



Mapping Place-Based Data: OPEN SOURCE TOOLS FOR INTERACTIVE WEBMAPS

Texas Higher Education
Coordinating Board

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Why Map Place-Based Data?

Help make sense of tabular data

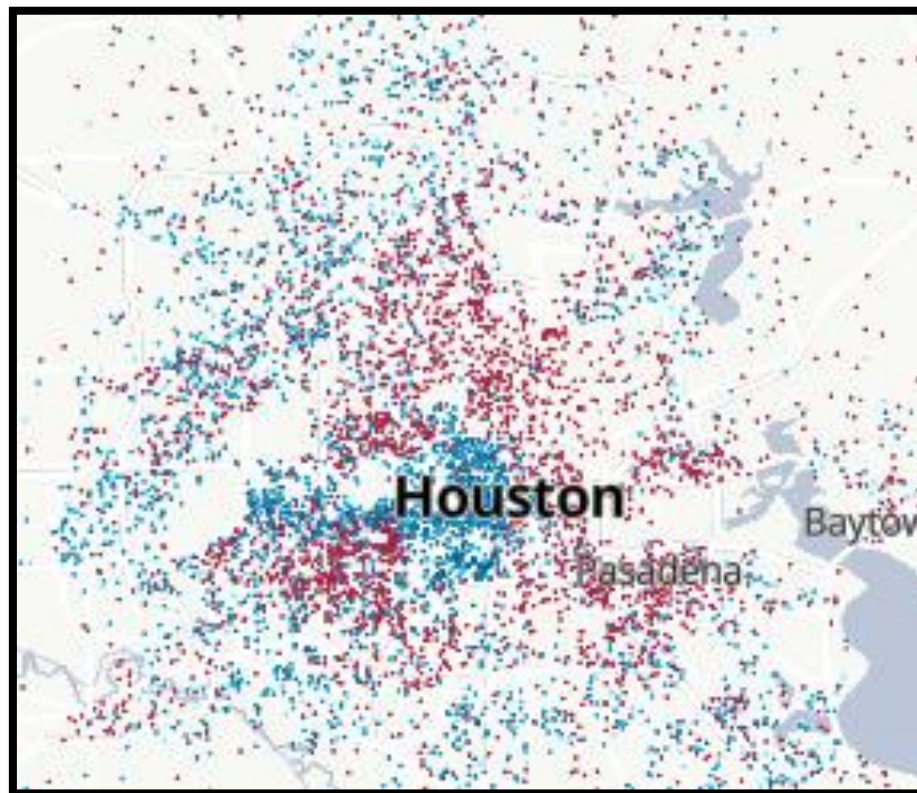
8th Grade Cohort Longitudinal Study

FY 2008 (Fall 2007) 8th Grade Cohort Tracked through FY 2018 Higher Education - 11-year Study

Statewide	8th Grade (FY 2008)	High School Grad FY 2011-2013		Enrolled TX 4-year		Enrolled TX 2-year		Enrolled in Higher Education		Higher Ed Degree or Certificates Texas	
	#	#	%	#	%	#	%	#	%	#	%
TEA Region											
01:Edinburg	26,668	21,149	79%	6,431	24%	8,391	31%	14,822	56%	5,926	22%
02:Corpus Christi	7,574	5,779	76%	1,767	23%	2,152	28%	3,919	52%	1,484	20%
03:Victoria	3,850	3,011	78%	519	13%	1,528	40%	2,047	53%	910	24%
04:Houston	73,414	56,618	77%	15,309	21%	24,800	34%	40,109	55%	17,037	23%
05:Beaumont	5,979	4,604	77%	1,490	25%	1,627	27%	3,117	52%	1,277	21%
06:Huntsville	11,837	9,348	79%	2,341	20%	3,788	32%	6,129	52%	2,681	23%
07:Kilgore	11,699	9,282	79%	1,738	15%	4,450	38%	6,188	53%	2,681	23%
08:Mt. Pleasant	4,098	3,274	80%	573	14%	1,613	39%	2,186	53%	941	23%
09:Wichita Falls	2,760	2,242	81%	668	24%	744	27%	1,412	51%	636	23%
10:Richardson	50,042	39,629	79%	10,138	20%	16,392	33%	26,530	53%	11,083	22%
11:Fort Worth	36,599	28,818	79%	7,871	22%	12,320	34%	20,191	55%	8,829	24%

Why Map Place Based Data?

Reveal hidden patterns



Spatial Data Types

Points

- Points contain latitude/longitude, and may contain properties such *attainment_level* or *institution_type*.

Dot Density: <https://www1.thecb.state.tx.us/map/attainment/>

Higher Ed Locator Map

Lines

- Lines can convey relationships between points and require a latitude/longitude pair.

Polygons

- Polygons are sets of line segments with each vertice having a latitude/longitude, they may contain properties such *graduation_rate*.

8th Grade Cohort Enrollments and Completions: [Higher Education Enrollment and Completion Rates by Region](#)

8th Grade Cohort Target Populations: [Higher Education Completion Rates for Target Populations](#)

Target Population Distribution: [Distribution of Target Populations](#)

Tools for Web Maps

- **Python** is the language used by both proprietary and open source GIS software for preparing spatial data. The Jupyter Notebook is a great tool for creating annotated, reproducible python code.
- **JavaScript** is the language of web browsers. In addition to javascript, web maps require HTML and CSS.
- **Mapbox GL** is an open source javascript library. It's used by Tableau, Microsoft Power BI, National Geographic, The Weather Channel, etc.
- Web maps can be entirely client side. No database necessary!

Examples of Spatial Datasets

Zip Codes Boundary File (US Census Bureau): https://www.census.gov/geo/maps-data/data/cbf/cbf_zcta.html

ISD Boundaries (TEA): <http://schoolsdata2-tea-texas.opendata.arcgis.com/>

Texas High Schools (TEA): <http://schoolsdata2-tea-texas.opendata.arcgis.com/>

Your Own Building Inventory!

- Combine the CBM005 with the CBM00S to answer questions such as:
 - *Which groups of students have to travel the most to get from one class to the next?*
 - *How many students are receiving instruction in each building at any given time?*

A Final Thought: *Less is More*

Static Maps Go Anywhere

If it doesn't need to be interactive, it shouldn't be.

Beware of Comprehensive Data Exploration Tools

You've seen them: *Wow, there's a lot of stuff here. When I have time I'll come back and check it out!*

One Map – One Big Idea

These are usually the most [effective and engaging](#).