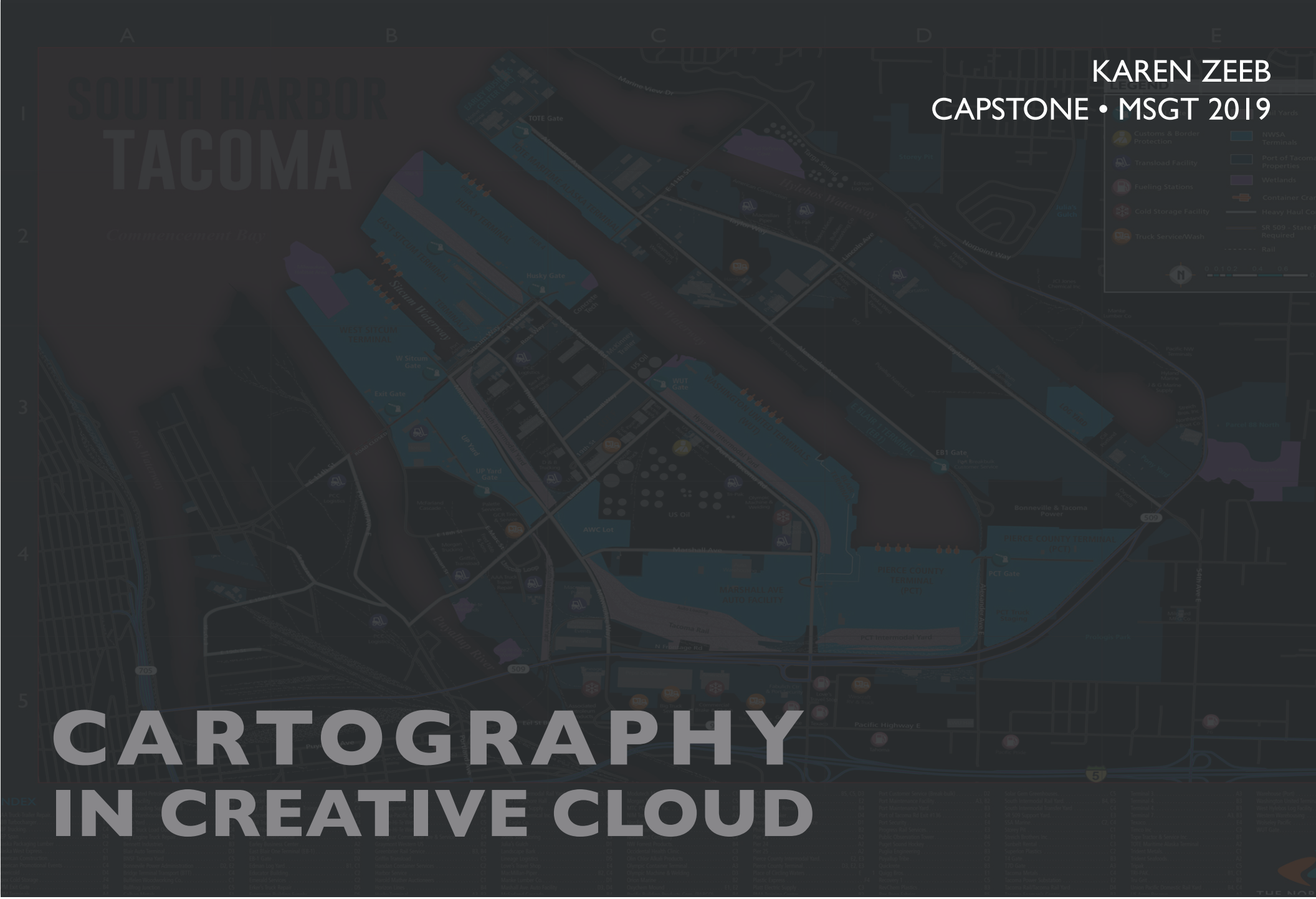


CARTOGRAPHY IN CREATIVE CLOUD

KAREN ZEEB
CAPSTONE • MSGT 2019

SCHOOL OF URBAN STUDIES • UNIVERSITY OF WASHINGTON • TACOMA

CARTOGRAPHY IN CREATIVE CLOUD

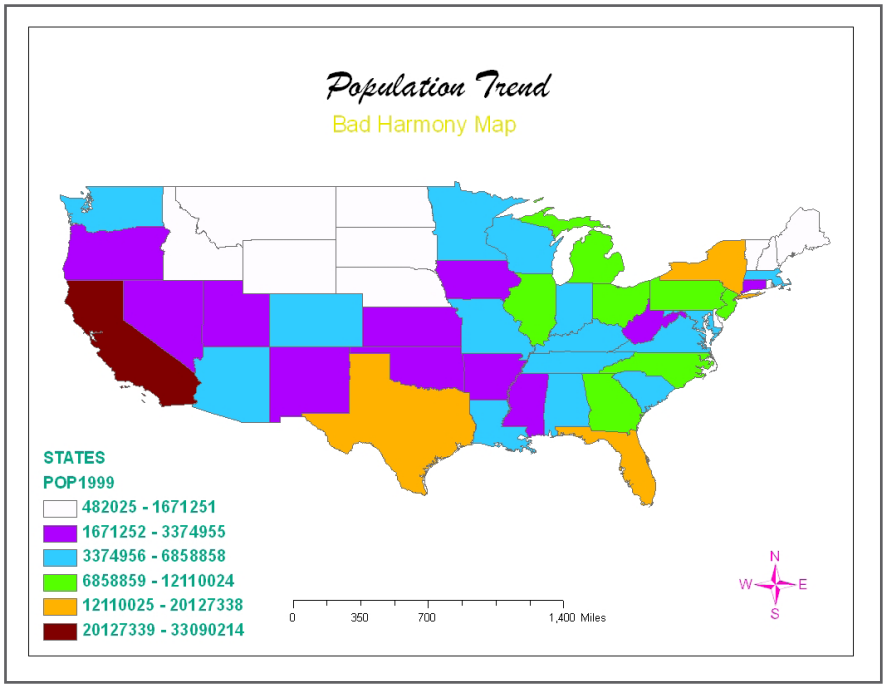
INTRODUCTION

CARTOGRAPHY: THE ART AND SCIENCE (AND TECHNOLOGY) OF MAKING MAPS
(ICA, 2011)

WHY THE NEED FOR CARTOGRAPHIC STANDARDS?

- anyone can make a map
- defaults are not the best option
- map logic and visual perception

1. COLOR
2. VISUAL VARIABLES
3. VISUAL HIERARCHY



Bad Maps Penn State Blog, Jack Swab
https://sites.psu.edu/swabmaps/2014/03/28/good-and-bad-maps/

CARTOGRAPHY IN CREATIVE CLOUD

LITERATURE REVIEW

ECKERT 1909
Map Logic
The Nature of Maps (1908) "Generalized maps, and in fact all abstract maps, should be products of art clarified by science." "Art governed and determined by scientific laws"

GRIFFIN 2017
Visual hierarchy.
Psycho-physical map design experiments attempted to identify relationships between variations of symbology on a map, and measure how map users perceive these differences.

KRAAK 2017
"A strength of cartography might precisely mean to constantly adapt to societal and technological change, without compromising on fundamental cartographic values."

SLOCUM 2005
"Theory-driven cognitive research provides the basis from which a framework for designing methods can be developed."

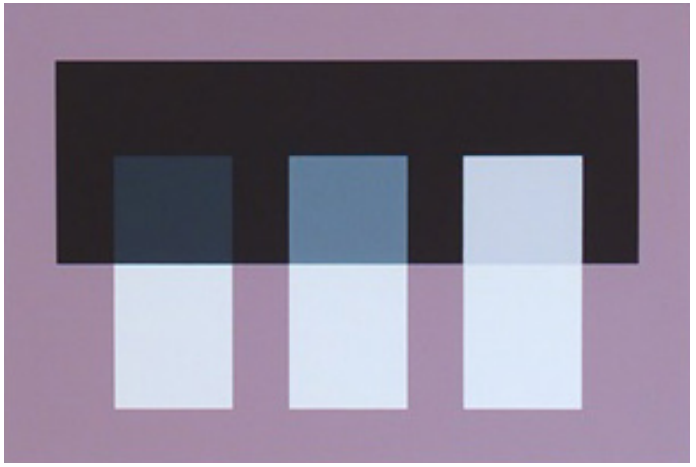
OTHERS:

DENNIS WOOD - Rethinking the Power of Maps, 2010

JILL DESIMINI - Cartographic Grounds, 2015

CYNTHIA BREWER - Designing Better Maps, 2015

JOSEF ALBERS - The Interaction of Color, 1953
"the creative process is the same secret in science as it is in art"



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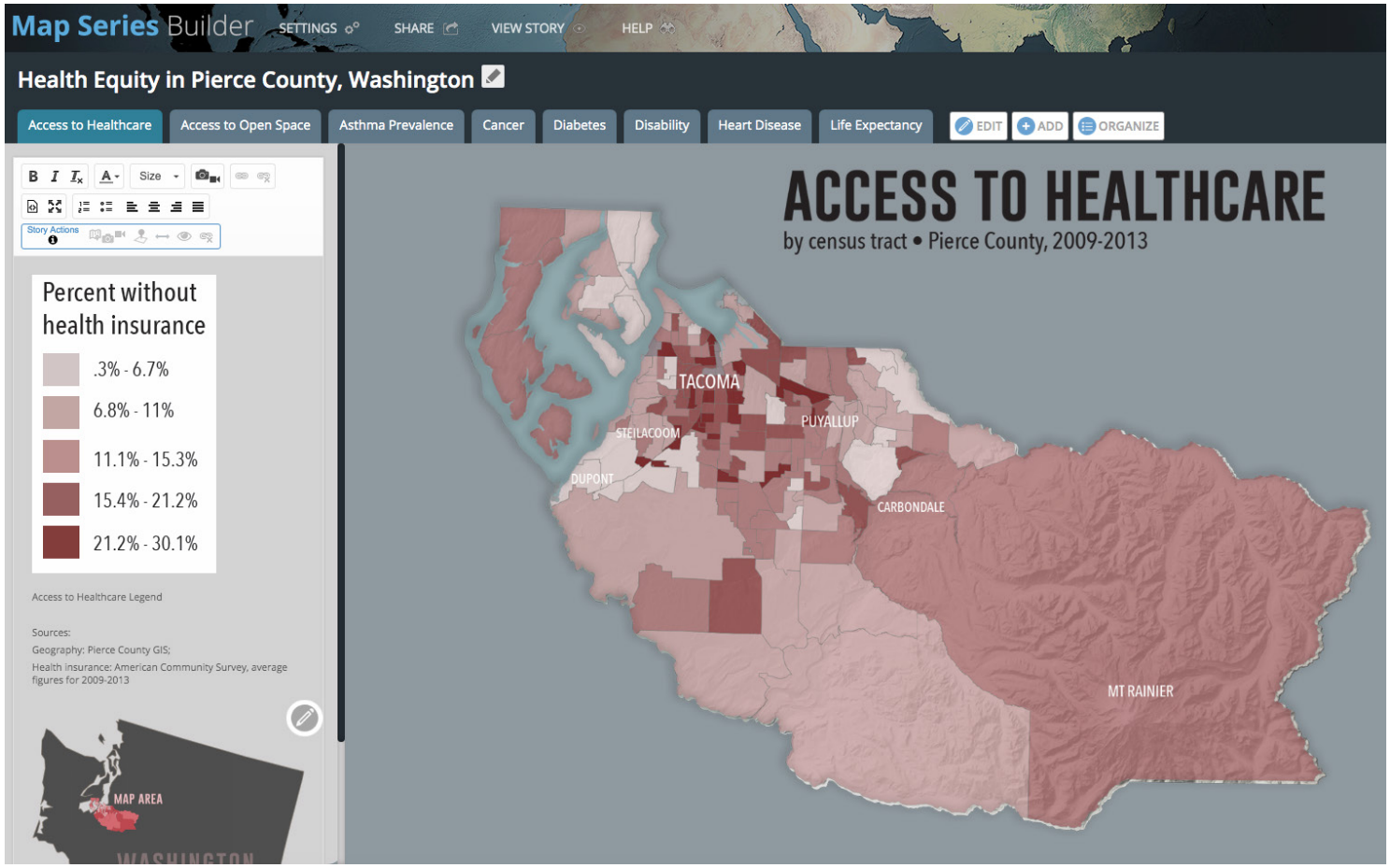
INTERVENTION

https://kzeeb11.github.io/capstone



INTERACTIVE MAP SERIES OF PIERCE COUNTY HEALTH EQUITY

Data from the WA State Dept. of Health revisualised and presented as a story map. Choropleth maps with updated styling and a proper color ramp.

Created referencing the current maps used by TP-CHD that exist as individual pdf files on their website.

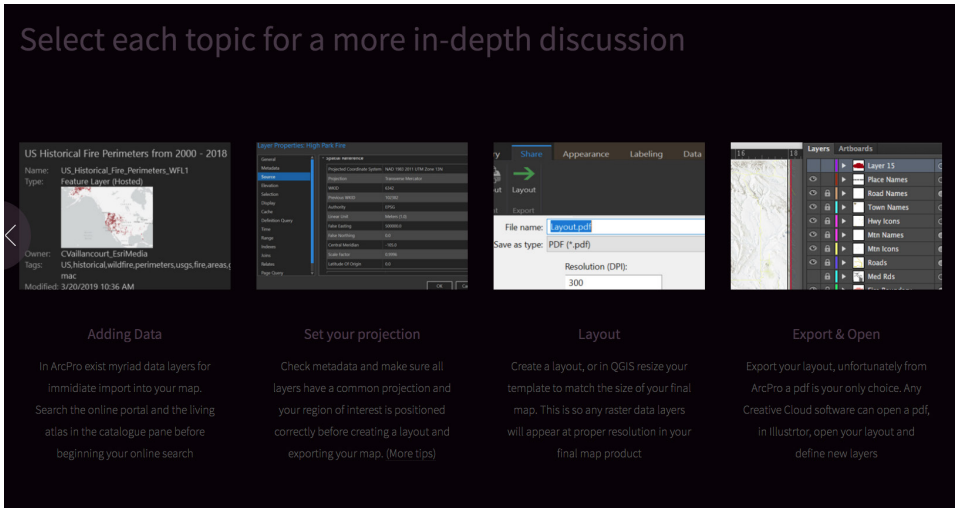
CARTOGRAPHY IN CREATIVE CLOUD

INTERVENTION

https://kzeeb11.github.io/capstone2

ONLINE TUTORIAL OF CARTOGRAPHIC TIPS AND TRICKS FOR CREATING A CARTOGRAPHICALLY SOUND MAP

Webpage featuring some simple graphic design theory presented as "how-tos" for some of the steps involved in making the High Park Fire map. Topics contain downloadable pdf reference sheets.



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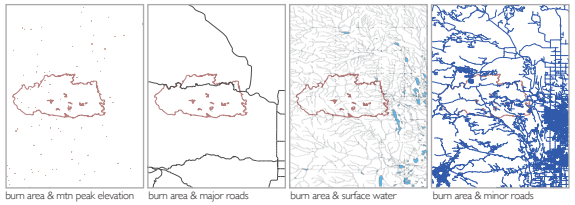
VECTOR GRAPHICS

ADOBE ILLUSTRATOR

Vector graphics are the lines and polygons of GIS. These features maintain their sharpness when resized, and save as smaller files.


burn area & mtn peak elevation | burn area & major roads | burn area & surface water | burn area & minor roads

TRANSPARENCIES

There are multiple options for applying transparencies that create visual hierarchy for the vector elements of your map.

STROKE

In the appearance pane, select apply stroke - this adds an additional stroke that can differentiate feature types or enhance the look of a line. This effect is used most often on highways

GLOW

The inner-glow effects is used on the water bodies of the High Park Fire map. The creates a gradient at the edge of a polygon and when used on water, gives an appearance of depth

GET TO KNOW THESE TOOLS:

PEN TOOL
The pen tool is an invaluable asset in Illustrator. Used to draw lines, curves, connect the disconnected, and trace graphics.

It takes some practice to create vertices with desired arcs but once you master the pen tool, you can draw (and re-draw rasters) with ease.

IMAGE TRACE
This function is used to make vector graphics (usually from raster) more manageable.

COLOR DROPPER
This tool allows for color matching and saving color swatches of imported graphics. Great for color consistency

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CARTOGRAPHY IN CREATIVE CLOUD

METHODS

INTERACTIVE MAP SERIES OF PIERCE COUNTY HEALTH EQUITY

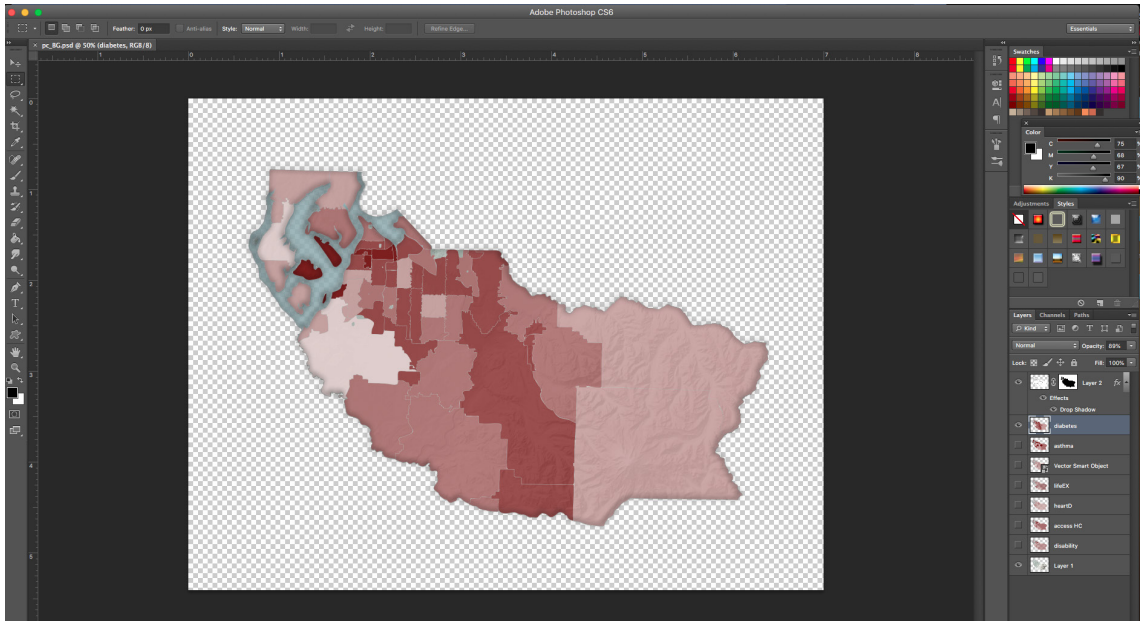
The data for these maps was sent to me by the Washington State Dept. of Health as shapefiles. It is the same data used by TPCHD for the maps that appear on their website.

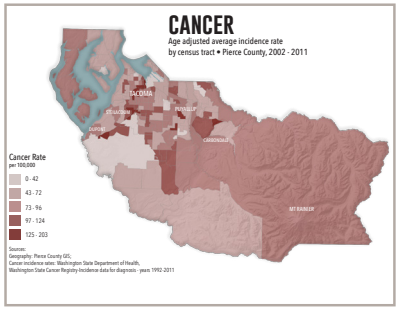
After exporting the shapefiles from ArcGIS Pro, each map was opened in Adobe Illustrator and a new sequential color ramp of tints of crimson hue was applied, and a glow effect applied to the water layer.

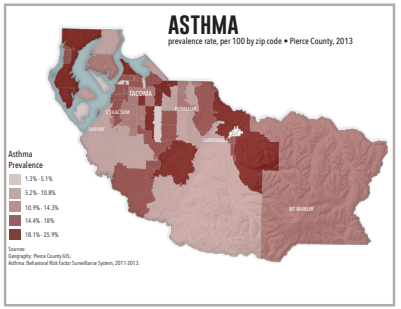
The maps were then placed in a template layout in Adobe InDesign where the title, legend and text were added.

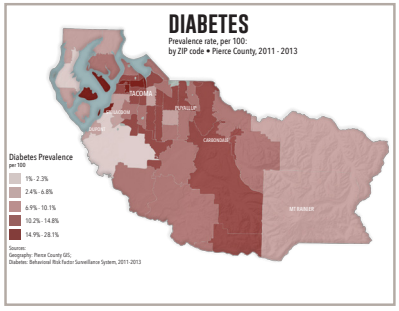
The maps were saved as pdfs, opened in Photoshop and exported as png files for use on the interactive online story map.

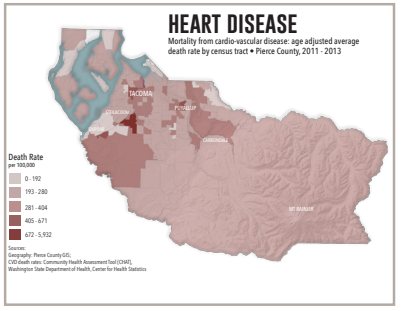
The story map was created at storymaps-classic.arcgis.com, and embedded in my webpage in an iframe.











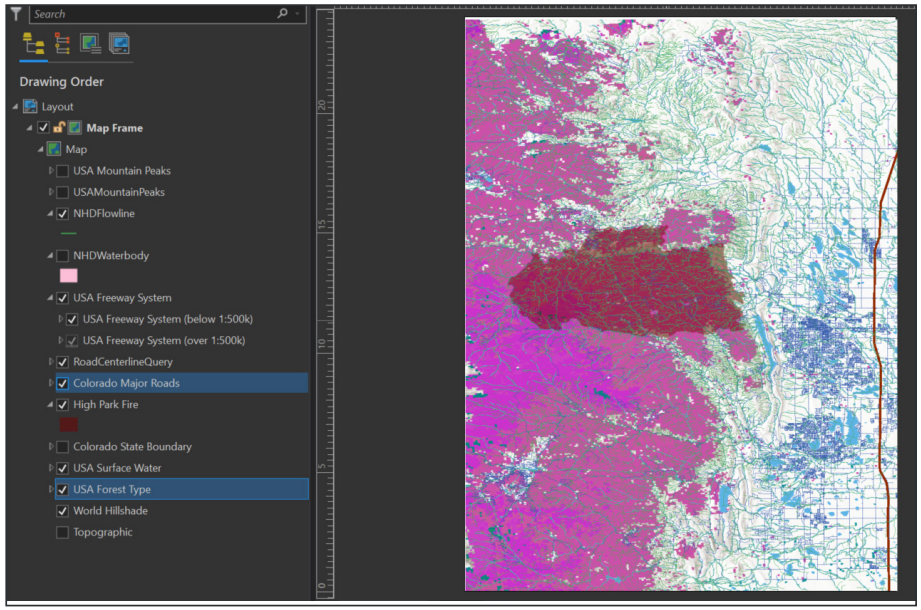
CARTOGRAPHY IN CREATIVE CLOUD

METHODS

HIGH PARK FIRE MAP TRICKS & TIPS

The data for this map was acquired through the ArcGIS Pro online portal and living atlas. The hydrology layer was acquired through the USGS National Map download.

The layers for this map were exported individually from ArcGIS Pro and styled in Illustrator and Photoshop. Effects were applied to the layers, and they were assembled in Photoshop and the layout completed in InDesign.



Cartographic logic, and design tenets of color, visual variables and visual hierarchy were considered and applied throughout the map-making process.

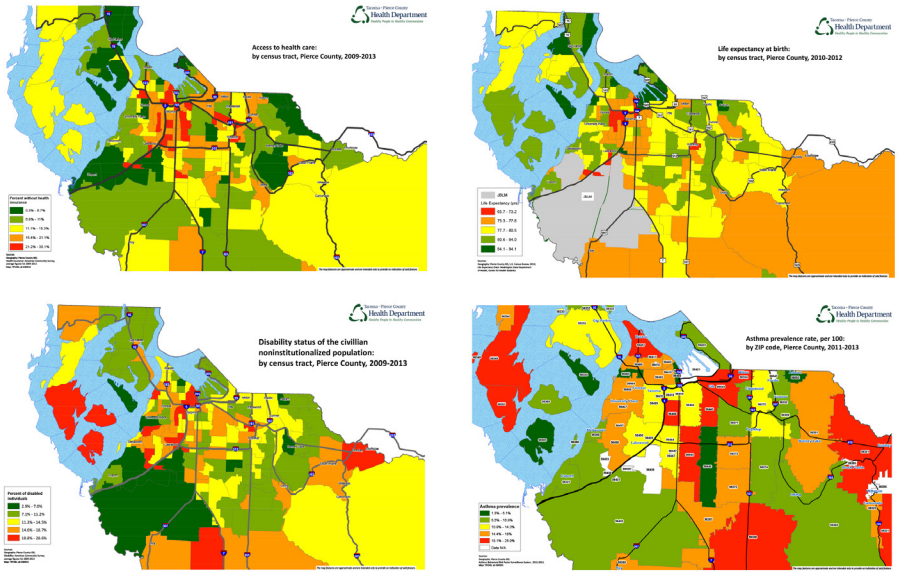
CARTOGRAPHY IN CREATIVE CLOUD

DISCUSSION

INTERACTIVE MAP SERIES OF PIERCE COUNTY HEALTH EQUITY

Through proper use of map logic, my series of health equity maps are exponentially more effective than their predecessors. A comparison for your consideration:

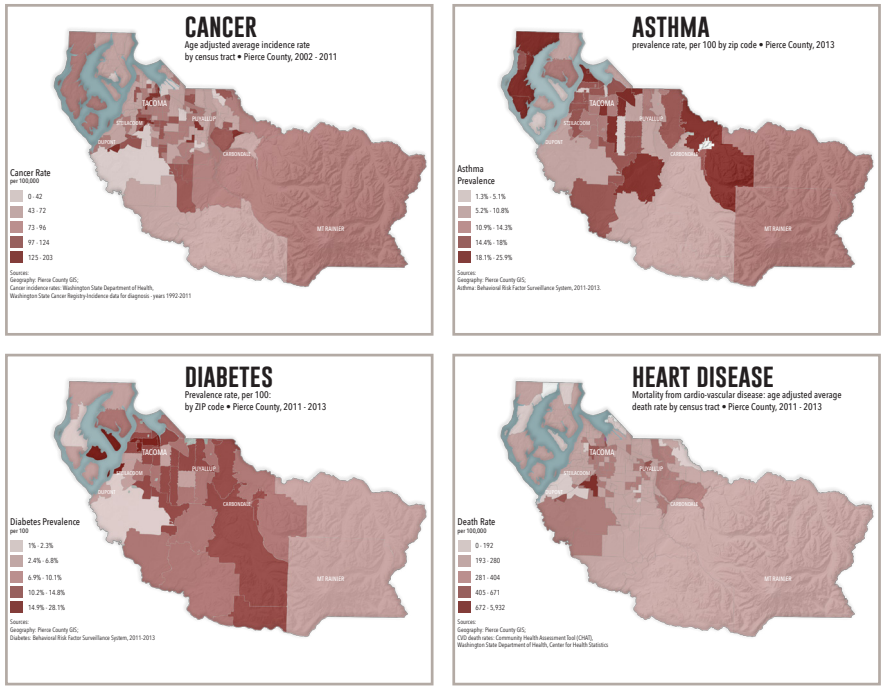
CURRENT MAP SERIES



OFFENDS IN EVERY WAY

- Nominal color ramp in green to red
- Title too small
- Bold, super contrast hurts my eyes
- Difficult to find on TPCHD website
- Impossible to compare
- No visual hierarchy
- Different projections
- No geographic reference
- Entire county not represented

NEW MAP SERIES



Basically 1,000x better

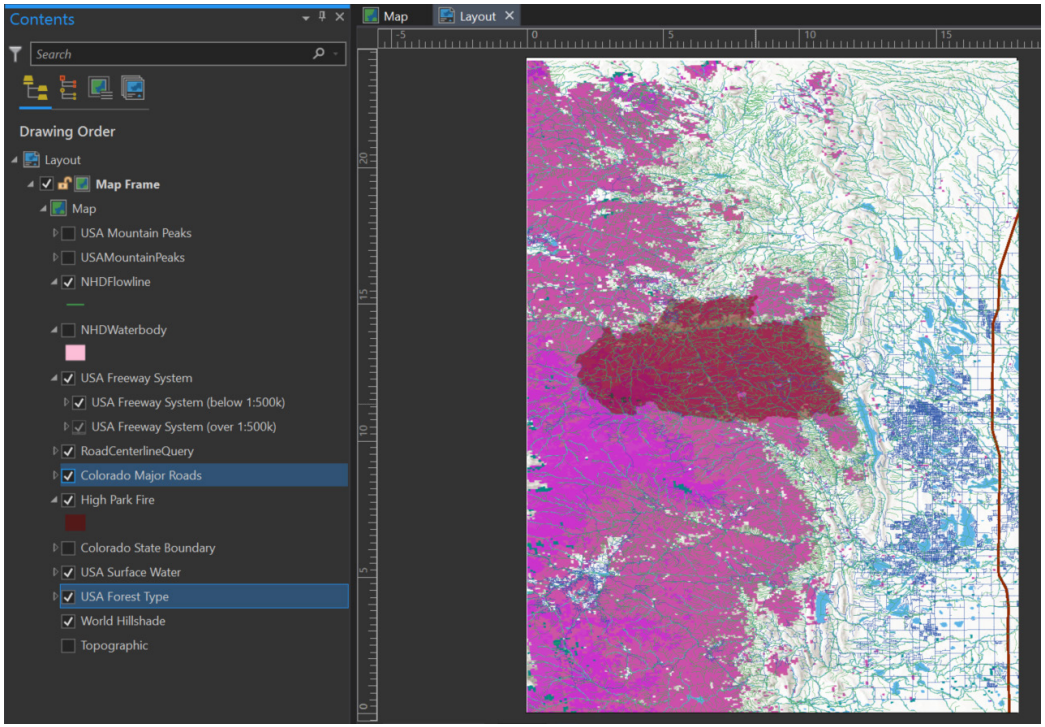
CARTOGRAPHY IN CREATIVE CLOUD

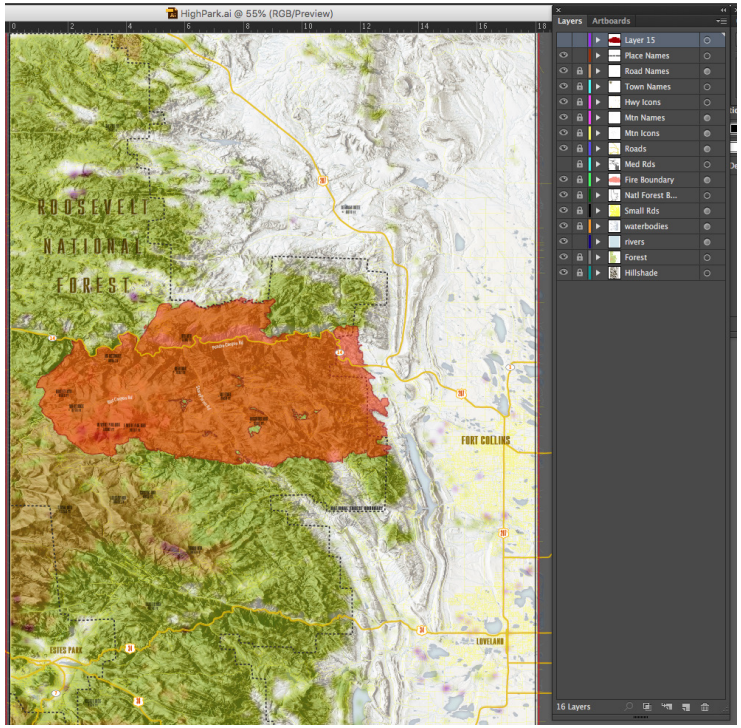
DISCUSSION

HIGH PARK FIRE MAP TRICKS & TIPS

The data layers as they appear in ArcGIS Pro, and after being styled and rendered in Adobe Creative Cloud.

Important functionality that exists only creative cloud contributed to an effective use of color, visual variables, and the visual hierarchy of this map such as: hue/saturation adjustment for the entire forest type layer, transparency and brightness on the hillshade layer, glow effect on the hydrology layer, additional stroke as a layer effect for the roads, and full label placement control.



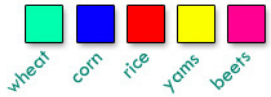


CARTOGRAPHY IN CREATIVE CLOUD

CONCLUSION

1 COLOR

Nominal Color Scheme



different hues that keep lightness and saturation constant should be used for nominal data (i.e., un-orderable categories, not numerical data).

Sequential Color Scheme

any sequence that is dominated by changes in lightness can be used with orderable (rankable) categories (low/med/high) or with numerical data.

Diverging Color Scheme

any numerical data that can be divided meaningful at a mid-point (e.g., national average, zero) can use a diverging scheme: the data are split in two around the lightest, middle color/class.

2 VISUAL VARIABLES

3 VISUAL HIERARCHY

- Find Your Focus
- Direct the Eye
- Scale and Hierarchy
- Balance
- Use Complimentary Elements
- Contrast
- Repeat Elements of Your Design
- White Space
- Alignment

CARTOGRAPHY IN CREATIVE CLOUD

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