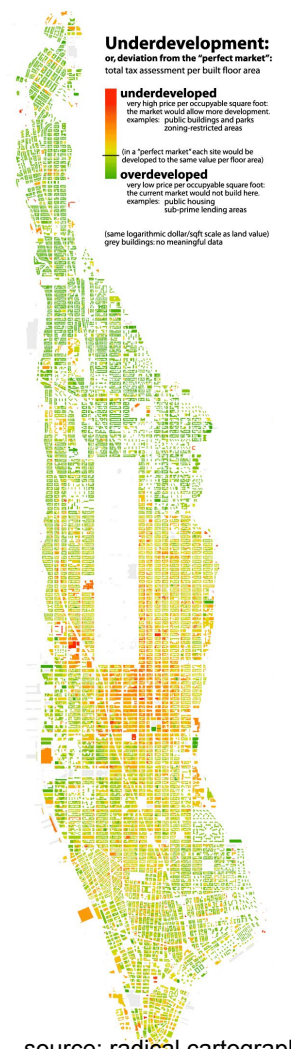


QGIS TUTORIAL

source: radical cartography

OBJECTIVES

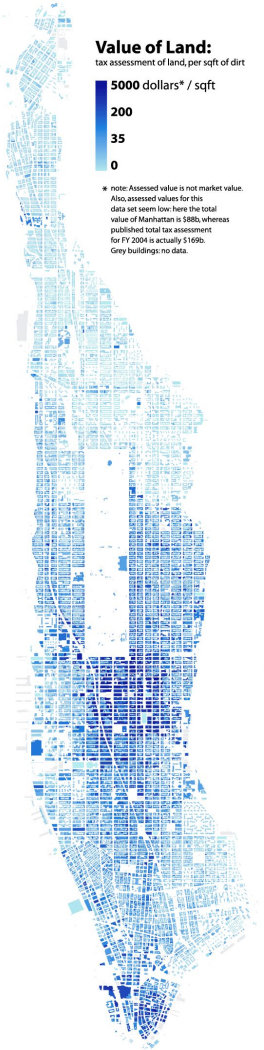
1. understand the main uses of GIS technologies, types of data involved, and ways the three dimensional world is projected onto two dimensional surfaces.

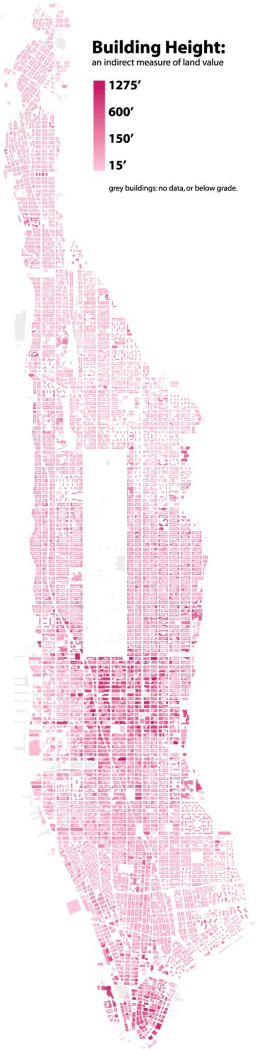
2. become familiar with QGIS software.

3. become familiar with the basic conventions of map-making and map legibility.

4. learn to access, download and display spatial data.

5. learn basic analysis in QGIS, and how to export map layouts.





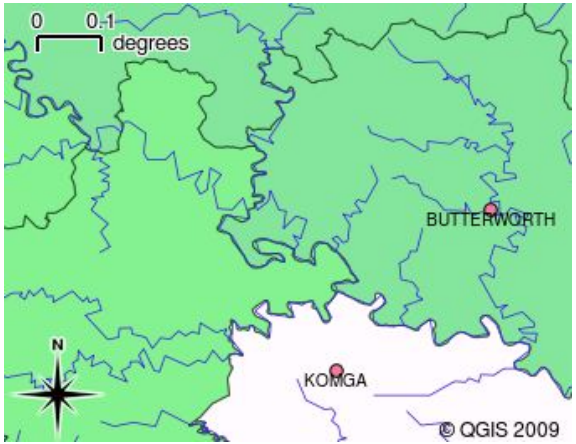
WHAT IS GIS? WHY IS IT USEFUL?

“Just as we use a word processor to write documents and deal with words on a computer, we can use a **GIS application** to deal with **spatial information** on a computer. GIS stands for **‘Geographical Information System’**.”

Different ways students use GIS data - environmental sciences, biology, sustainable development, urban studies, architecture, history, and economics.

First rule of geography:
"Everything is related to everything else, but near things are more related than distant things."

TYPES OF DATA



VECTOR DATA
read as a shapefile, .shp
or a feature class in a .gdb

RASTER DATA
can be an image like a .tif,
or even a .jpg

Table

Parcels

FID	Parcel ID	Zoning	Address	Zip Code	State	Tax Region
0	8618308030	Residential	7228 STREAMSIDE DR	80525	CO	2101
1	9624125001	Residential	7605 S COUNTY RD 13	80527	CO	2019
2	8618306004	Residential	7318 SILVER MOON LN	80525	CO	2101
3	8618306026	Residential	7319 SILVER MOON LN	80525	CO	2101
4	8618405075	Residential	1655 STREAMSIDE DR	80525	CO	2100
5	8618308052	Residential	1300 STREAMSIDE CT	80525	CO	2101
6	8618308032	Residential	7312 STREAMSIDE DR	80525	CO	2101
7	8618310073	Residential	1606 GREENSTONE TR	80525	CO	2100
8	8618306015	Residential	1401 WHITE PEAK CT	80525	CO	2101
9	8618306014	Residential	7507 GREENSTONE TR	80525	CO	2101
10	8618308042	Residential	7514 GOLD HILL CT	80525	CO	2101
11	8618308043	Residential	7515 GOLD HILL CT	80525	CO	2101
12	8618308062	Residential	7119 SILVER MOON LN	80525	CO	2101

0 (0 out of 287 Selected)

Parcels

TABULAR DATA
excel sheets, .csv,

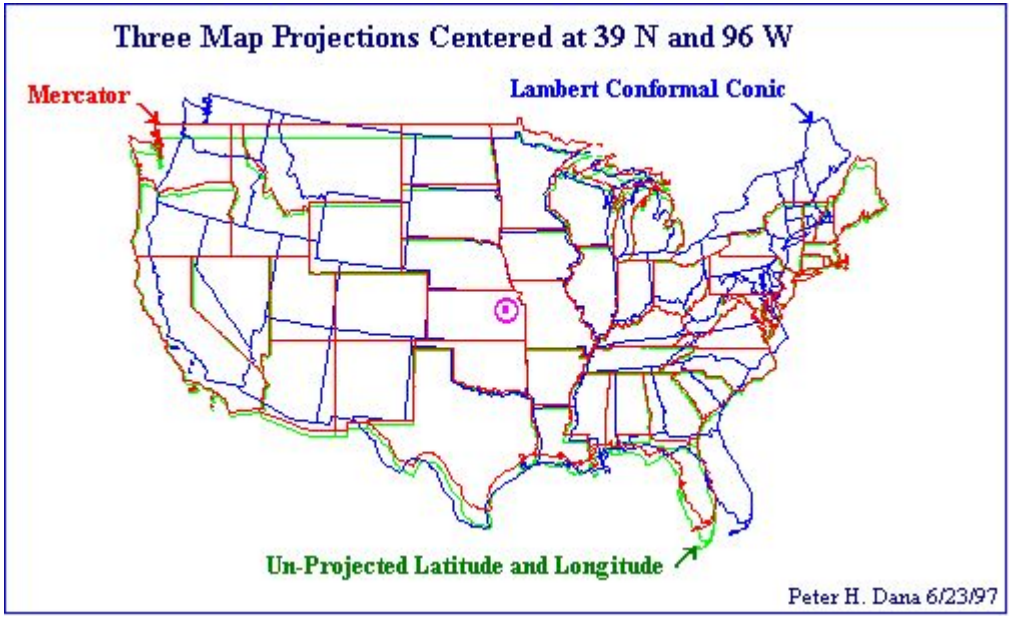
SHP

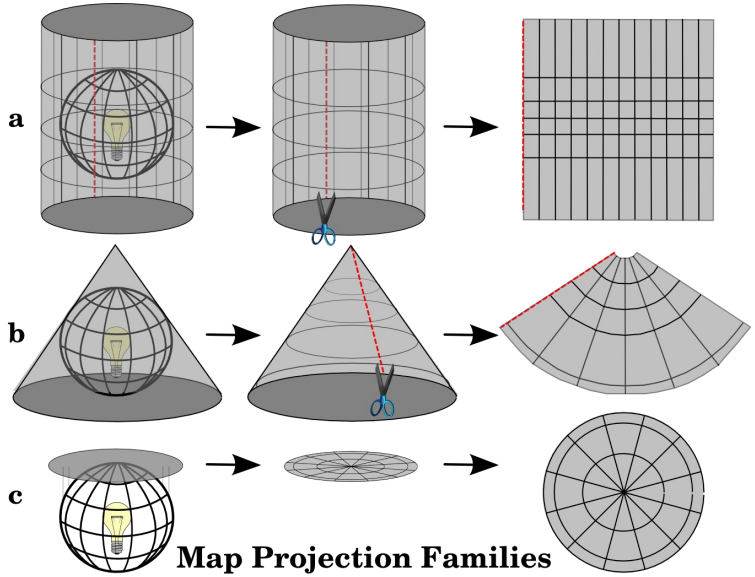
DBF

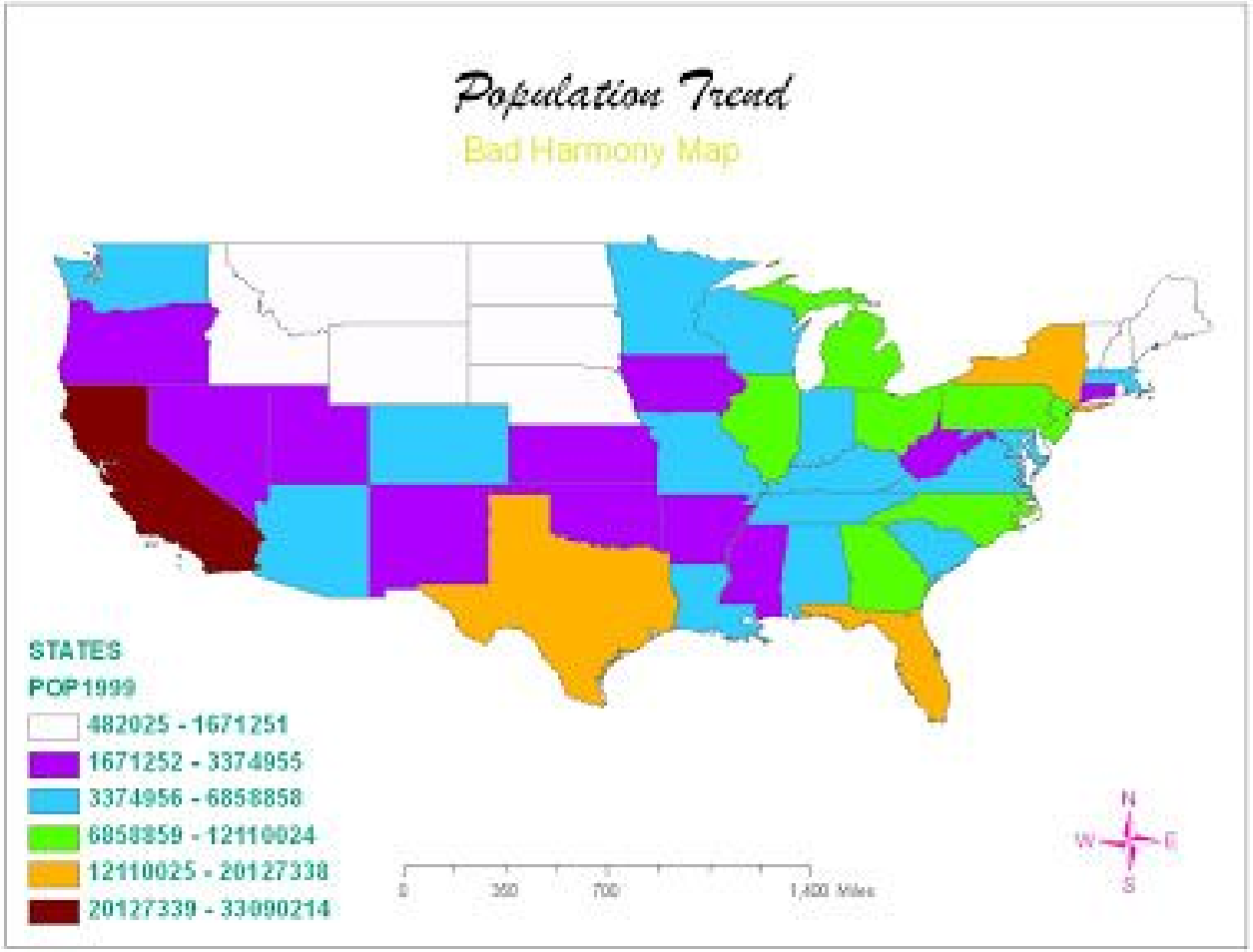
SHX

PRJ

PROJECTIONS + COORDINATE SYSTEMS

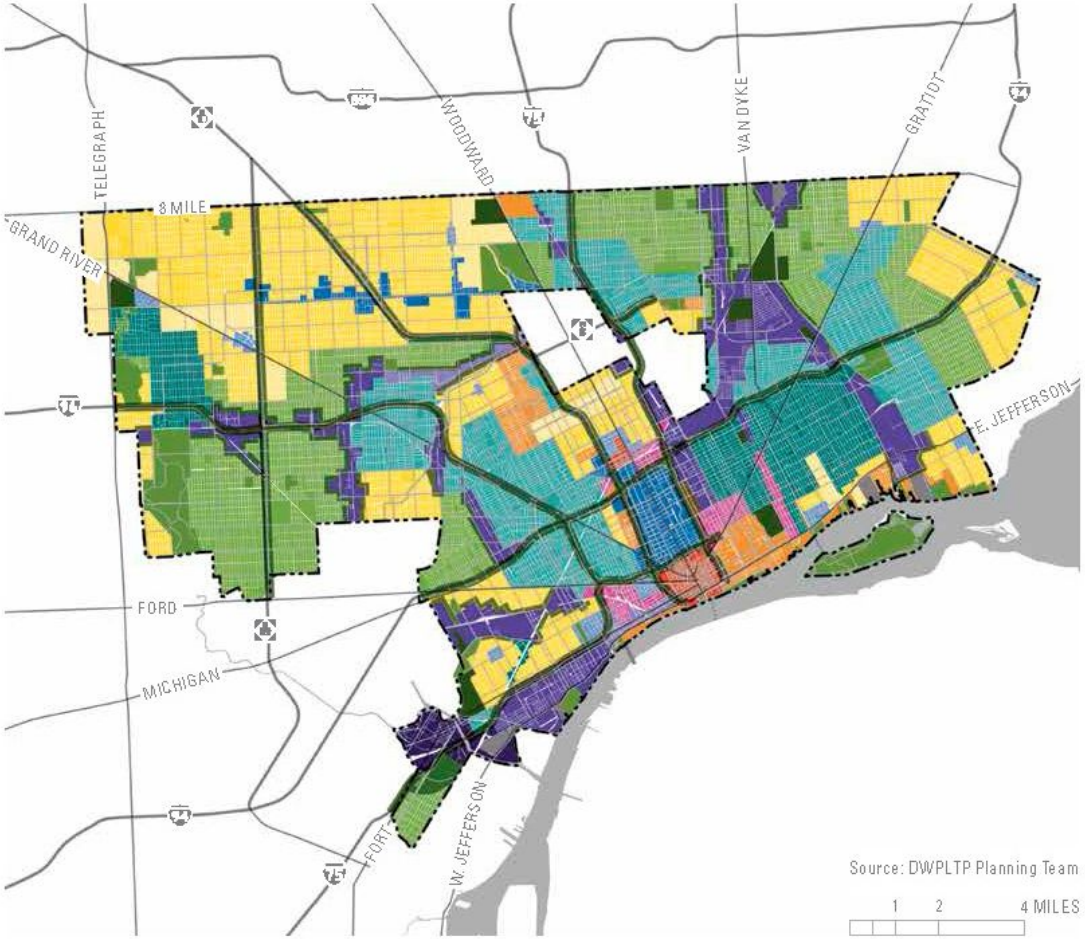






WHEN MAPS LIE

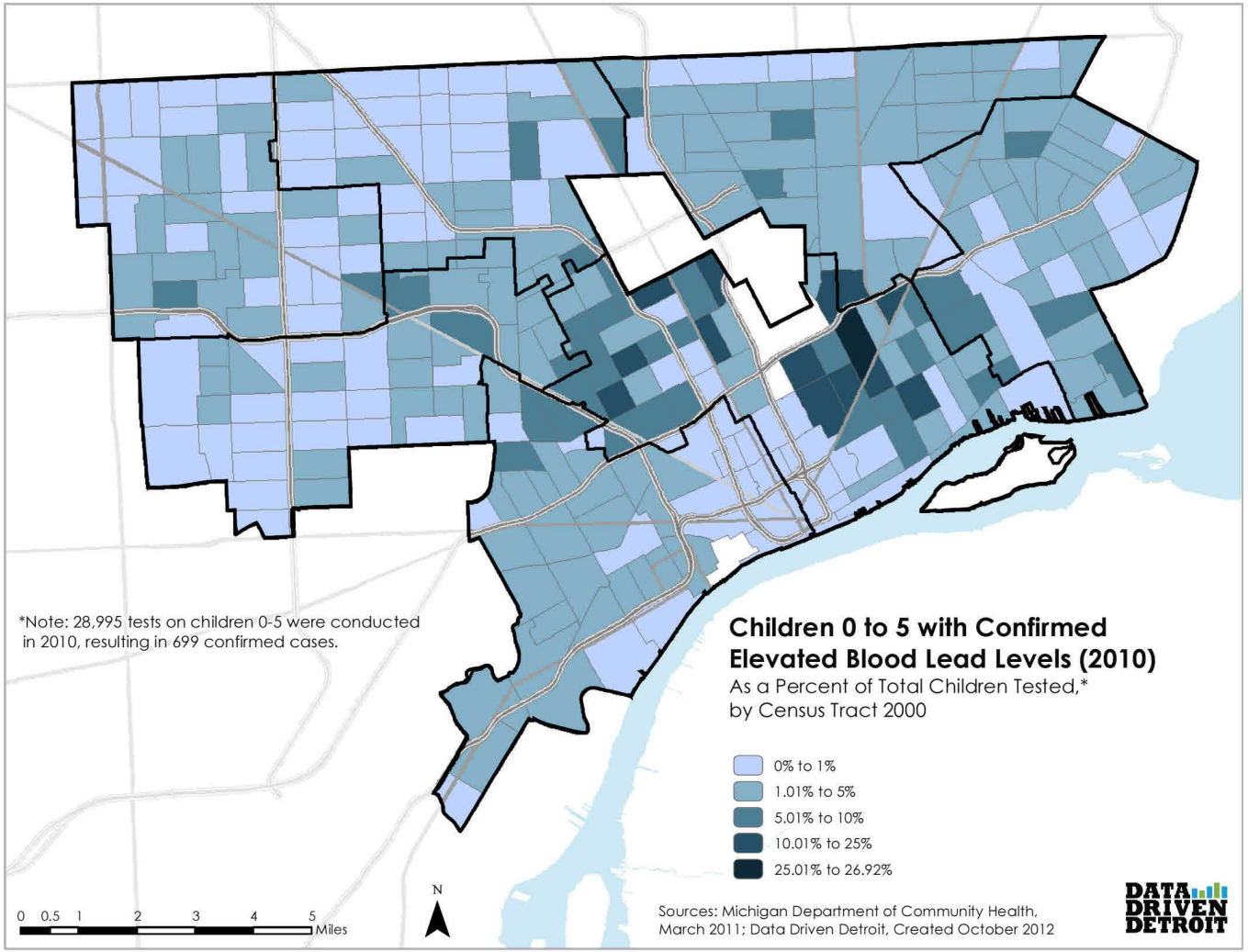
WHAT COMPONENTS MAKE A MAP?

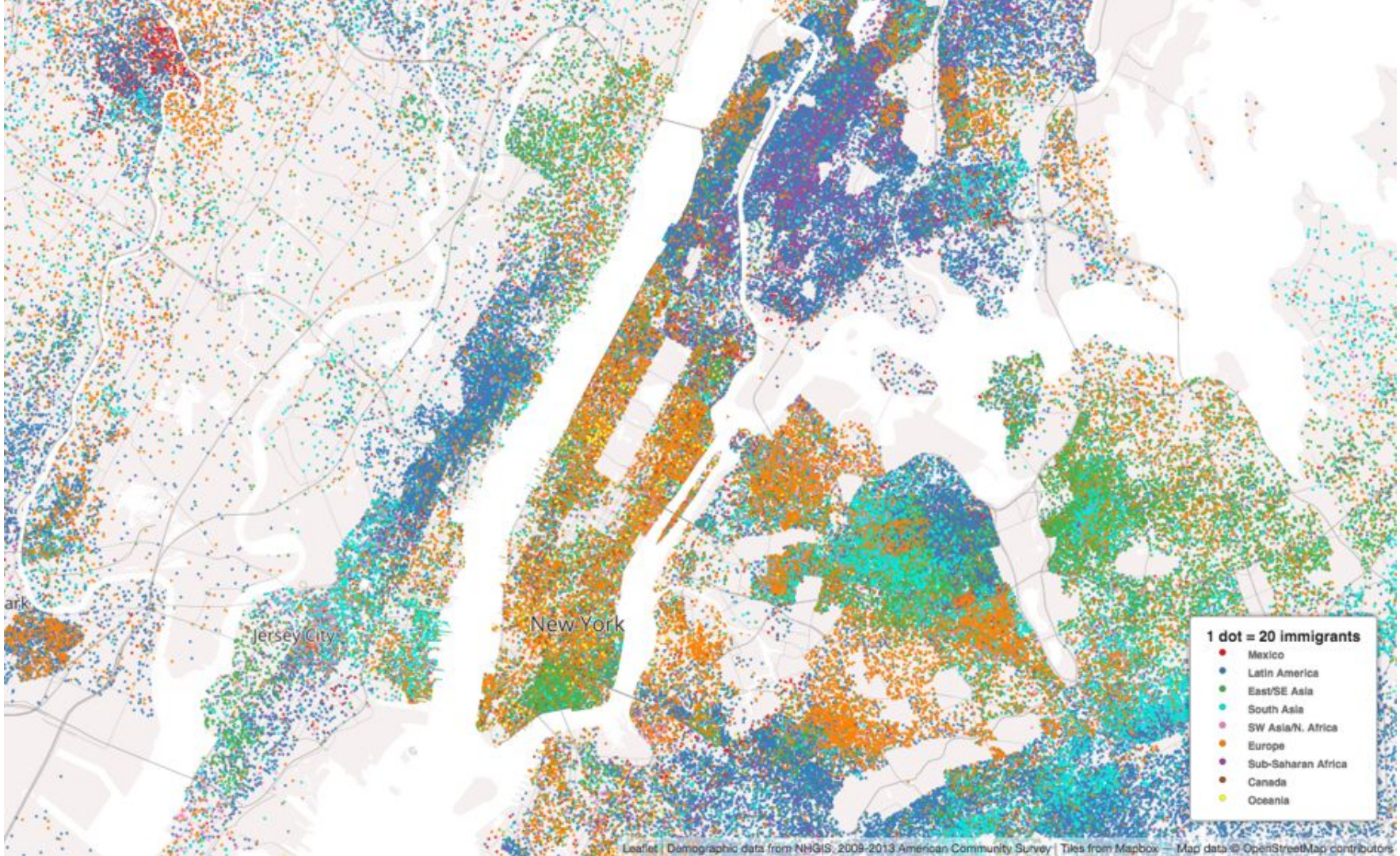


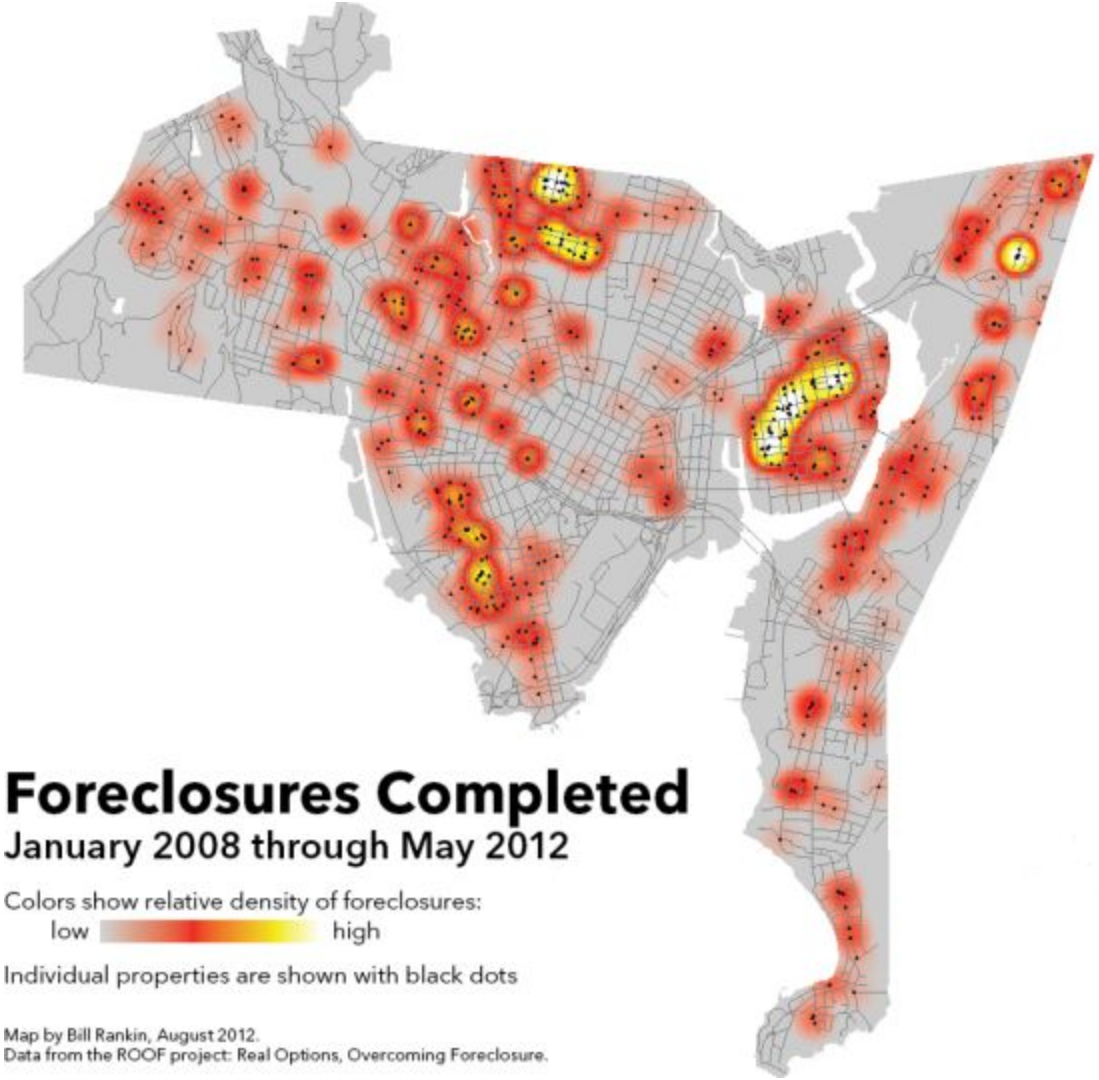
50-YEAR LAND USE SCENARIO

- CITY CENTER
- DISTRICT CENTER
- NEIGHBORHOOD CENTER
- GREEN MIXED-RISE
- TRADITIONAL MEDIUM
- TRADITIONAL LOW
- LIVE+MAKE
- HEAVY INDUSTRIAL
- UTILITIES
- GENERAL INDUSTRIAL
- LIGHT INDUSTRIAL
- GREEN RESIDENTIAL
- INNOVATION PRODUCTIVE
- INNOVATION ECOLOGICAL
- LARGE PARK
- CEMETERY
- GREEN BUFFER

The 50-year land use scenario is built from the land use typologies. There are three major categories of land use typologies: Neighborhoods, Industrial, and Landscape. Within each of these major categories is a range of potential typologies, each providing the vision for returning vacant land to productive uses.


*Note: 28,995 tests on children 0-5 were conducted in 2010, resulting in 699 confirmed cases.
Children 0 to 5 with Confirmed Elevated Blood Lead Levels (2010)
As a Percent of Total Children Tested,* by Census Tract 2000
0% to 1%
1.01% to 5%
5.01% to 10%
10.01% to 25%
25.01% to 26.92%
0 0.5 1 2 3 4 5 Miles
N
Sources: Michigan Department of Community Health, March 2011; Data Driven Detroit, Created October 2012
DATA DRIVEN DETROIT


New York
Jersey City
1 dot = 20 immigrants
Mexico
Latin America
East/SE Asia
South Asia
SW Asia/N. Africa
Europe
Sub-Saharan Africa
Canada
Oceania
Leaflet | Demographic data from NHGIS, 2009-2013 American Community Survey | Tiles from Mapbox — Map data © OpenStreetMap contributors



source:
campaign
mapping

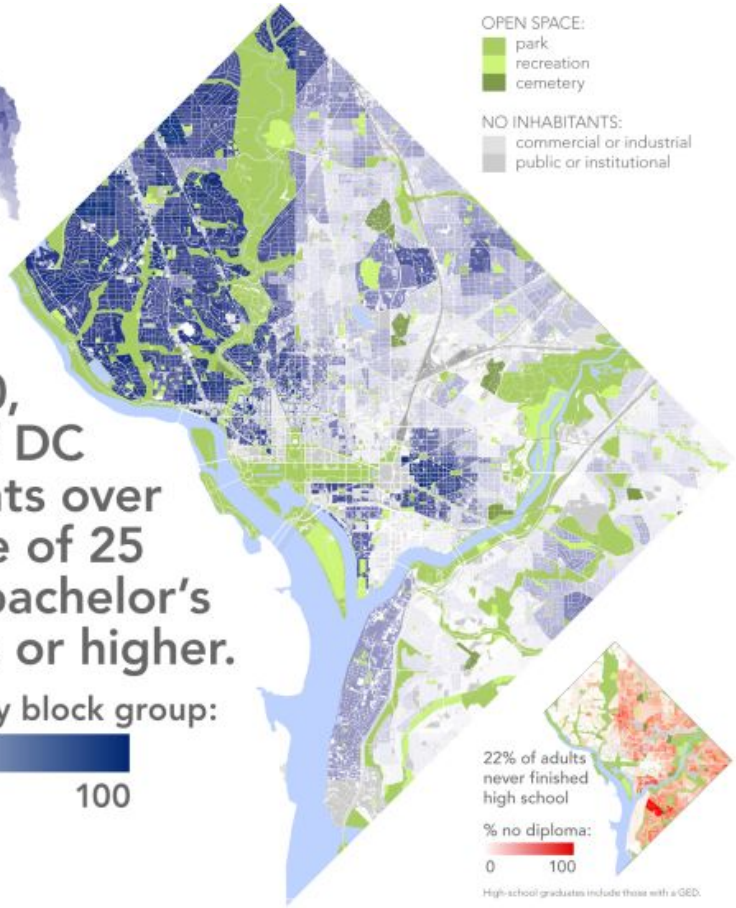
Surrounding counties

percent with degree:
Prince George's: 27%
Montgomery: 55%
Arling / Alex: 58%
Fairfax: 55%

in 2000, 39% of DC residents over the age of 25 had a bachelor's degree or higher.

percent, by block group:

0 100



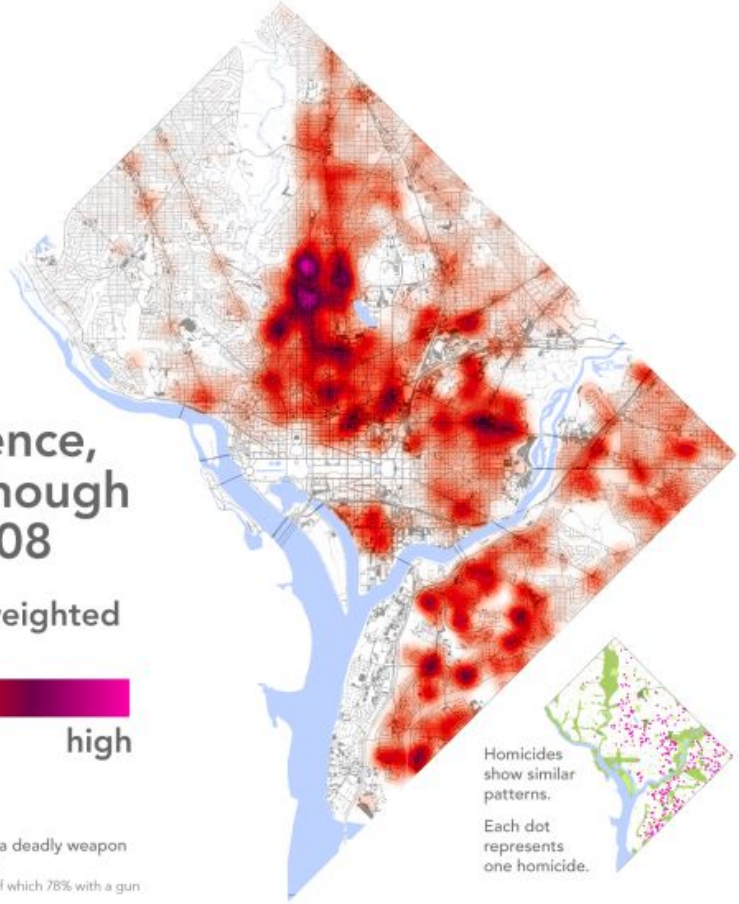
High-school graduates include those with a GED.

crimes of violence, 2006 though mid-2008

distance-weighted intensity:

low high

Of violent crimes,
53% are robberies
41% are assaults with a deadly weapon
5% are sexual abuse
2% are homicides – of which 78% with a gun



MAP ELEMENTS

TITLE - DESCRIPTIVE

DATA SOURCE

CLEAR LEGEND - WITH EXPLANATION

SCALE BAR - IN UNITS THAT MAKE SENSE]

NORTH ARROW - AT AN APPROPRIATE SIZE

PROPERLY PROJECTED MAP

ANY NECESSARY LABELS

Now, we will:

Open QGIS Desktop, and bring in our datasets.

Join our vector data and our tabular data.

Visualize variables.

Learn how to utilize the attribute table.

Learn how to export a map as a PDF/Image.