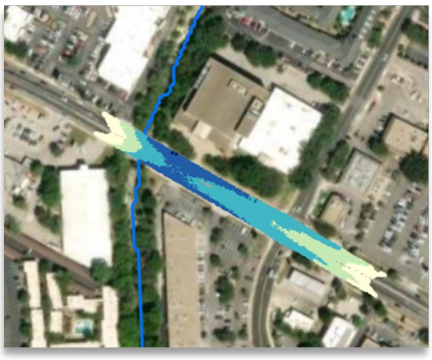
Road Elevation Model

University of Texas at Austin *Center for Water & the Environment*

TxDOT RTI research project 0-7095

What is a Road Elevation Model?

A Road Elevation Model is a dataset of points that define the surface elevation of a road network. The Road Elevation Model for Travis County includes 690 million points covering 7600 miles of roads, or 90,000 points per mile of roadway surface. Road flood inundation mapping can now be very precise.



Why is this important?

Texas leads the nation in flood deaths.
More than half of these people die in their car.

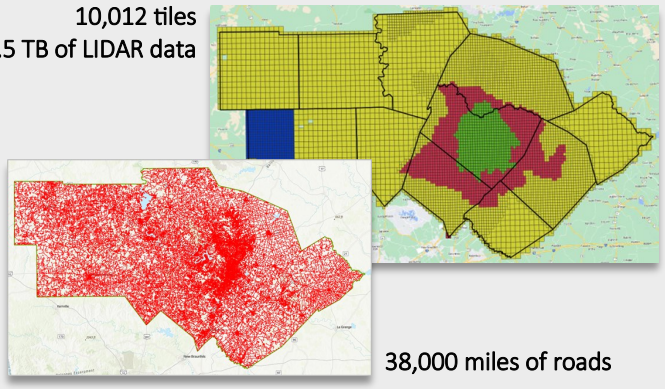
The Road Elevation Model enables the creation of precise real-time flood inundation maps. These help TxDOT to be proactive in its flood response, and provide better flood information for citizens and communities.

What is the science behind it?

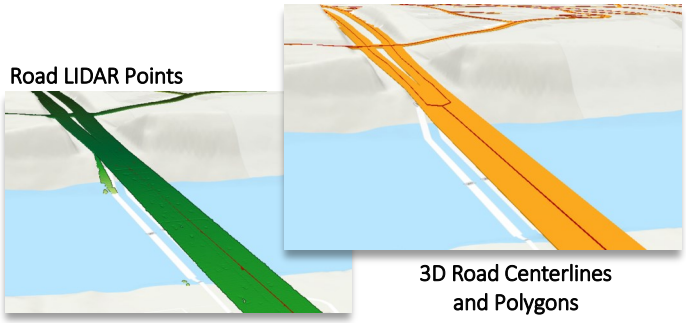
Elevation data are collected by Light Detection and Ranging (LIDAR). Texas has many data collections of different age, location and data density. They do not identify LIDAR points on roads.

The 38,000 miles of roads in the TxDOT Austin District covers only 1.6% of the landscape. High Performance Computing is used to filter the data collections and select the most accurate and recent data for the road system. Each point is labelled with its elevation in feet above geodetic datum.

10,012 tiles
1.5 TB of LIDAR data



38,000 miles of roads



3D Road Centerlines and Polygons

How do I use the data?

There are two versions of the Road Elevation Model:

- **Public Version** that includes the elevation points
- **TxDOT Version** includes road polygons and centerlines

Video on data visualization:
https://youtu.be/CcjO0Mgj_10

Further information—how to obtain and use the data:
https://www.caee.utexas.edu/prof/maidment/RoadElevationModel.htm

**Credit to Ecopia AI for the 2D road lines and polygons* www.ecopiatech.com

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