



Your Maps Might Be Lying to You

Gus Lipkin
2023-10-20

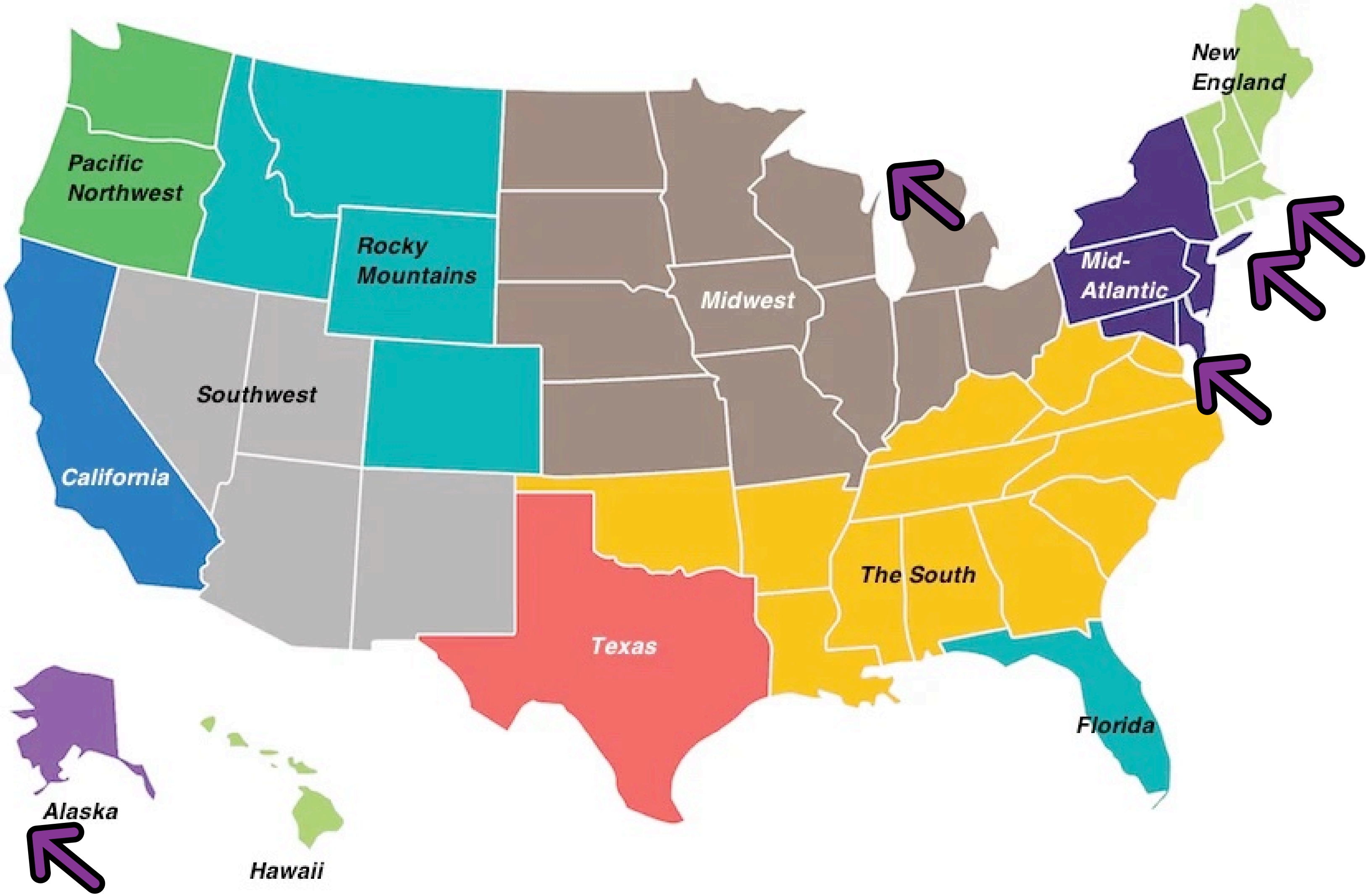
Mapping the Stage

(Some) Maps Are Bad

The World



The United States of America



New Zealand*

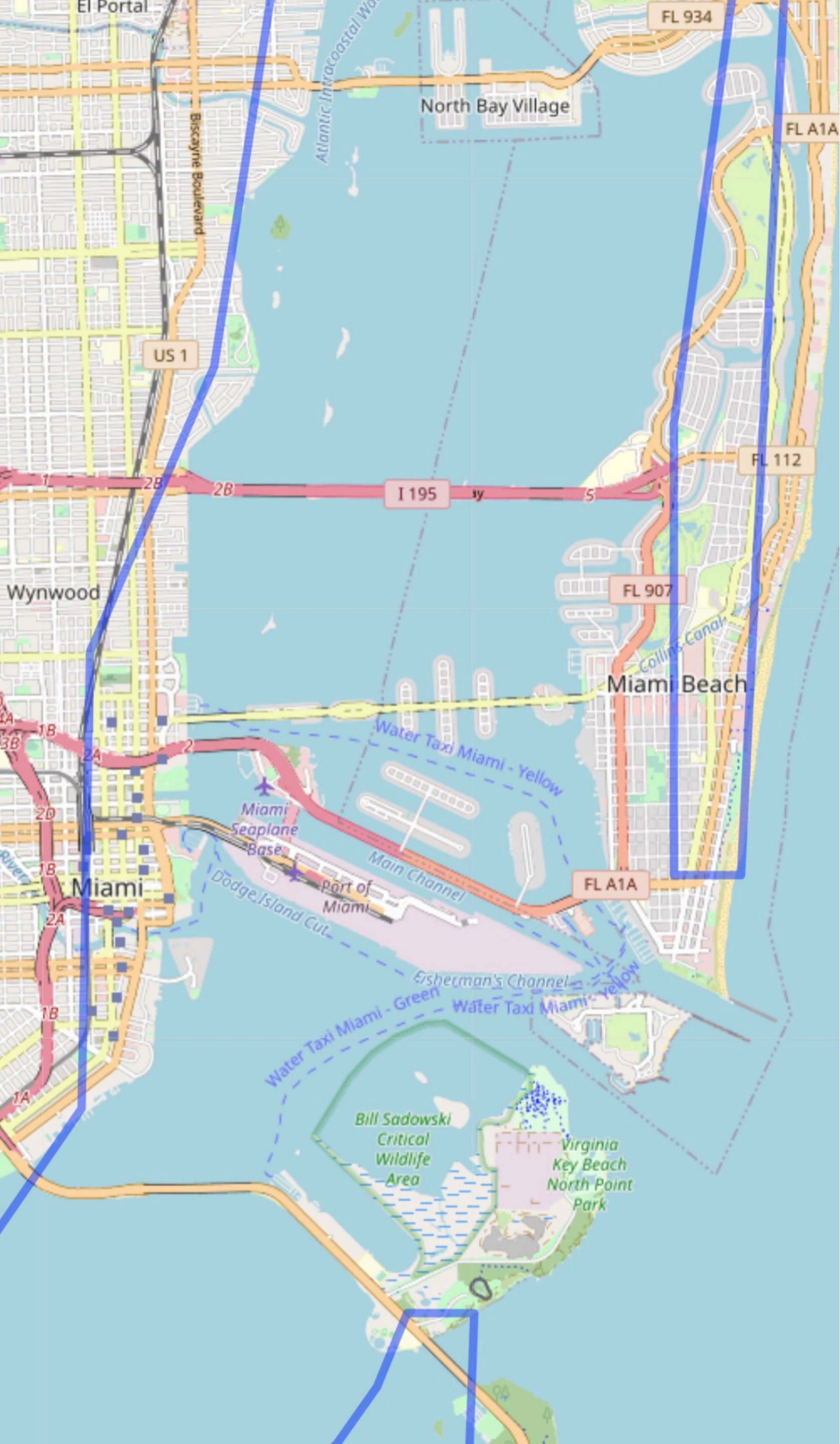
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We're sorry, something's missing..



Borders Are Tricky Too

DataHub

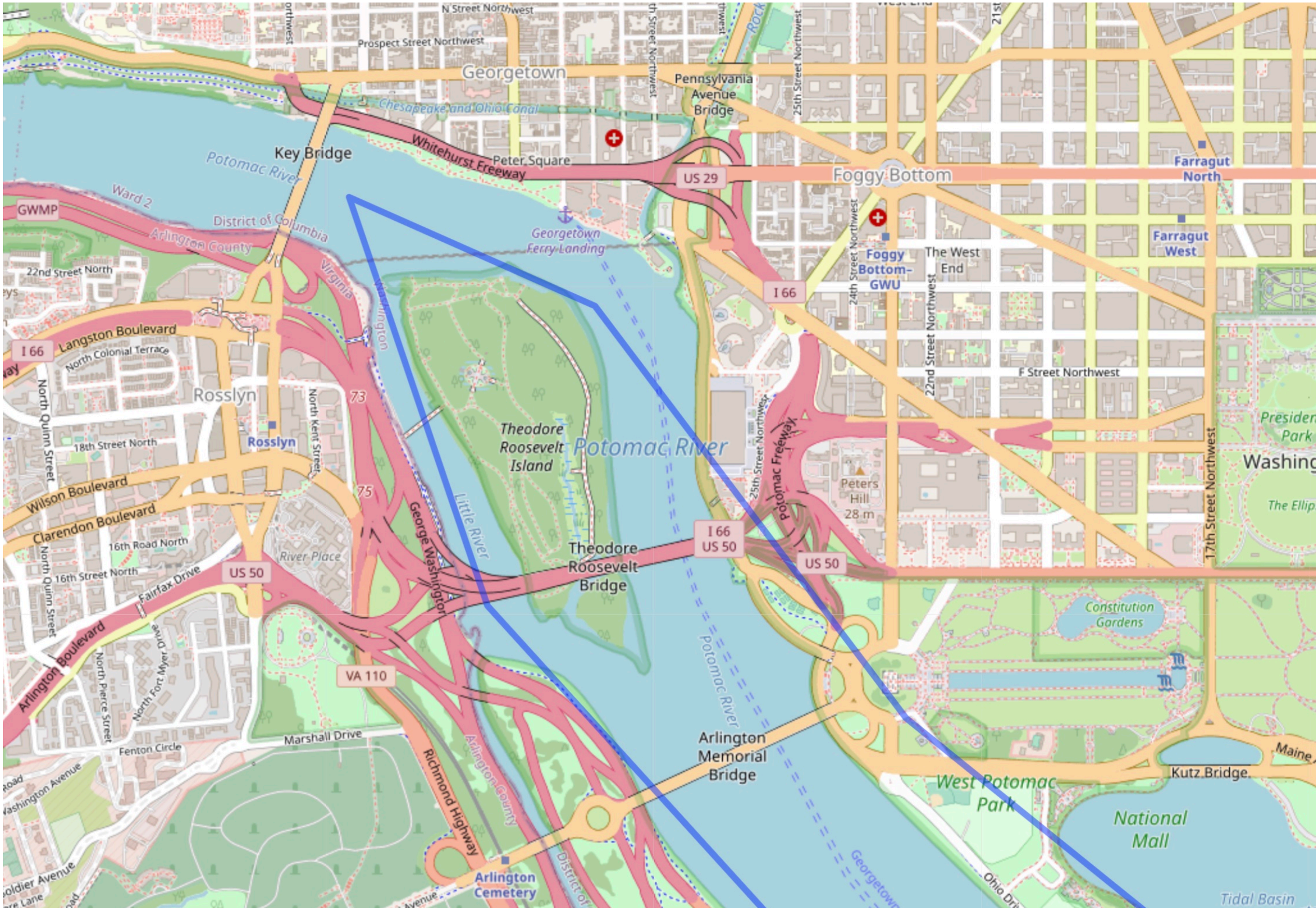


World Bank



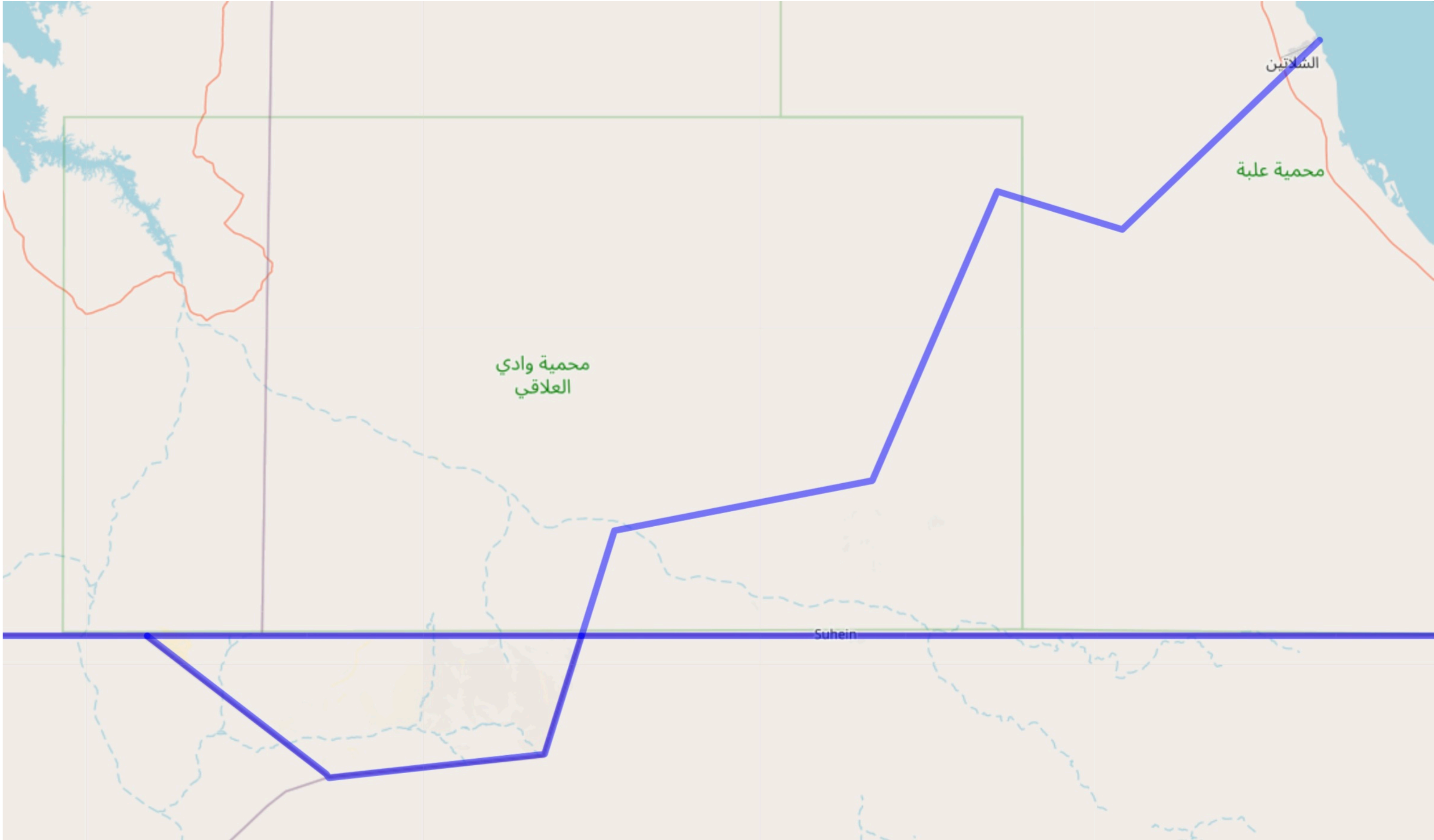
Natural Earth

Roosevelt Island is outside the USA

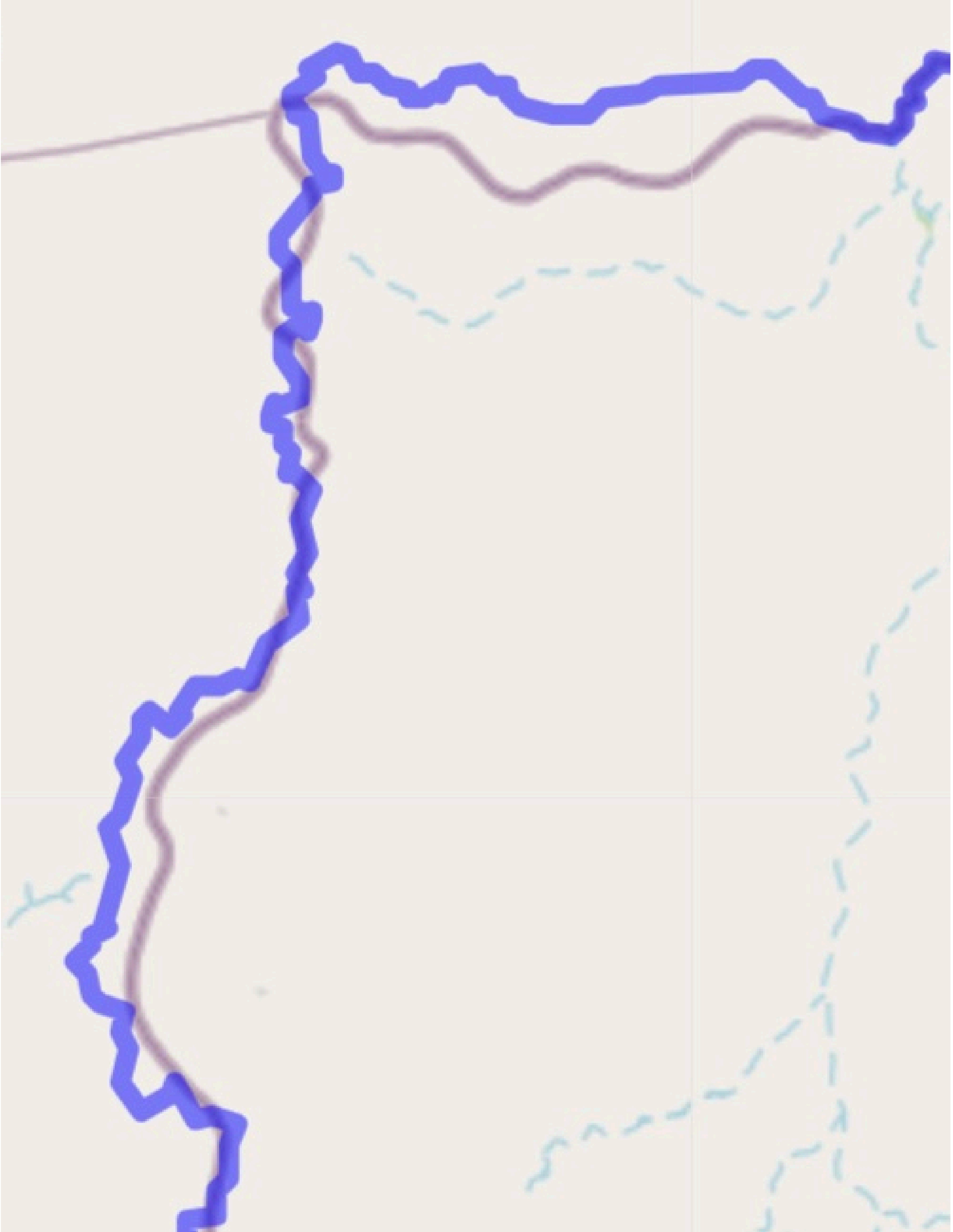


**Surely the US Department of State Knows
Where Borders Are?**

Egypt and Sudan



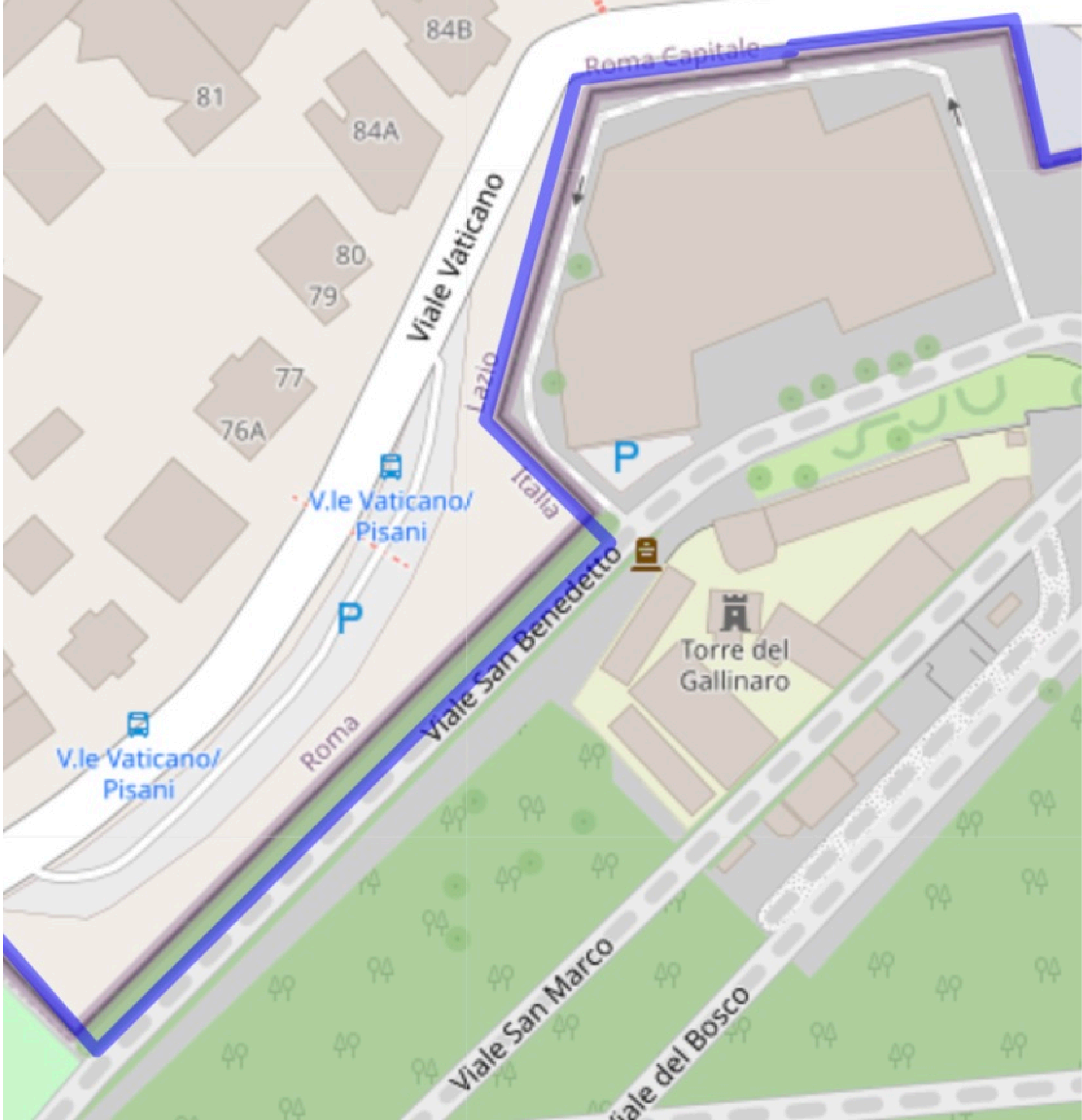
Sudan and Eritrea



The Vatican

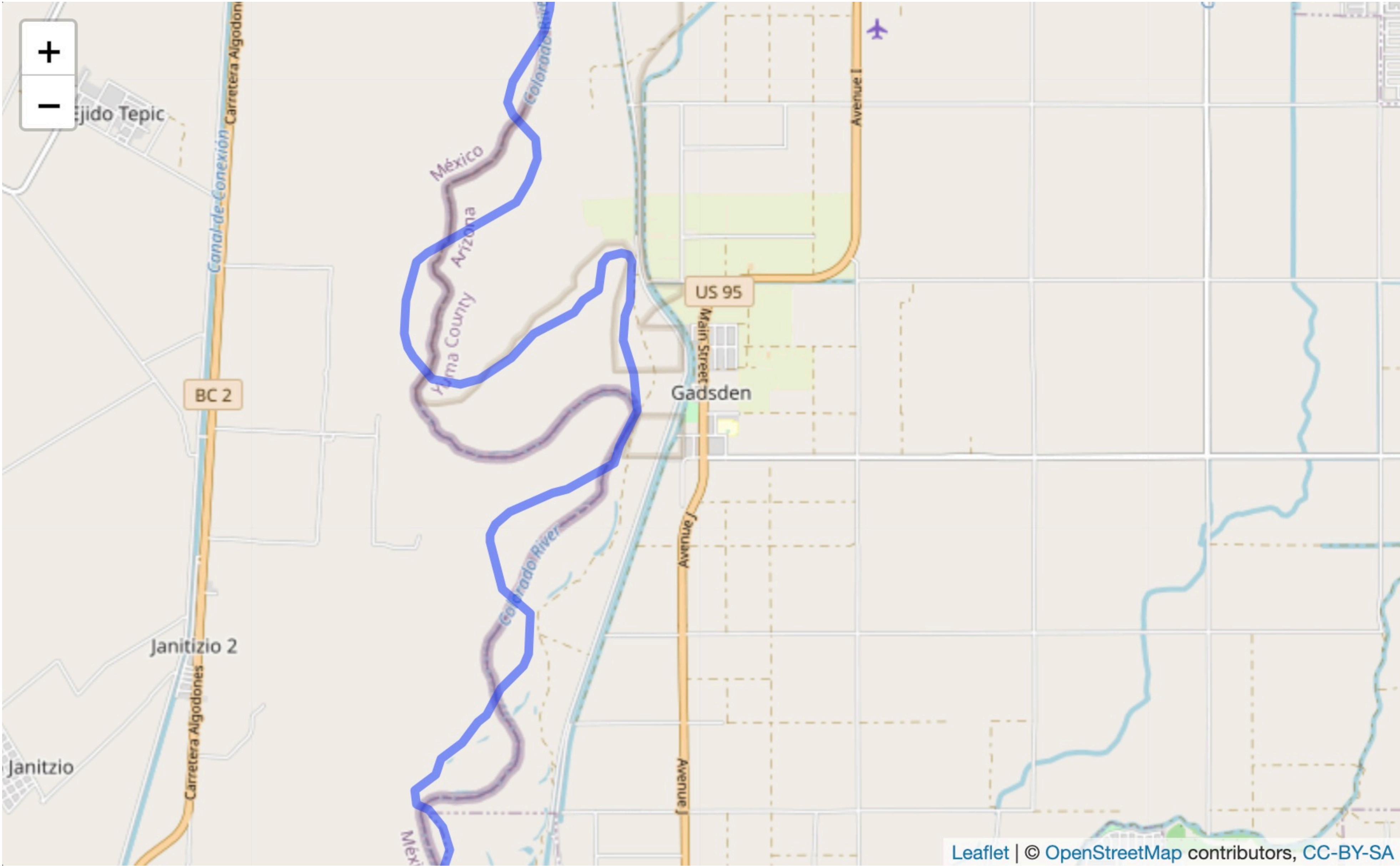


The Vatican



**Surely the US Department of State Knows
Where the US Borders Are?**

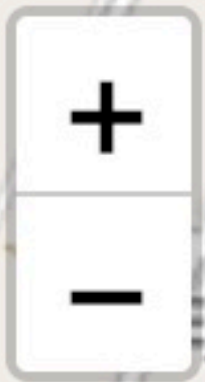
They Don't



These Seem Like Relatively Minor Problems

What's going wrong?

I Haven't Been Entirely Truthful



San Jsidio Tepic

BC 2

Janitzio 2

Janitzio

Carretera Algodones

Canal-de-Conexión Carretera Algodones

México
Yuma County
Arizona

Gadsden

US 95

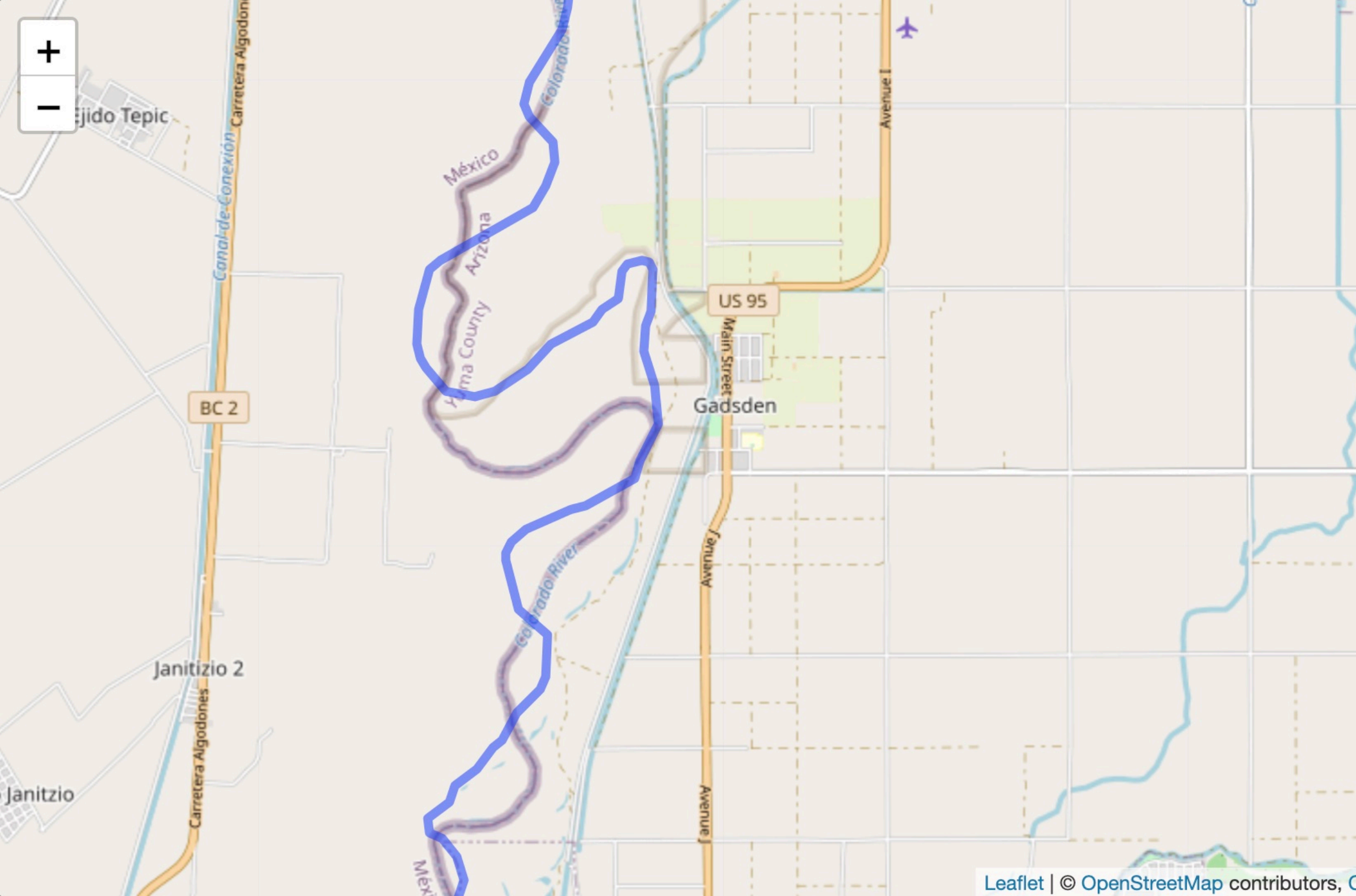
Main Street

Fanua Avenue

Avenue J

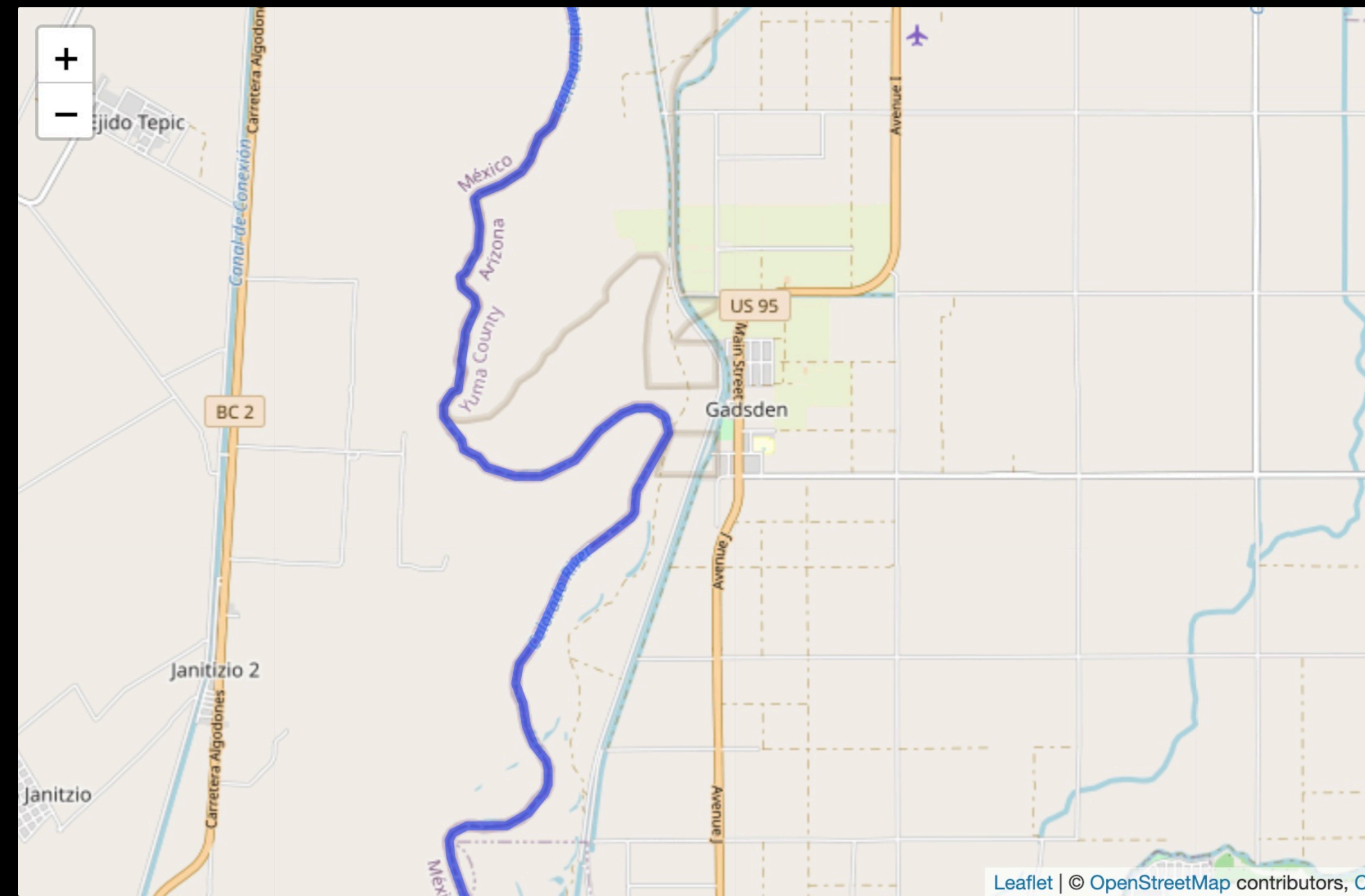
Avenue I





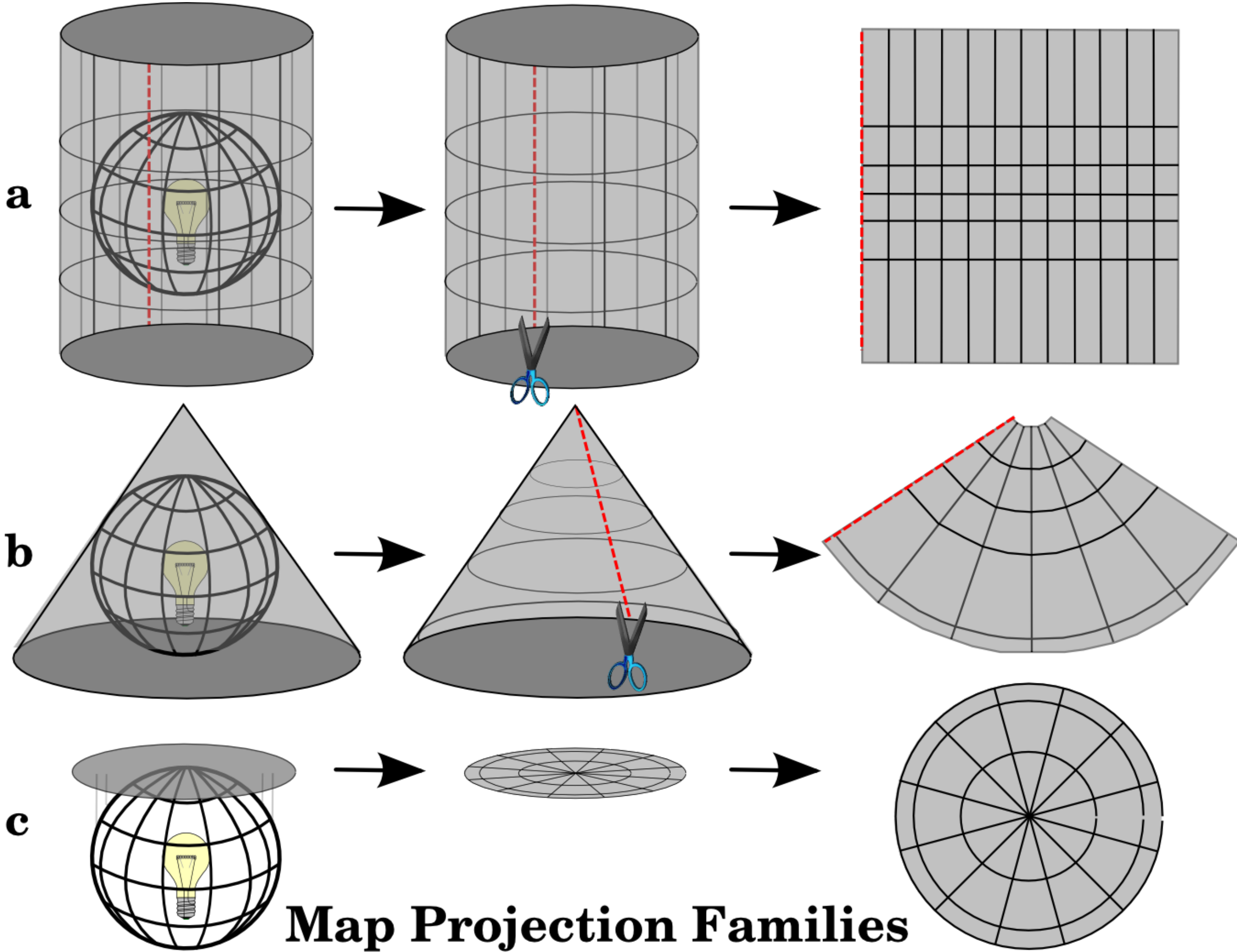
OpenStreetMap

US Department of State



Other Common Problems

Projections and Coordinate Reference Systems (CRS)

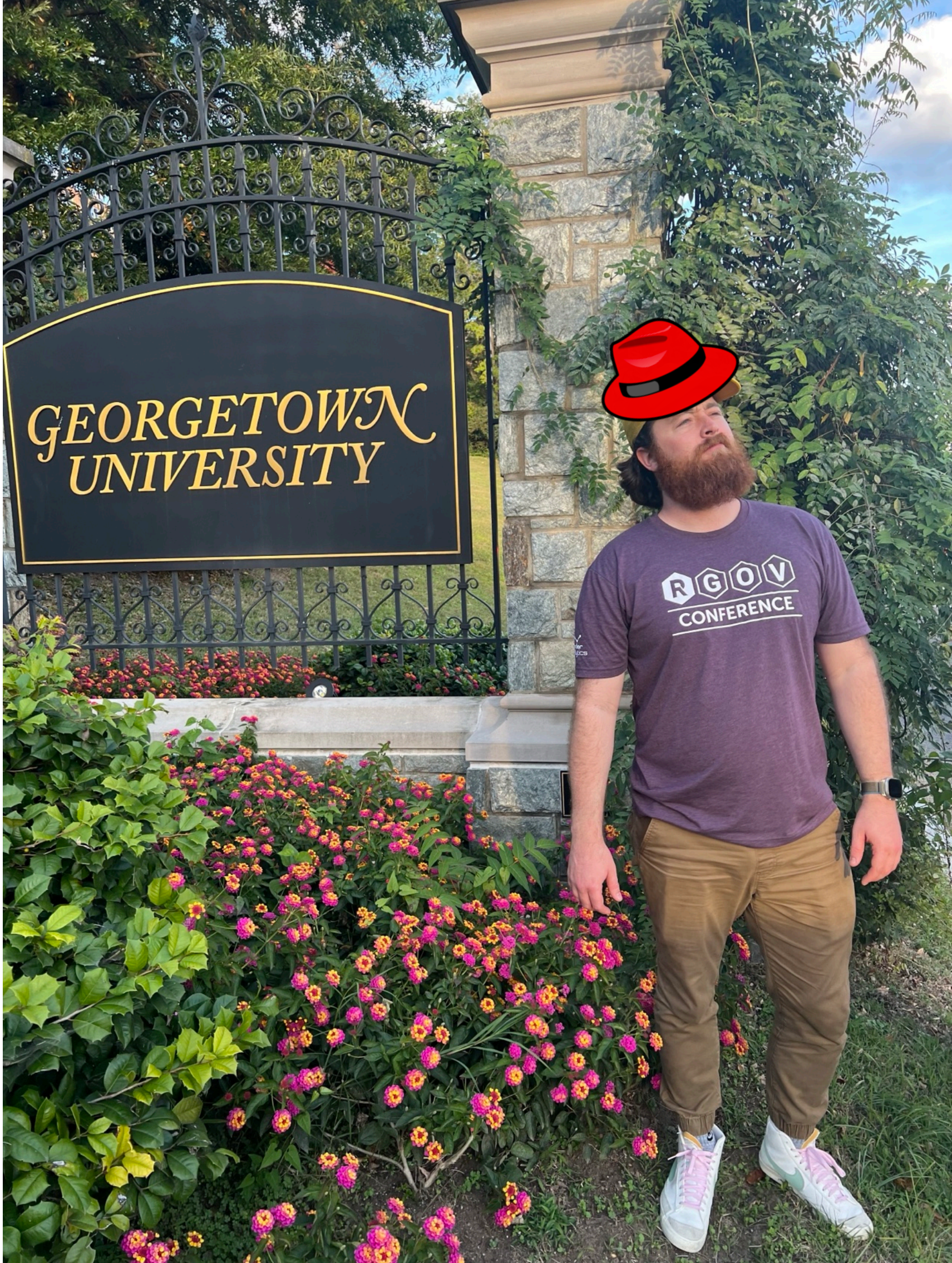
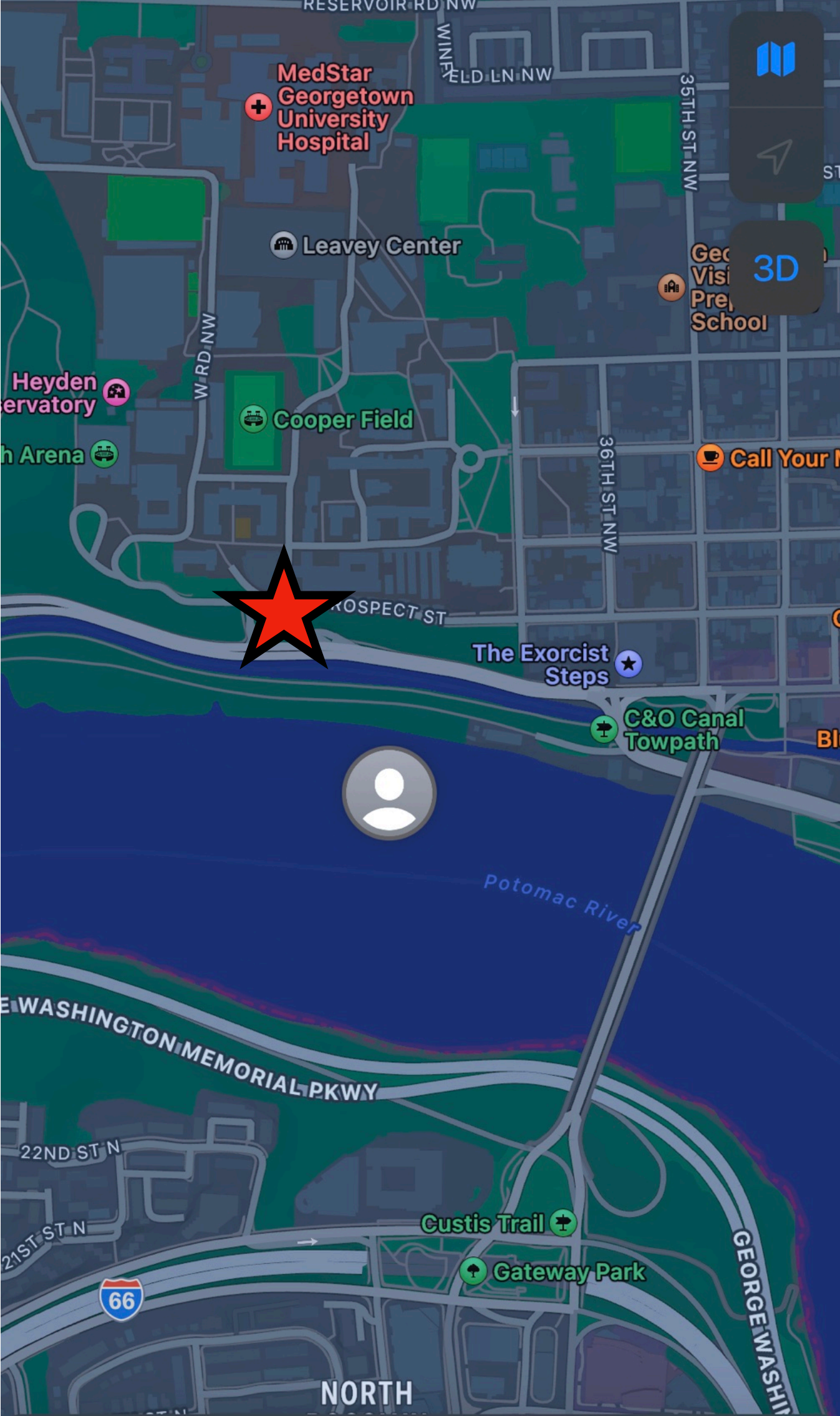


Map Projection Families

Data Problems

- Incomplete data
- Extra data:
 - Features
 - All versions of a disputed border
- Incorrect or out of date data
- File type or data type mismatches
- Data resolution
- Fake data so people don't steal your maps

Where in the World is Travis Knoche?

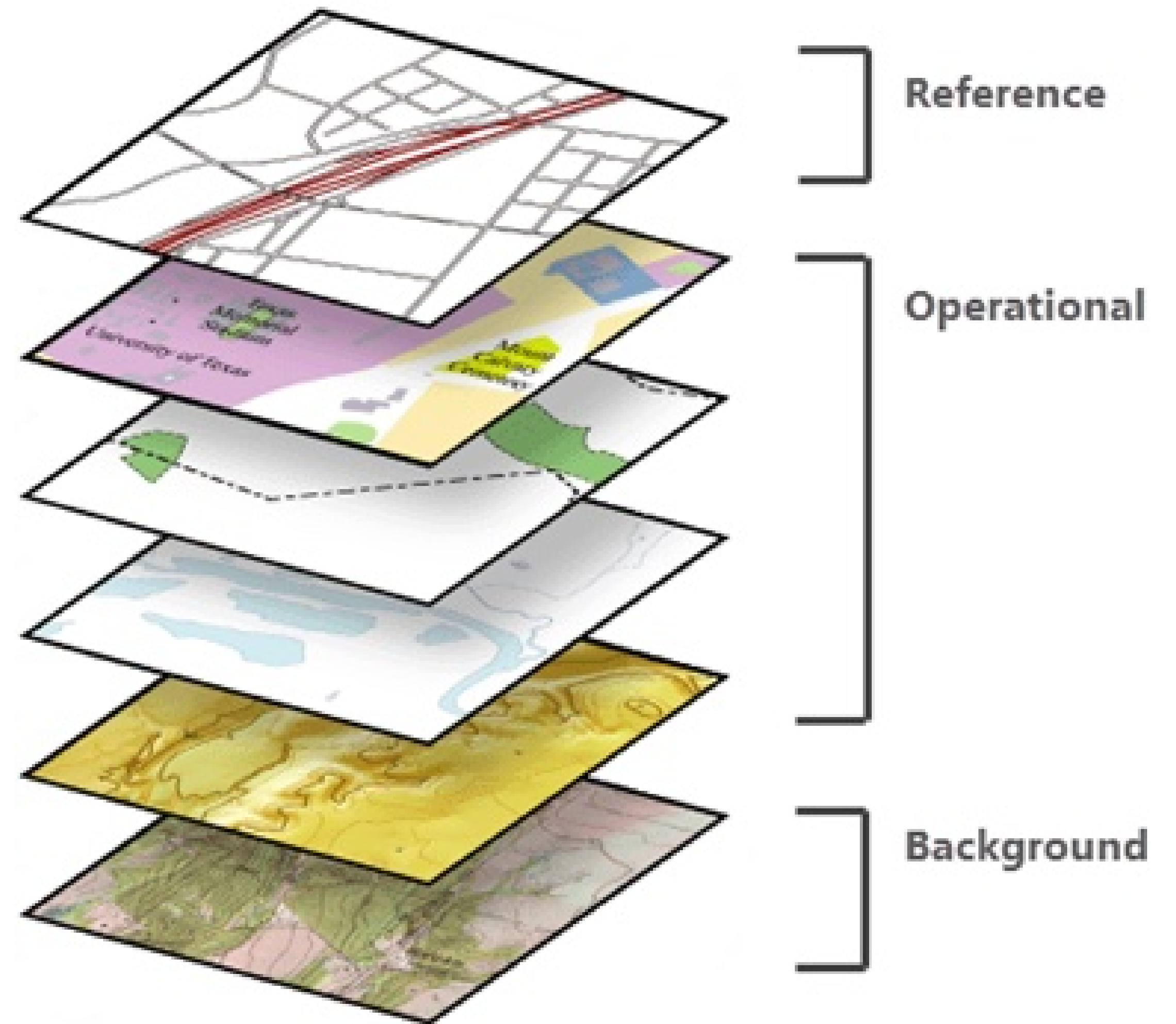


Now what?

Finding Your Source of Truth

Base Maps

- Function
 - Street, Satellite, Hybrid, Topographic
- Style
 - Full color, grayscale, dark, labels/no labels
- Data sources
 - OpenStreetMap, Government, MapBox, Overture Maps, many more!
- Coordinate reference system
 - WGS 84, everything else



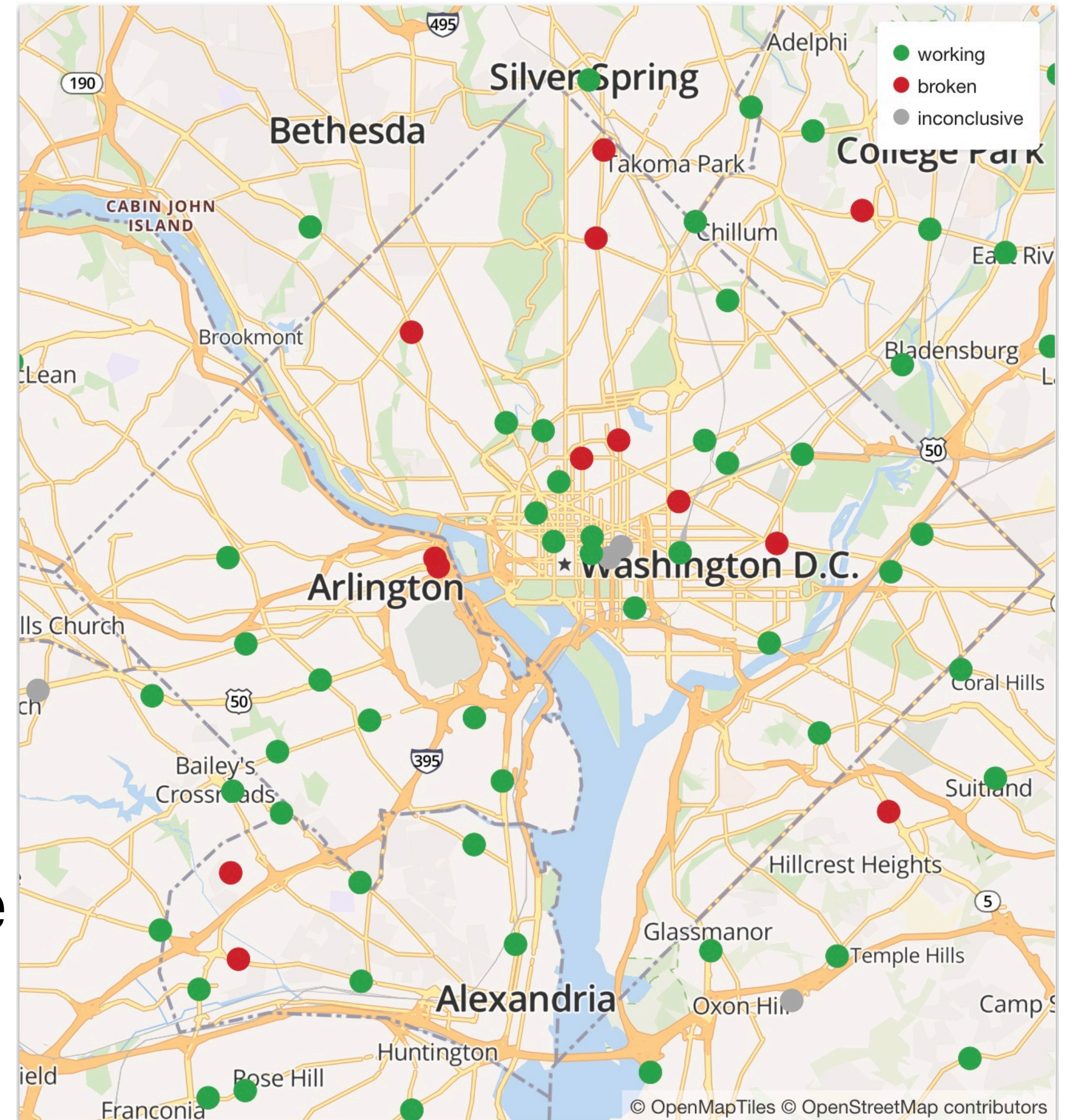
Choosing a Base Map

- Function
 - What am I trying to show?
- Style
 - Does a certain style help communicate
 - How can I display my data to make the impact I want?
- Data Sources
 - Where does my data come from? Do they have a base map?
- Coordinate Reference System
 - What CRS is my data?

Adding Data

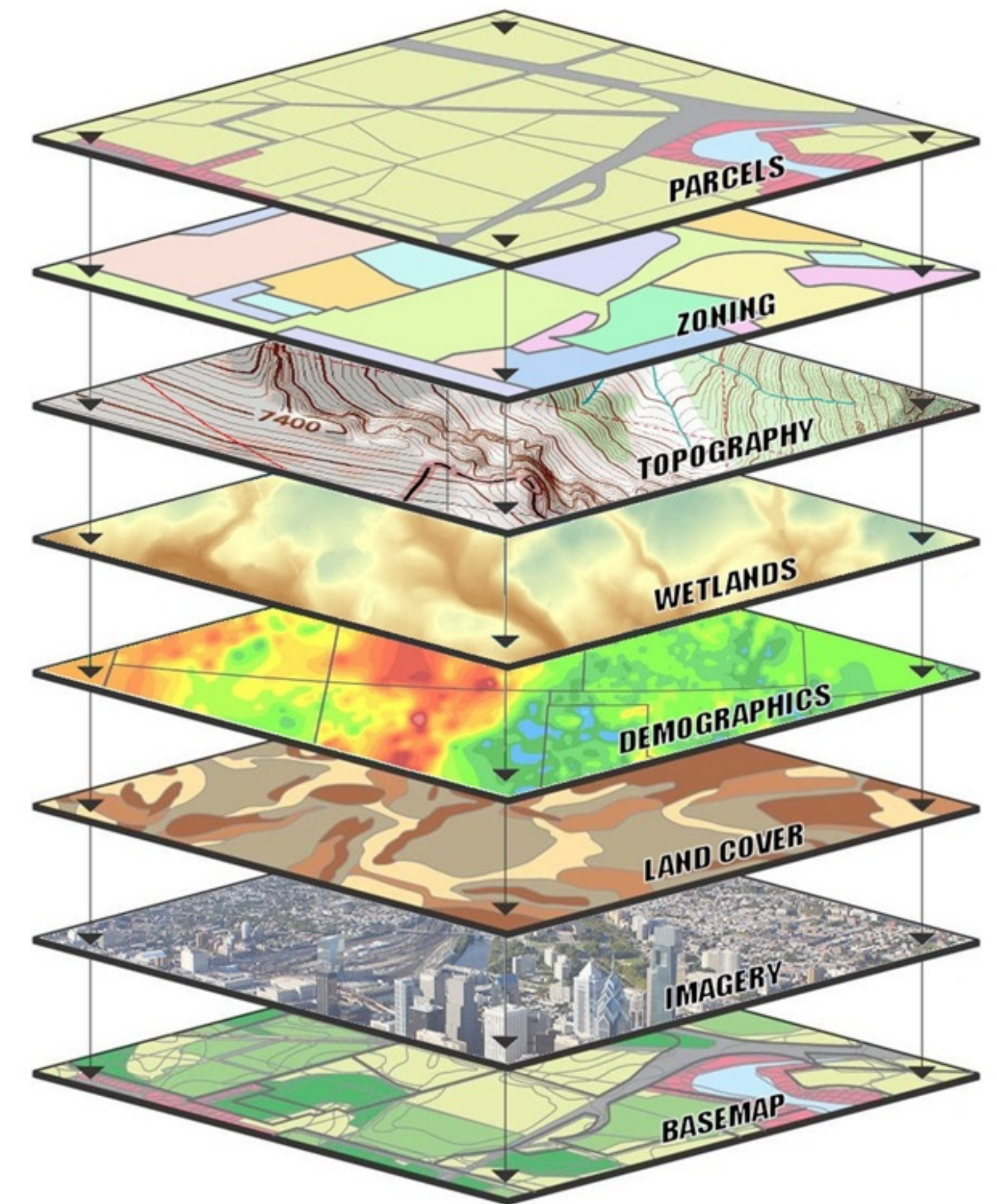
Data Layers

- Your data!
- Other data you might want
 - Borders
 - Roads
 - Weather patterns
 - Migratory patterns of Canada Geese
 - Locations of working McDonald's Ice Cream Machines



Kinds of Data Layers

- Raster layers
 - Tiles
- Vector layers
 - Lines, polygons, images
- UI layers
 - Markers, popups, tooltips
- And more!



This Is Complicated and I Don't Care

Fair Enough

- You don't need super accurate locations
 - You don't need to know where in the McDonald's the ice cream machine is located
 - Population centers in cities
- You're using maps as visualizations, and the data itself is what matters
 - Choropleth (colorful polygons) voting maps
 - Visualizations of a region's watersheds

Just Be Consistent

All Maps Are Lying to You



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