Outline (DSO) Web App


Enter Incident PIN # and Add Confirm # if an update

DSO PIN:

Update a DSO?:

**Instructions**

- You will need an event specific Incident PIN in order to submit a DSO.
- Please contact your TDEM District Coordinator or call the State Operations Center at 512-424-2208 for help and/or to obtain the PIN.
- For a new DSO, enter just the PIN. To update an existing DSO, enter PIN and Confirmation #.
- If you do not receive an email with Confirmation # after submitting a DSO, email soc2@dps.texas.gov or call 512-424-2208.
- If you have any other issues using this webform, please email TDEM Technology Services at support@tdem.texas.gov or call 512-424-5333.



Need Help? Contact TDEM Technology Services at 512-424-5333 or via Email



Below: screenshot of Disaster Summary Outline (DSO) jurisdictional submission form.

Below: screenshot of the Disaster Summary Outline (DSO) main display list.

Confirmation Number	JDX Type	County / City	Incident	SOC Status	Update Date	Action
14127   22772	City	Hidalgo / Elsa,	20-0012 July Tropical Weather 20200723	Processed	09/12/2020 20:12:45	<a href="#">View DSO</a>   <a href="#">Edit Online</a>   <a href="#">SOC / Daily Ops Audit Log / History</a>   <a href="#">Edit DSO (WebEOC)</a>
14099   22716	City	Starr / La Grulla,	20-0012 July Tropical Weather 20200723	Processed	09/12/2020 18:25:50	<a href="#">View DSO</a>   <a href="#">Edit Online</a>   <a href="#">SOC / Daily Ops Audit Log / History</a>   <a href="#">Edit DSO (WebEOC)</a>
11351   17572	County	Rockwall / Unincorporated Areas,	20-0003 nCoV 2020	Processed	09/12/2020 11:20:36	<a href="#">View DSO</a>   <a href="#">Edit Online</a>   <a href="#">SOC / Daily Ops Audit Log / History</a>   <a href="#">Edit DSO (WebEOC)</a>
10768   16406	City	Potter / Amarillo,	20-0003 nCoV 2020	Processed	09/12/2020 09:00:52	<a href="#">View DSO</a>   <a href="#">Edit Online</a>   <a href="#">SOC / Daily Ops Audit Log / History</a>   <a href="#">Edit DSO (WebEOC)</a>
13824   22175	City	Hidalgo / McAllen,	20-0012 July Tropical Weather 20200723	Processed	09/12/2020 08:53:33	<a href="#">View DSO</a>   <a href="#">Edit Online</a>   <a href="#">SOC / Daily Ops Audit Log / History</a>   <a href="#">Edit DSO (WebEOC)</a>
13887   22492	City	Cameron / Brownsville,	20-0012 July Tropical Weather 20200723	Processed	09/11/2020 21:38:02	<a href="#">View DSO</a>   <a href="#">Edit Online</a>   <a href="#">SOC / Daily Ops Audit Log / History</a>   <a href="#">Edit DSO (WebEOC)</a>

Below: screenshot of the Disaster Summary Outline (DSO) per jurisdiction and amount.

The screenshot displays the WebEOC interface with the 'DSO Form' tab active. It shows a search bar for incident names and a dropdown for processing status. The main content is a large table titled 'Local Estimate of Damage to Public Property by Category Public Assistance Categories'. The table has multiple columns representing different categories of damage and assistance, with rows for various Texas counties. The data is organized into two identical table sections on the page.

### Common Operating Pictures - COPS

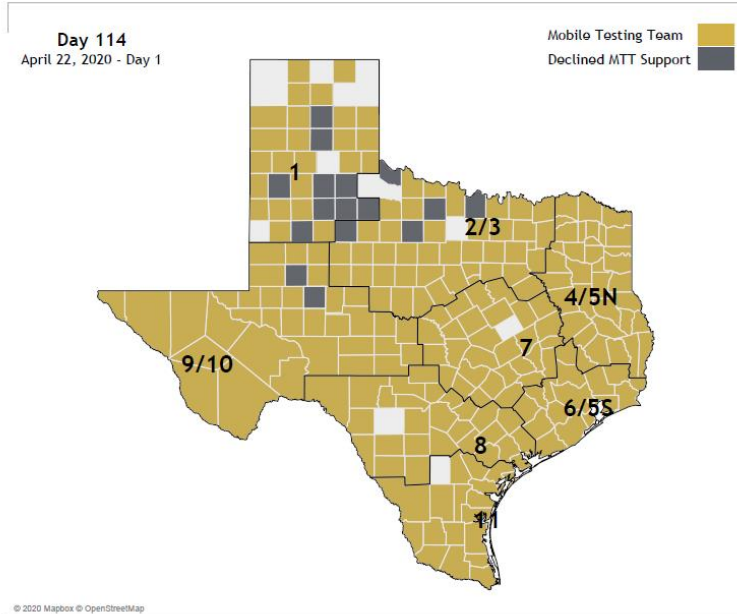
The primary means to begin processing and using all of this collected data into analytics, are the various Common Operating Pictures (COP) withing TDEM and other agencies. The following tab of the Texas Department of State Health Services COP shows where data collected via WebEOC is processed and shared between DSHS and one of their regional hospital preparedness providers, SETRAC within the PowerBI product.



The next display shown is another specific analysis coming from various data products, this time to include WebEOC, EMResource, ArcGIS, and internal DSHS data products, and shown on a DSHS specific tab. This tab was shared between DSHS and TDEM Common Operating Pictures and was generated with Tableau.

**TEXAS - Mobile Testing Teams**  
County Locations in Public Health Regions

Tests Conducted Through Wednesday, August 12, 2020  
Records Received as of August 13, 2020 08:02



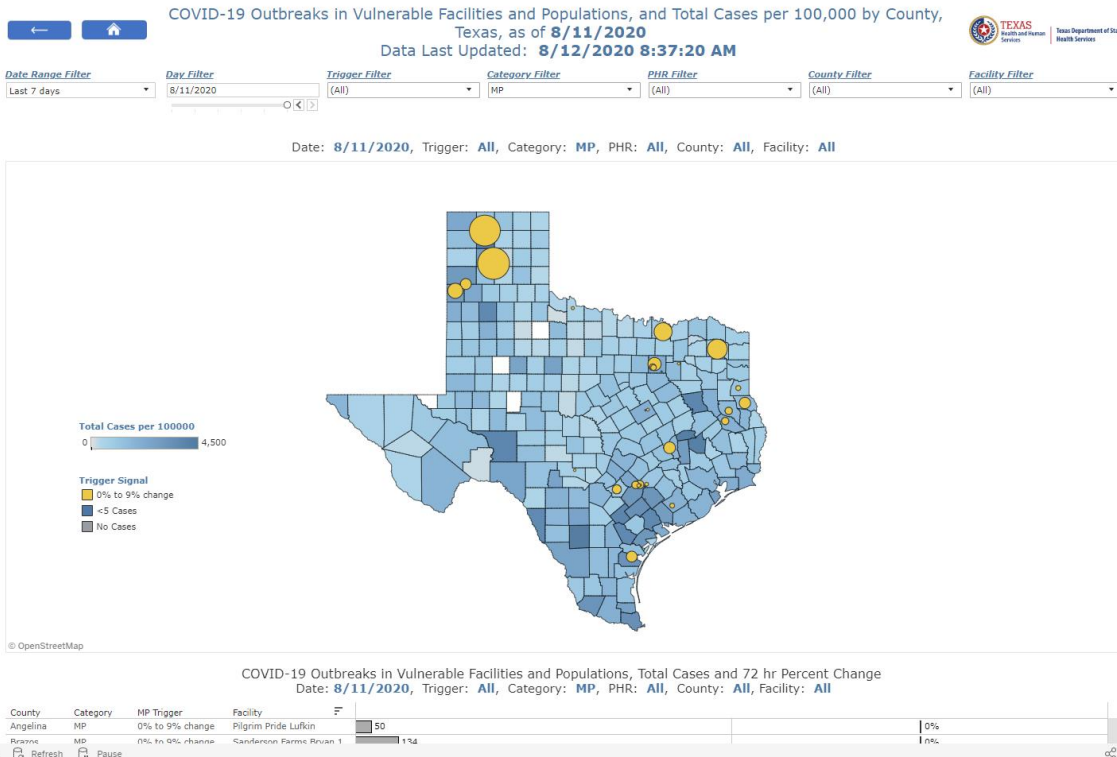
**379,256 Tested in 231 Counties**  
**1,658 Testing Site Days at 952 Sites**

Region 1	Region 2/3	Region 4/5	Region 6/5
13,233 Tested in 27 Counties	48,536 Tested in 43 Counties	27,391 Tested in 35 Counties	70,889 Tested in 16 Counties
Region 7	Region 8	Region 9/10	Region 11
37,628 Tested in 29 Counties	42,886 Tested in 27 Counties	54,285 Tested in 35 Counties	84,278 Tested in 18 Counties

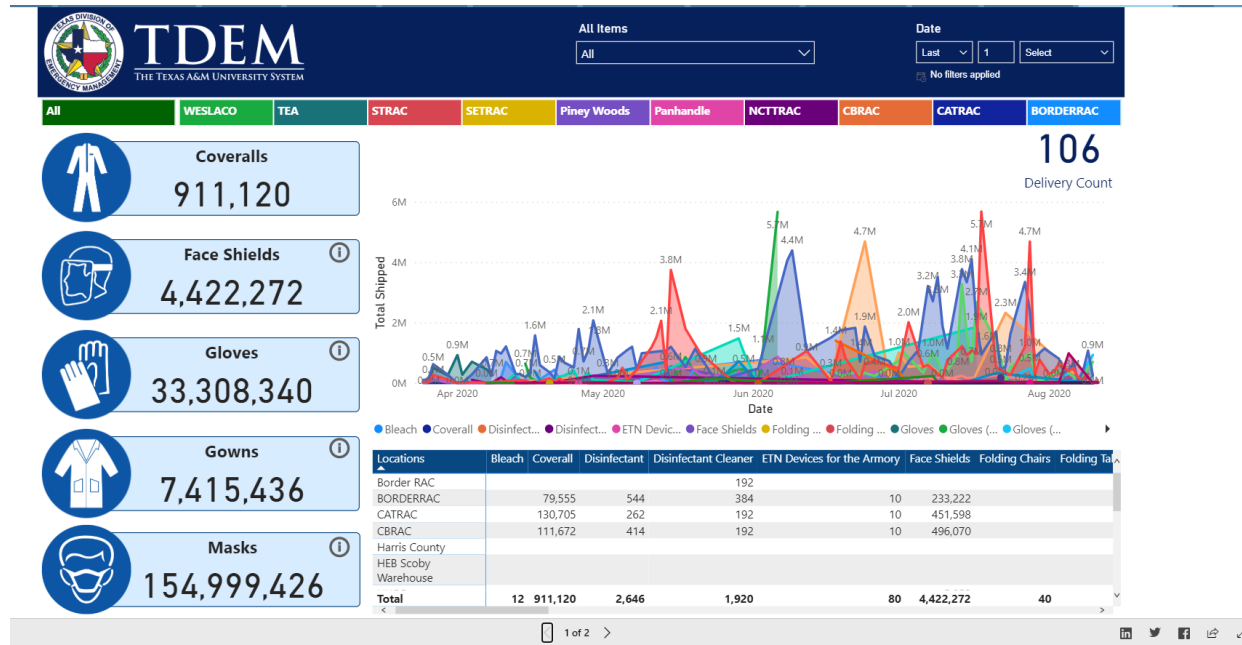
  

16 Counties Declined MTT Support		
1	2/3	9/10
Armstrong Carson Crosby Dickens Floyd King Lamb Lynn Motley	Archer Hardeman Kent Montague Throckmorton	Glasscock Martin

The next example is internal to DSHS to process data collected within EMSsystem, WebEOC, and internal products to DSHS. The display product is ArcGIS.



The final example is taking WebEOC data from over 35 local and 3 state level servers in Texas for State of Texas Assistance Requests (STARs) and processing this data within E2Open, which was procured specifically during the COVID-19 Pandemic Response. This illustrates that the data sharing and analytical processes are in place to tie into systems that are incident specific and new to the state but can be plugged in to work for a high-level goal.



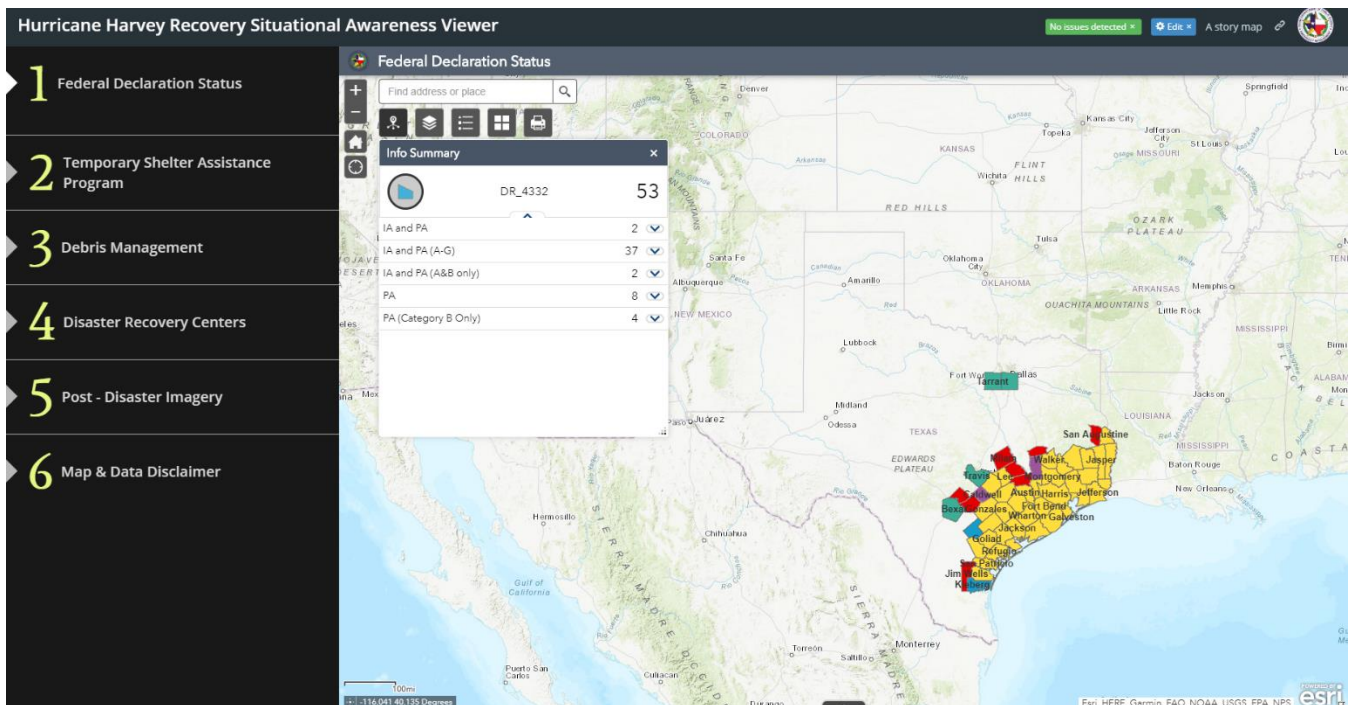
# Examples of Data Analytics from Recent Disasters

The following three incidents illustrate how these systems have worked in previous responses to various types of incidents, and how that data was used.

## 17-0021 Hurricane Harvey

Hurricane Harvey was two distinct types of incidents, and as such has two different data collection types. Inside of WebEOC, four of the main processes used were the State of Texas Evacuee Assistance Registry (STEAR), the State of Texas Assistance Request (STAR), the Texas Evacuee Tracking Network (ETN), and the Disaster Summary Outline (DSO).

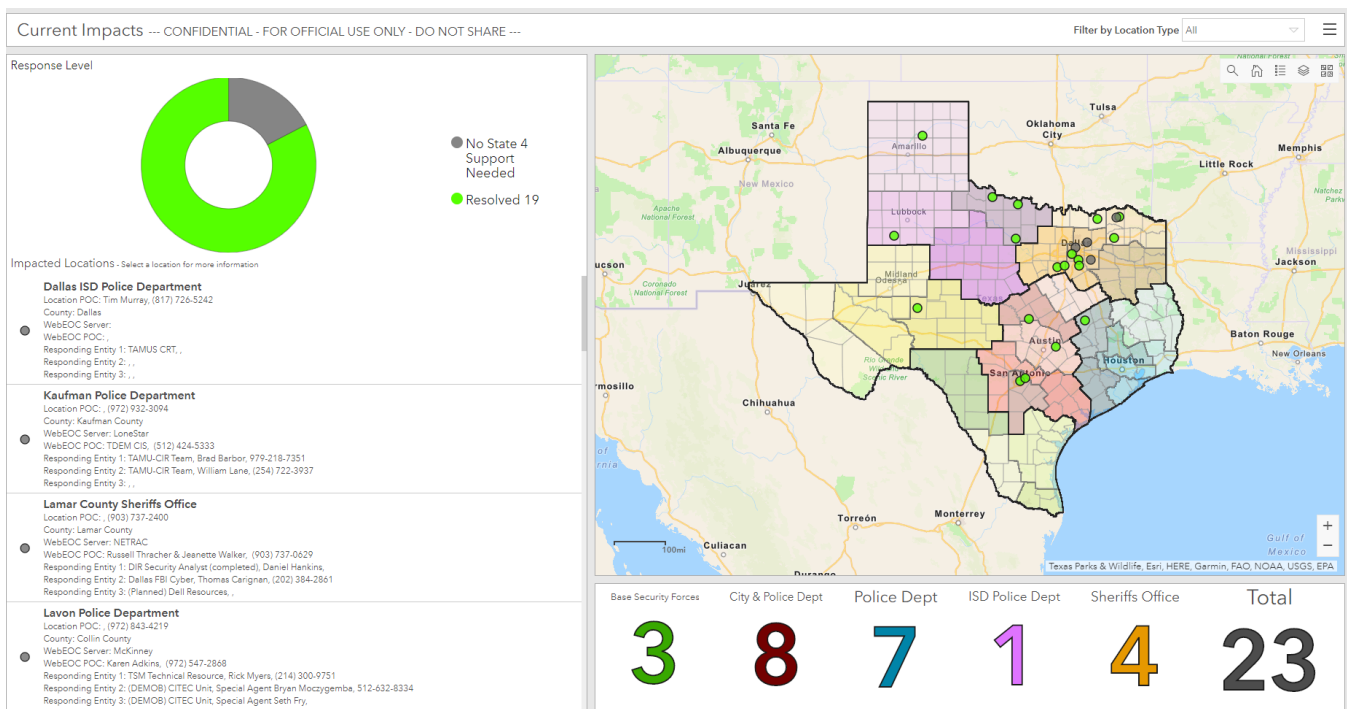
These products were used in several ways for Hurricane Harvey. The STAR process allowed TDEM to determine what types of requests and items were needed, and where, and allowed logistics staff to best plan to fulfill the most emergent needs within the affected region. STEAR and ETN allowed the state to know where those that needed to be moved out of impact area resided, and how to transport and shelter those persons, as well as repopulate them post-storm. The DSO process allowed TDEM to track the damage, both to the individuals as well as the jurisdictional and government resource damage. Pulling this data from the disparate servers statewide provided stronger data analytics of the overall incident both during the response and into the recovery.



## 19-0025 August Cyber Incident

Solutions for Emergency Management Preparedness, Response, Recovery, and Mitigation are unique to each situation. They are further made unique depending upon the type of incident and the agencies and local jurisdictions that are involved, especially given the large size of Texas. To better support decision makers at all levels from local to state and interaction with Federal partners, Crisis Information Management platforms exist.

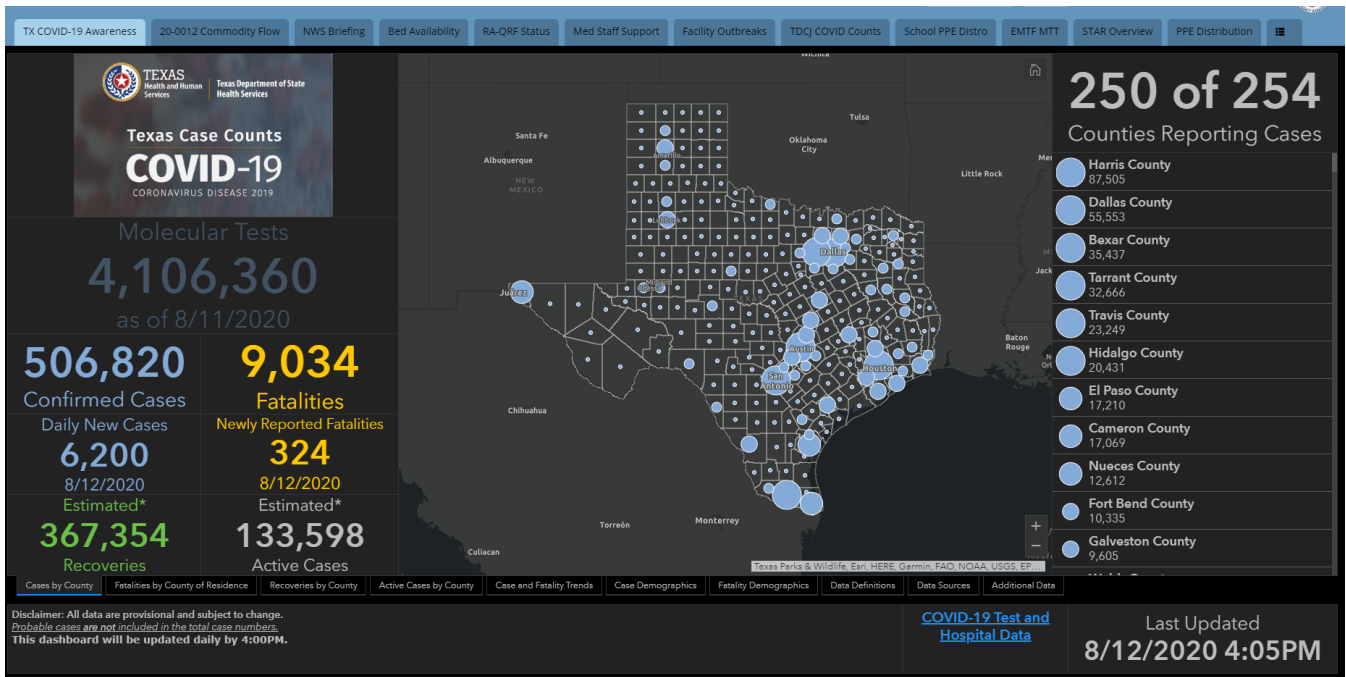
WebEOC allowed for all impacted locales, as well as responding agencies, to log into a single incident to begin tracking the response. Additionally, mapping the impacted jurisdictions as they became known allowed responders to start to determine a trend in why and how the impact was occurring. Using a real time chat tool that tied into smart phones, tablets and inside of WebEOC provided a good tactical ability to further respond and recover.



## 20-0003 nCOV 2020

Texas' response to the Corona virus in Texas has better defined where and what data should be shared and how best to create actionable results from said data. Some of the integration allowed for a quick deployment of a "Hospital Stress Level" to give daily reporting data better use, as well as being able to track all Personal Protective Equipment (PPE) within our systems. Those capabilities, and the integration between agencies at local, state, and federal levels, have continued to benefit everyone.

During the 2020 Coronavirus (nCOV) response, WebEOC and ESRI once again became the backbone of data input, with the addition of Microsoft Teams. That data was exported into Data Informatics solutions such as PowerBI (shown below) as well as other tools as well.



As a final illustration of how data is collected, analyzed, and used, the following images show the collection (input) portion of the COVID-19 Quick Reaction Forces setup. Here you can see specifics for setting the dates for locations and getting site, and other locals confirmed. From there, the tests are collected and counted as well.

**COVID-19 QRF Mission Tracking (TX)**  
20-0003 nCoV 2020

Total Records (Missions) Listed: 1509  
Standby: 22 | Assigned: 3 | Assigned: 0 | Completed: 1400 | Cancelled: 84

Total Tests Collected: 193921  
Total Tests from Residents: 86067  
Total Tests from Staff: 106850

Mission#	Facility Name / Type	Samples Collected			Confirmations				County	Location (Click to sort by Status)	Schedule (Click to Sort by Opening Date)	Site Status	Roster Status	Team Assigned	Team POC	MIST POC	TDEM Reg.	EMTF
		Res	Staff	Tot	Date	Loc	JTF	CC										
QRF 8129158	Las Alturas SNF / Nursing Facility	0	0	0	X	X	X	Webb	4301 Bartlett Avenue, Laredo, TX, USA 78041	08/31/2020 0000 08/31/2020 0000	Standby	Uploaded Not Imported	Pending JTF Assignment	Potts, Michael 737-701-9839	3	11		
QRF 16247306	Grace Care Center of Nocona SNF / Nursing Facility	0	0	0	X	X	X	Montague	306 Carolyn Road, Nocona, TX, USA 76255	08/31/2020 0000 08/31/2020 0000	Standby	Not Uploaded Not Imported	Pending JTF Assignment	Potts, Michael 737-701-9839	5	2		
QRF	Robstown Nursing and Rehab	0	0	0	X	X	X	Nueces	603 East Avenue J,	08/19/2020 0000	Standby	Uploaded	Pending JTF	Potts, Michael	3	11		

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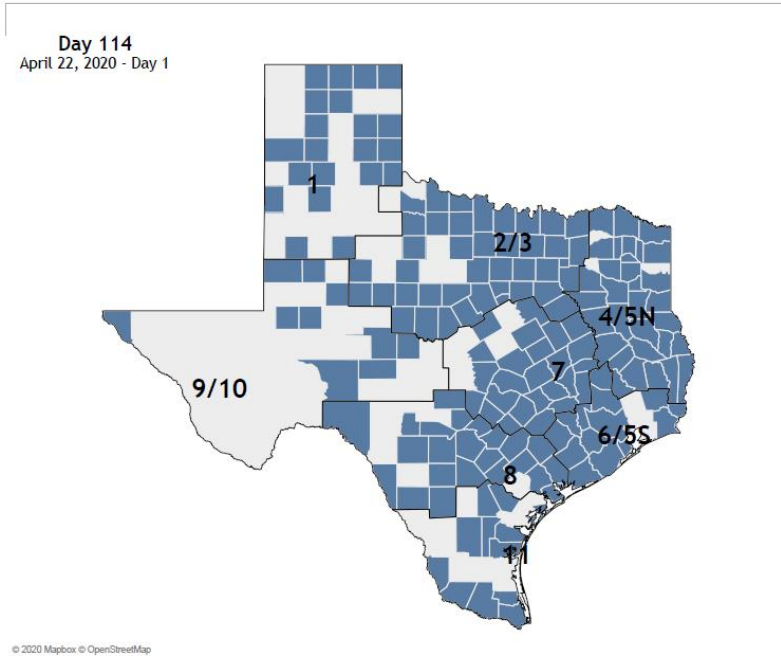




Lastly, a graphical representation of data displayed to give a good view of where tests have been concentrated.

TEXAS - Rapid Assessment - Quick Reaction Force  
County Locations in Public Health Regions

Tests Conducted Through Wednesday, August 12, 2020  
Records Received as of August 13, 2020 08:02



**110,139** Tested in **178** Counties

**830** Testing Site Days at **756** Sites

Region 1	Region 2/3	Region 4/5	Region 6/5
2,615 Tested in 21 Counties	32,506 Tested in 41 Counties	14,486 Tested in 32 Counties	17,471 Tested in 14 Counties
Region 7	Region 8	Region 9/10	Region 11
13,362 Tested in 25 Counties	19,290 Tested in 23 Counties	3,457 Tested in 10 Counties	6,952 Tested in 12 Counties

As the data above displays, the methods to collect information exist, and the means by which to interpret, analyze, and share results for decision makers are in place. There are several ways that we can better utilize what has been shown to work, and how to expand upon some areas that will create an even better means in the future. The following below recommendations are given based on several years of experience and many incidents as well.

## Recommendations and Requirements

- **Centralized Emergency Management Web Application and Data Portal**

TDEM recommends that it develop a centralized Web Application and Data portal for all Texas emergency management stakeholders. The TDEM Web Portal would provide a centralized repository for all Texas emergency management applications and incident data to help ensure a common operating picture for disaster analytics. The online TDEM-147 form collects contact information for local jurisdiction officials and when completely filled out provides the capability for local jurisdictions to receive email and text notifications of new and updated EM applications and data products. The portal would also create one location to access all available incident data in relation to both a single incident, or a single jurisdiction. Additionally, the COVID response has expedited the finalization of an online STAR form portal to allow NGOs and other private partners to be able to submit requests for needed supplies and resources such as Personal Protective Equipment (PPE) without the need for a WebEOC account.

- **Enhanced Training and Socialization via Preparedness and Exercises**

TDEM recommends that it conduct quarterly train-the-trainer webinars through the TDEM Preparedness Division in coordination with TEEX. There is a direct correlation between the number of training and exercise sessions a jurisdiction or agency conducts annually with their staff and the amount of issues reported back to the state. Local jurisdictions would have an opportunity to receive training in all the applications described above that are within WebEOC that provide disaster data analytics. The training would also include Texas ETN for evacuating and sheltering jurisdictions.

- **Data Analytics Incident Coordination Calls**

TDEM recommends that it conduct data analytics incident coordination calls for all geospatial and crisis information systems data during disaster response and recovery. This will provide interested or affected stakeholders a single daily meeting to coordinate data analytics requirements, identify available resources and prevent duplication of efforts.

# Steps to Development and Implementation

This section provides a summary of next steps including organizational approval, legislative approval and follow on steps if approved. It should also include resource requirements as identified.

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## Detailed next steps

Due Date	Objectives	Team Assignments	Status
	Initial PMP Review and Approval	Chief Kidd	

## **For More Information**

For more information, please contact Jeff Newbold, Chief Technology Officer, [jeff.newbold@tdem.texas.gov](mailto:jeff.newbold@tdem.texas.gov).