The Evolution of Pittsburgh's River Bridges

Topic

This map is designed to be an interactive companion to the book, *Pittsburgh's Bridges (Images of America)*, by Todd Wilson, PE, and Helen Wilson, showcasing how the river bridges in Pittsburgh, Pennsylvania evolved from the wooden covered bridges of yesterday to those that define the skyline today.

Map Objectives

The two printed maps I developed to accompany *Pittsburgh's Bridges (Images of America)* both show all of the city's bridges throughout its history on one map. After learning that the theme of this year's NACIS conference is "Mapping Change", I wanted to create a way for users to explore how the city's bridge landscape has changed over time.

My goal is to provide users with an interactive map where they can learn more about the river bridges of Pittsburgh and examine how the city's bridge landscape has evolved throughout its history.

The bridges will be symbolized by their primary design type (e.g. wooden covered truss, through truss, arch, suspension, girder, aqueduct, etc.). Users will be able to search for a specific bridge by its name and will be able to click a bridge to get a photo and more information about it.

Each bridge will be visible on the map during the years in which it existed. A time slider will allow users to scroll through time to see which bridges existed in a specific year. A bridge will appear on the map when the time slider reaches the year it was built and disappear from the map when the time slider reaches the year it was demolished. This new functionality will help to illustrate when certain areas of the city were or were not connected by bridges and when certain bridge designs were most common.

Mapping Scenario

A typical user would be a local historian or bridge enthusiast interested in learning more about the history of Pittsburgh's river bridges. The user would be visiting the site to learn about a specific bridge or learn how the city's river bridge landscape evolved over time.

Data Sources

Bridge data will be stored in a CSV file with latitude and longitude data, various attributes including the bridge name, year built, year demolished, notes, image path and name, and image source. It will be imported onto the map as point data.

Photos and drawings will be stored on the web server with the paths and names specified in the CSV file.

Bridge data and photos were acquired from *Pittsburgh's Bridges (Images of America)* (Arcadia Publishing), Bruce Cridlebaugh (www.pghbridges.com), or Todd Wilson and should not be distributed.

The city border, downloaded from http://pittsburghpa.gov/dcp/gis/gis-data, will be available on the map for reference and will be stored on the web server.

Technology Stack

The CSV data will be imported into the map via the Omnivore plugin.

The map will use the Leaflet JavaScript library for the primary map development and the Mapbox JavaScript library to support filtering bridges by name and potentially to support geocoding.

The site will initially be hosted on GitHub pages (skeetidot.github.io/pittsburghbridges) , with the hopes of ultimately hosting it on my own web server (www.bridgemapper.com).

Anticipated Thematic Representation

Bridges visible in the selected year will be represented as point data.

Content Requirements

- Pittsburgh's river bridges will be shown as point data, symbolized by their primary design type (e.g. wooden covered truss, through truss, arch, suspension, girder, aqueduct, etc.)
- A standard tiled basemap will be shown, so that users can locate the bridges in a wider geography and see the road network. If historic basemaps can be shown, the standard basemap will only be shown in recent years.
- If possible, historic basemaps from http://peoplemaps.esri.com/pittsburgh/ will be shown in their corresponding years.
- A side panel will display an image and description about the selected bridge.
- A legend will inform users of the bridge types.
- The city's current outline will be displayed for reference.

Functional Specifications

- The map will be limited to Pittsburgh, Pennsylvania.
- The map will load the bridge point data dynamically from a CSV file and display it on the map.
- A search box will allow users to search for a specific bridge in the selected year. A possible development example is available at https://www.mapbox.com/mapbox.js/example/v1.0.0/filtering/.
- Users will be able to control a year slider bar to see the bridges that existed in the selected year.

- If possible, historic and current basemaps will change to the closest available year as the user moves the slider bar.
- Bridge data will be filtered to only display bridges that appeared in the current year on the slider bar. See https://www.mapbox.com/mapbox.js/example/v1.0.0/filtering-markers/.
- Bridge points will have an additional highlight the first 5 years they are built to show that they are new bridges (in case the previous bridge was the same primary design type).
- Bridge points will appear lighter the older they become.
- Users will be able to click on a bridge to get more information and a photo or graphic in a side panel. An affordance will be added to the selected bridge so users can see the location of the bridge they have selected. Users can close the information panel to remove the information and the affordance.
- Users will be able to hover over a bridge to get its name, year built, and year demolished.
- If possible, bridges from all years will be displayed in a list. If a user clicks a bridge from the list, the map will pan to it, replace the list with the detail panel for that bridge, and zoom the slider to the year the bridge was built. If the user closes the detail panel, the list will reappear in its place. See https://www.mapbox.com/mapbox.js/example/v1.0.0/marker-list-click/.

Anticipated User Interaction

The user is expected to interact with the map in the following ways:

- View a spatial distribution of Pittsburgh's river bridges, symbolized by their primary design type (e.g. wooden covered truss, through truss, arch, suspension, girder, aqueduct, etc.)
- Zoom and pan
- Search for a specific bridge by name
- Click a bridge on the map or list of all bridges to see a photo or drawing and description
- Scroll a time slider bar to see which river bridges existed in the city in a particular year