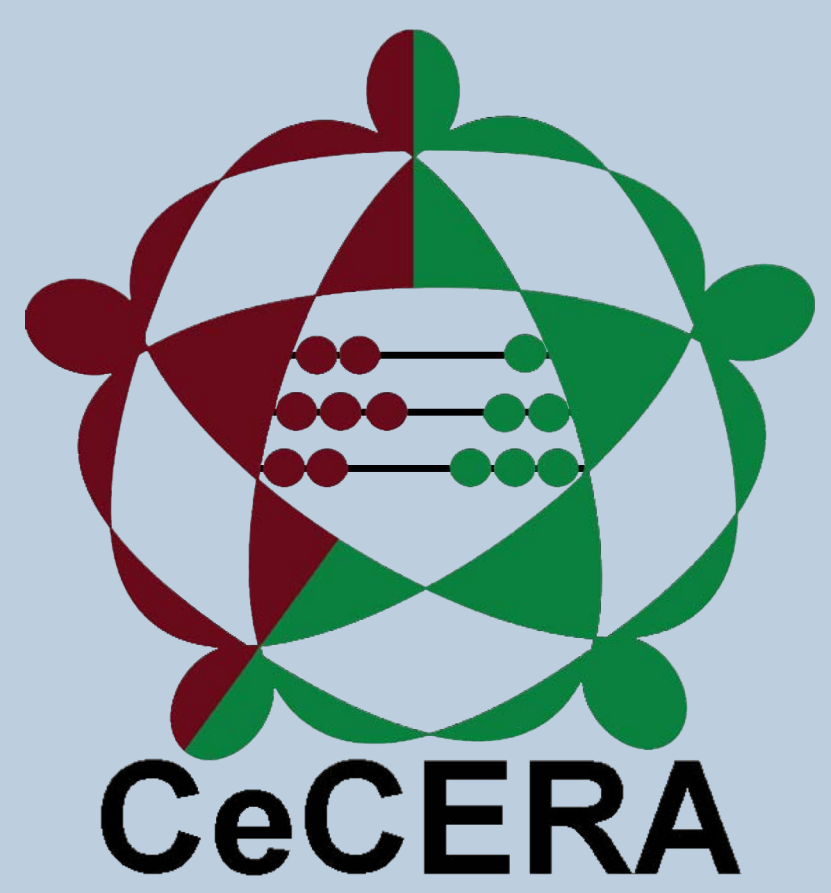




# RE-PLAN Add-on

Armando Cardona, Michael Moore, Francisco Ramirez, Benson Phillips, Jose Castro

UNIVERSITY OF NORTH TEXAS



## Problem Statement

Public health planners can have plans for very large regions which include many smaller higher-at-risk regions. In such cases, the public health planner will likely make plans for their smaller higher-at-risk regions. The process of making these plans is met with the big challenge of actually defining what are the sub-regions. Even worse, when a subregion is defined, public health planners now have the even bigger task of trying to find information about their newly defined sub-region.

## What is RE-PLAN?

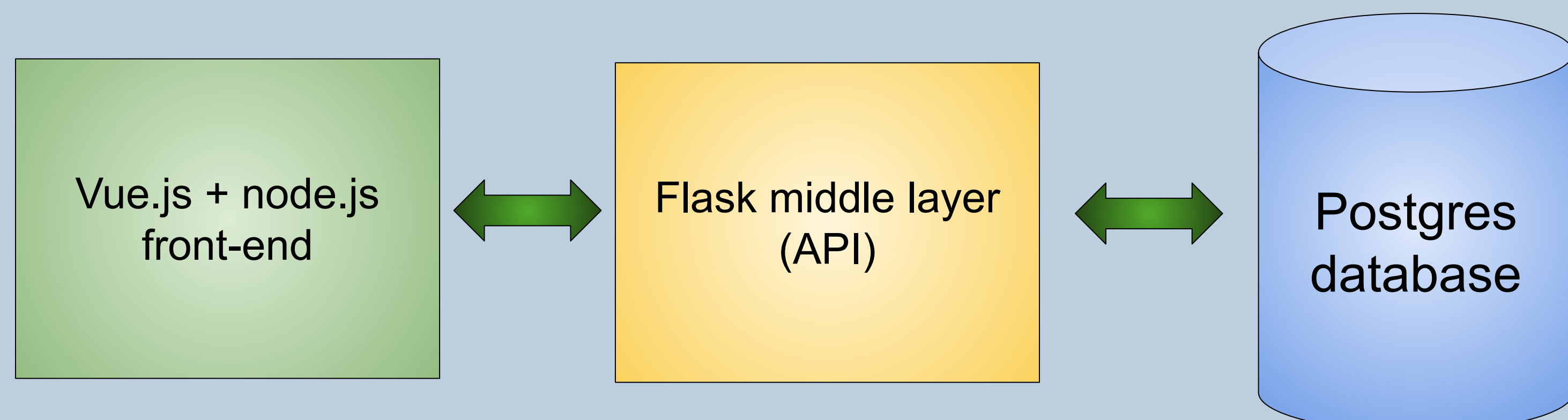
RePlan is a powerful tool to help planners formulate a plan of action towards allocating resources to the general population. Data-Driven response planning is finally accessible to planners without the need for GIS or computer programming expertise!

## Our Contribution

In this project, we augmented RE-PLAN to include a region editing tool, thereby giving public health planners the capabilities to focus planning on smaller at-risk regions. Our contributions include:

- A tool for selecting smaller at risk regions and creating a plan based around them.
- the ability to calculate demographic data for a region specified by the public health planner.

## System Design



For our capstone, we went with a standard 3-tiered architecture. The public health planners can connect to the RE-PLAN system through their internet browser. From their, the system will make API calls to retrieve and store relevant data.

## Problems Encountered

When calculating vulnerabilities we realized that we would not get the same level of specificity as we do when we draw the boundaries. This is due to the level of specificity that United States Census Bureau uses to gather data. Our solution was to allow the planner to pick their desired boundary, but then fill in the missing portions to make the closest available estimate on the certain vulnerabilities.

## Supporting Technologies



## Design Rational

The user interface was designed to be lightweight and non-intrusive, giving the public health planners the ability to interact with the rest of the system unobstructed.

Orange and purple shading was chosen to allow for vision impaired users to clearly identify the difference between active and inactive block groups.

## Our Capstone In Action

Texas Subregion: 6/5

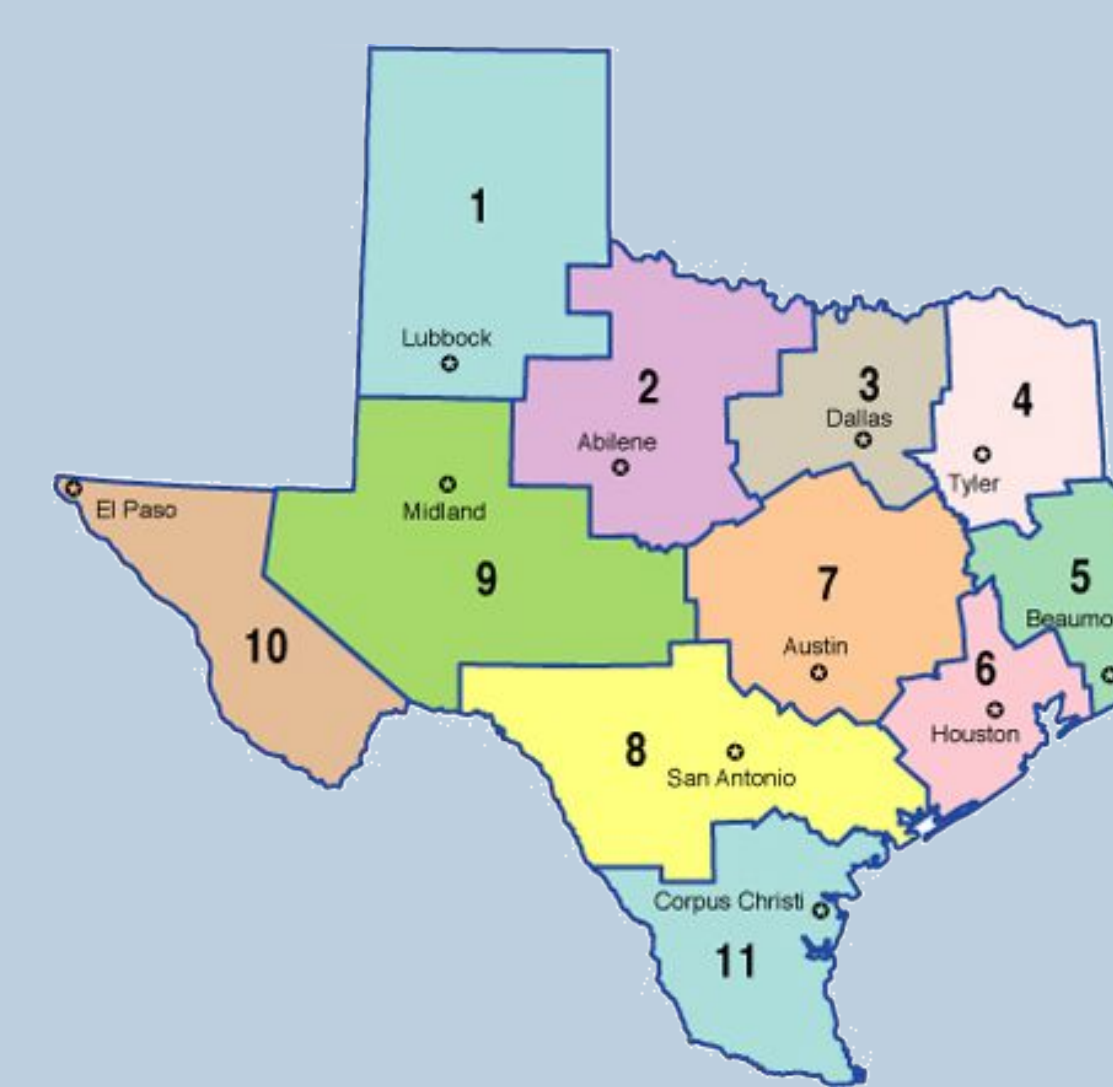
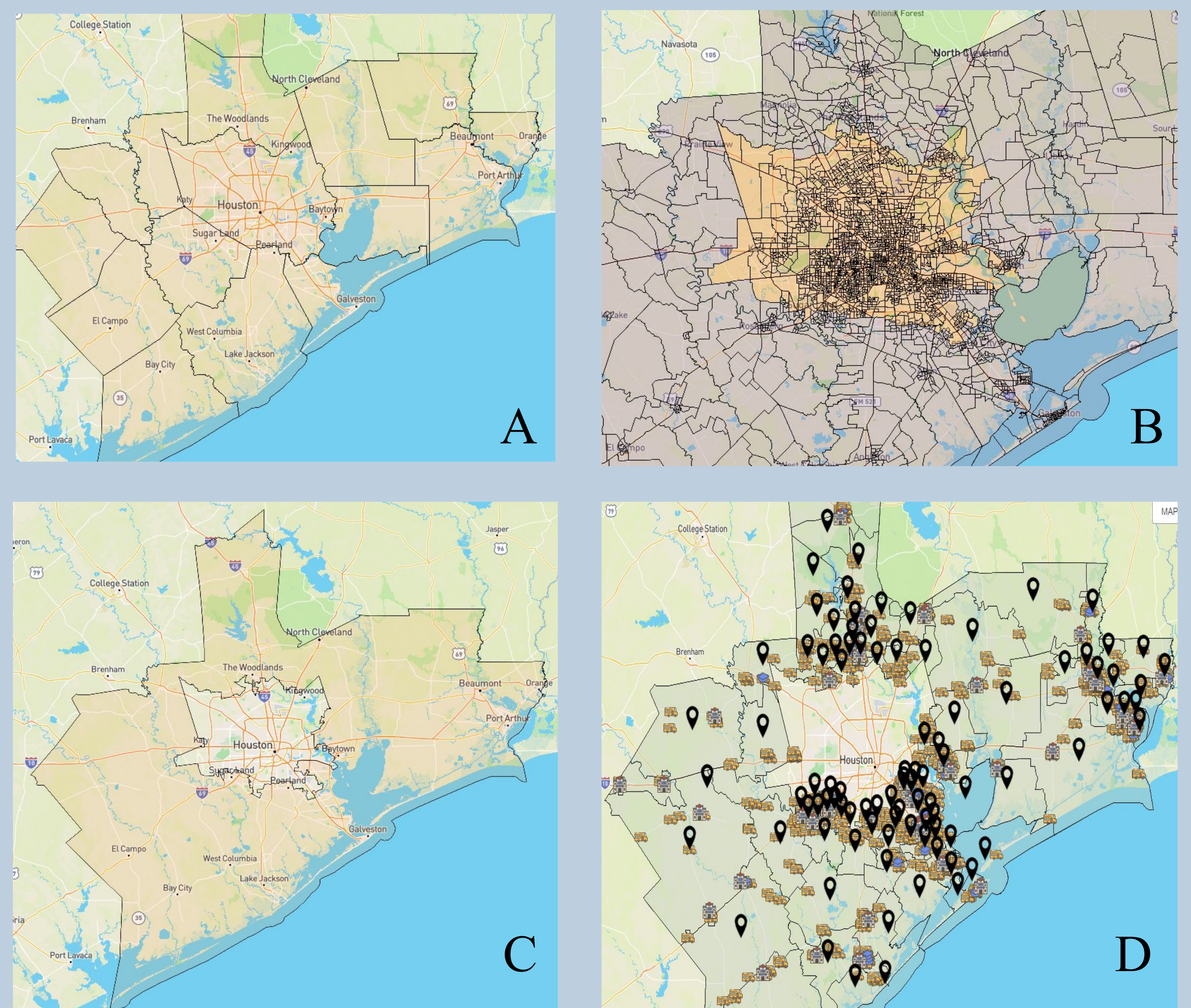


Figure A: The beginning of the editing region process.  
Figure B: The block group selection process.  
Figure C: Our new region cut from the original.  
Figure D: A complete plan with the new region.

As depicted above, public health planners can use our tool to plan for all of region 6 and 5s without having to plan for Houston as well.

## Testing

To guarantee data validity, we tested our data calculations on predefined shapes as well as our custom shapes. In direct comparisons, the data was equivalent.

To guarantee stability with the rest of the system, we also tested our custom shapes against the various components of RE-PLAN.

## Conclusion

The new functionality we added to RE-PLAN allows for an increased specificity in plan creation. With this addition, public health planners are now able to target smaller at-risk areas with the same level of detail they would have at larger areas.