

## Overview of TxSTORM

Welcome to TxSTORM, the Texas State Trend Over-Representation Model. This model is sponsored by the Texas Traffic Records Coordination Committee (TRCC) and hosted by the Texas A&M Transportation Institute (TTI), which is the technical advisor to the TRCC.

Texas is a large state with 254 counties of all sizes and demographics. Determining how to identify trends and allocate limited resources is always a challenge. Traditional methods for resource allocation focus on jurisdictions with highest total of a given variable like crashes or calls for trauma service. While certainly defensible, this method largely ignores smaller jurisdictions where a smaller number of cases could be having a much greater relative impact.

Unveiled for beta testing in August 2021, TxSTORM is intended to be used as a high-level filter to quickly identify trends and indicate where resources may be most urgently needed. To make this happen, TxSTORM is designed to integrate data from one or more critical traffic safety databases to provide a high-level perspective of various traffic-related trends by determining where certain elements are statistically over-represented.

TxSTORM uses aggregated jurisdictional data to blend trend over-representation to "flag" jurisdictions, and then help prioritize those jurisdictions with a Relative Impact Value (RIVAL) score based on projected net change in that variable. Higher RIVAL scores indicate a jurisdiction has a greater need for countermeasures and resources relative to other jurisdiction or the state overall.

Using RIVAL scores allows query results to be plotted on various maps and graphs. However, the data underlying TxSTORM computations are aggregated or "grouped" data. Users who want more granular data need to request the more granular data directly from the agency governing those specific data.

### How TxSTORM identifies over-representation

TxSTORM's original model compared Fiscal-Year-to-Date (FYTD) data to a three-year baseline average, using FYTD values to project year-end totals. That approach has been replaced with a rolling comparison based on the most recent nine months of data and a new baseline. The baseline now consists of the 36 months prior to the most recent three months (i.e., months -39 to -3), such that six months of the recent nine-month trend period overlap with the final six months of the 36-month baseline. To forecast end-of-year values, TxSTORM averages the recent nine-month trend with the baseline monthly average to estimate values for the remaining months. This method conservatively regresses future months toward the longer-term average. Forecasts are recalculated each month as new data becomes available. For each variable, the model computes both the projected percent change and net change between the forecasted total and the baseline total, for the state and for each jurisdiction. The statewide percent change is subtracted from the jurisdictional percent change, and the resulting net percentage determines the flag—where positive values indicate over-representation.

### Relative Impact Value (RIVAL) score

Once a jurisdiction is flagged, its RIVAL score is calculated by multiplying the net percentage by the absolute value of the projected net change. The larger the RIVAL score, the greater the relative impact of the activity represented by that variable is at the state and/or jurisdictional levels. RIVAL enables relative comparisons across jurisdictions and supports tracking changes over time. When TxSTORM is used as a guide for the allocation of resources, tracking the change in RIVAL scores makes it possible to track pre- and post-treatment changes.

#### About the data

Data provided for comparison in TxSTORM comes in an aggregated format devoid of PII (Personal Identification Information), and with a county-level identifier. This allows data to be aggregated and compared by county. Data is largely provided monthly by the agencies governing the various databases, meaning the data is relatively current but the most recent contribution may not be completely up to date. Each contributing database is re-queried each month to ensure, to the extent possible, that the most recent data is included.

#### **About the Texas TRCC**

The Texas TRCC receives federal 405(c) funding from the National Highway Traffic Safety Administration to improve the state's various traffic records systems' critical databases, including crash, driver, vehicle, roadway, citation and adjudication, and trauma/EMS. States are also required to show quantifiable progress in improving their traffic records systems according to six specific measures:

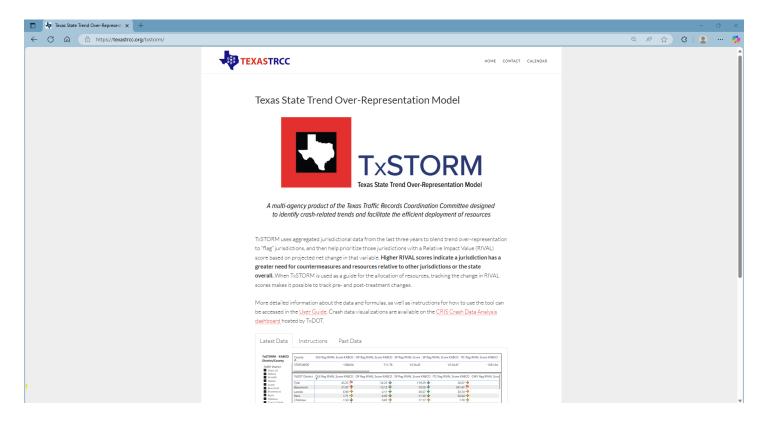
- 1. Accuracy,
- 2. Completeness,
- 3. Timeliness,
- 4. Uniformity,
- 5. Accessibility, or
- 6. Integration of a core highway safety database.

Access the TRCC website at <a href="https://texastrcc.org">https://texastrcc.org</a>.

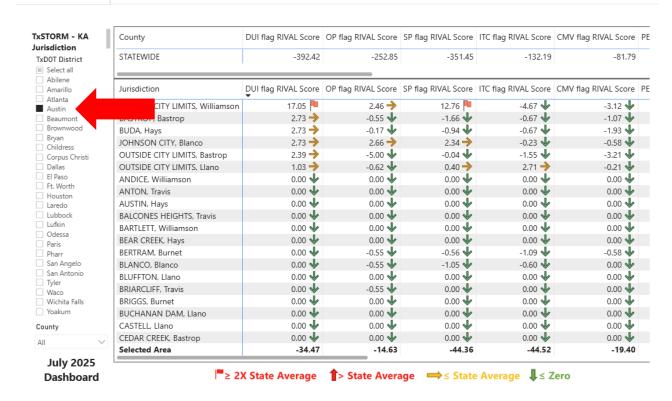
### **Accessing and Using TxSTORM**

The Texas State Trend Over-Representation Model (TxSTORM) is located on the TEXASTRCC.org website.

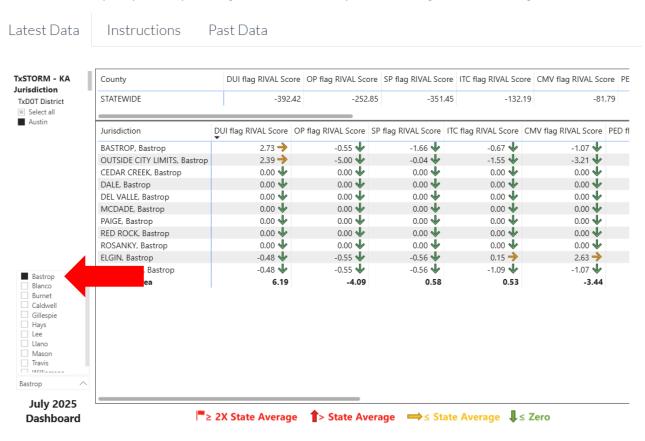
1. Click on the link to access the application: <a href="https://texastrcc.org/txstorm">https://texastrcc.org/txstorm</a>.



- 2. There are 16 interactive pages in the dashboard that show scores for jurisdictions (cities), counties and TxDOT districts. The following is a list of the pages and shows KABCOU (fatal and suspected serious injury) crashes):
  - KA RIVAL Scores by Jurisdiction for each crash type
  - KABCO RIVAL Scores by Jurisdiction for each crash type
  - KA RIVAL Scores by TxDOT District and County for each crash type
  - KABCO RIVAL Scores by TxDOT District and County for each crash type
  - DUI (Impaired Driving) only RIVAL Scores KA only
  - OP (Occupant Protection/Lack of restraint) only RIVAL Scores KA only
  - SP (Speeding related) only RIVAL Scores KA only
  - ITC (Intersection related) only RIVAL Scores KA only
  - CMV (Large Truck) only RIVAL Scores KA only
  - PED (Pedestrian involved) only RIVAL Scores KA only
  - BIKE (Cyclist involved) only RIVAL Scores KA only
  - CP (Child Passenger 8 years and younger) only RIVAL Scores KA only
  - MC (Motorcycle) only RIVAL Scores KA only
  - MD (Mature Driver) only RIVAL Scores KA only
  - YD (Young Driver) only RIVAL Scores KA only
  - Total RIVAL SCORE KA only
- 3. Looking at the first page, on the left side of the page you can choose a TxDOT district.



4. Below the list of districts is a dropdown box that allows you to select individual counties within the selected districts. You can select multiple options by holding down the CTRL key while clicking additional categories.

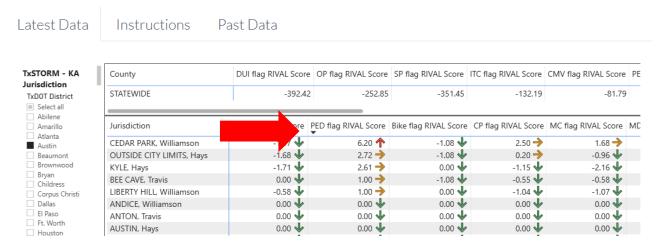


5. As you make selections the RIVAL scores will update based on the selections. If you would like to clear a selection, you can either unselect your choices, or use the clear selection icon. The icon will pop-up when your mouse hovers over the filter box.

6.

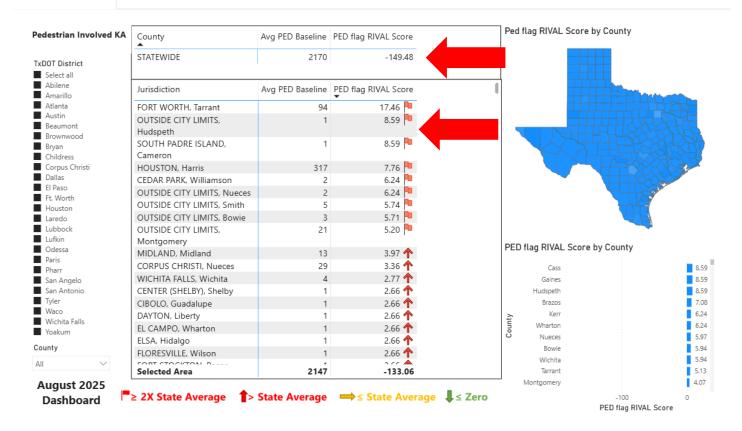


- 7. For each location in the table you will see several columns of scores. The following is the list of crash types:
  - DUI Impaired driving crashes
  - OP Occupant protection crashes (lack of seatbelt use)
  - SP Speed related crashes
  - ITC Intersection related crashes
  - CMV Large truck crashes
  - PED Pedestrian involved crashes
  - BIKE Cyclist involved)
  - CP Child Passenger 8 years and younger
  - MC Motorcycle
  - MD Mature driver
  - YD Young driver
  - Total All crashes
- 8. When you hover your mouse over a column name you will see a black down arrow that allows you to sort the table by that column from largest to smallest or the reverse.



**9.** At the bottom of the screen are the navigation buttons to move through the other pages in the dashboard. **The Pedestrian Involved KA information is in Page 10.** 

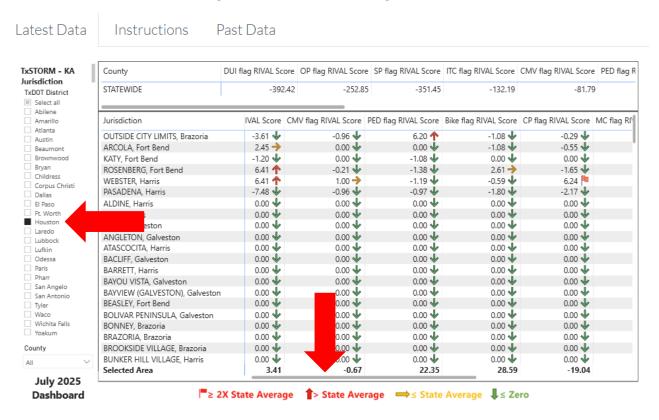
# Latest Data Instructions Past Data





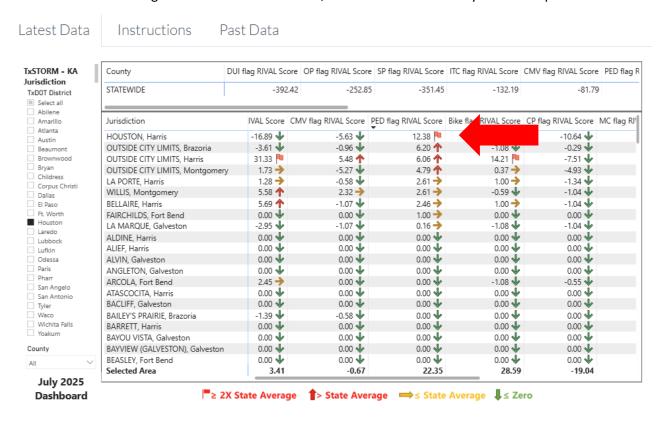
# Practice #1

- 1. Open the web page with the TxSTORM dashboard. https://texastrcc.org/txstorm
- 2. On page 1 of 16, select Houston from the list of districts on the left side of the screen.
- 3. Use the slider at the bottom of the large table to make the PED flag RIVAL Score visible.





4. Sort the PED column from greatest to least. In this case, Houston in Harris County is at the top of the list.





# Practice #2

- 1. Use the navigation arrows at the bottom of the dashboard to get to the 3<sup>rd</sup> page of the screen, KA RIVAL Scores State District County.
- 2. Clear the TxDOT District filter on the left side of the screen.
- 3. Sort the middle table by the PED flag RIVAL Score from greatest to least. The Houston District should be at the top of the list.
- 4. Select Houston from the TxDOT filter on the left side of the screen.
- 5. Sort the bottom table by the PED flag RIVAL Score. This shows all the counties in Houston District in the last table sorted by RIVAL Score.

