



# Using GIS to Improve Animal Welfare in Virginia

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# Overview

- ▶ Why am I doing this project?
- ▶ Two aspects of the project
  - ▶ 1. Chained dogs
    - ▶ Why people chain
    - ▶ State of current laws
    - ▶ How data helps
    - ▶ Smartphone application
  - ▶ 2. Dogs in custody
    - ▶ Factors
    - ▶ Reasons for custody
    - ▶ Disposition

# Chained dogs

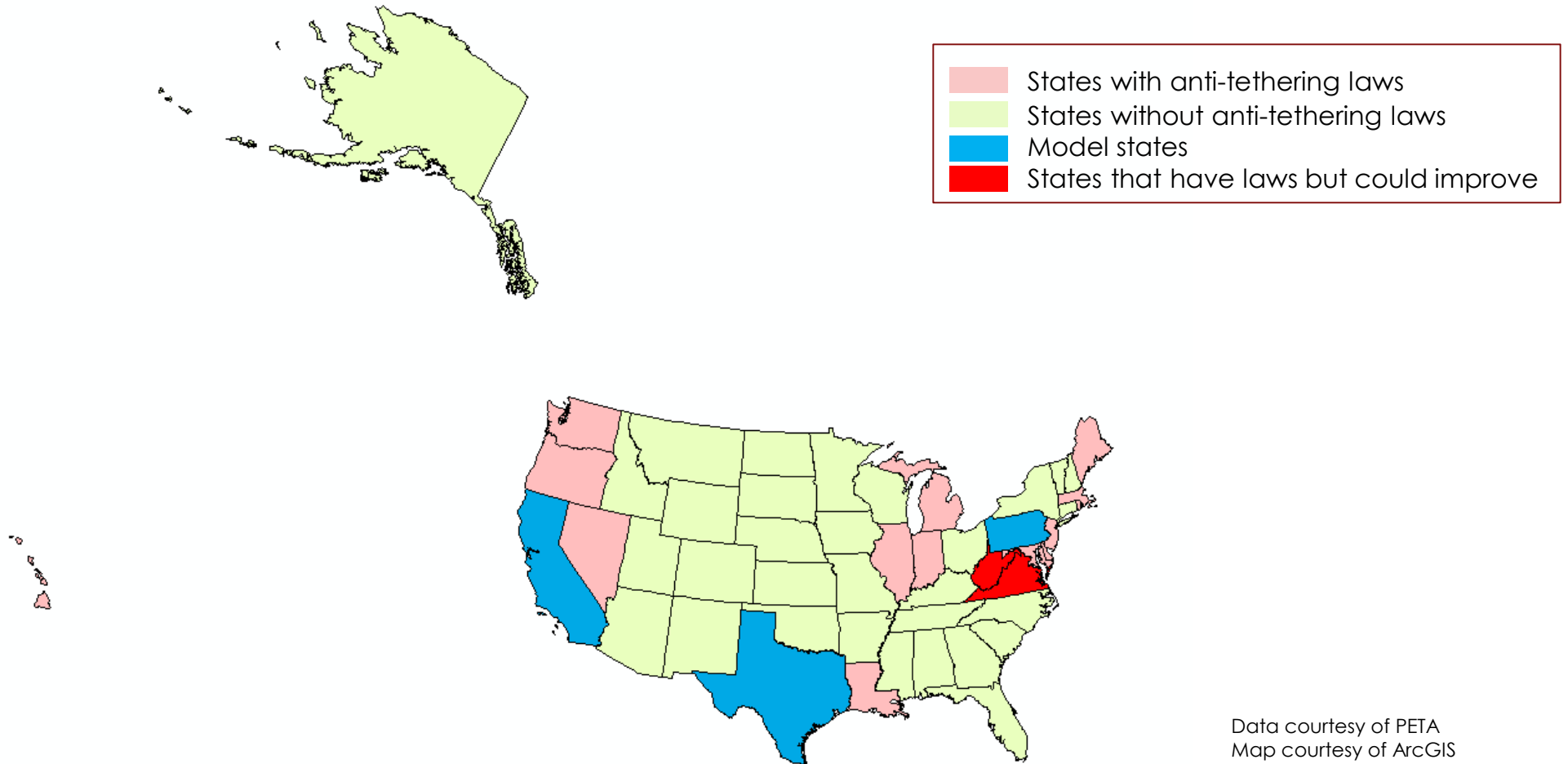


# Reasons people chain their dogs

- ▶ “Protection”
- ▶ Bad behavior
- ▶ Runs away / escapes
- ▶ New partner who doesn't like / allergic
- ▶ Doesn't get along with other pets
- ▶ Aggressive behavior



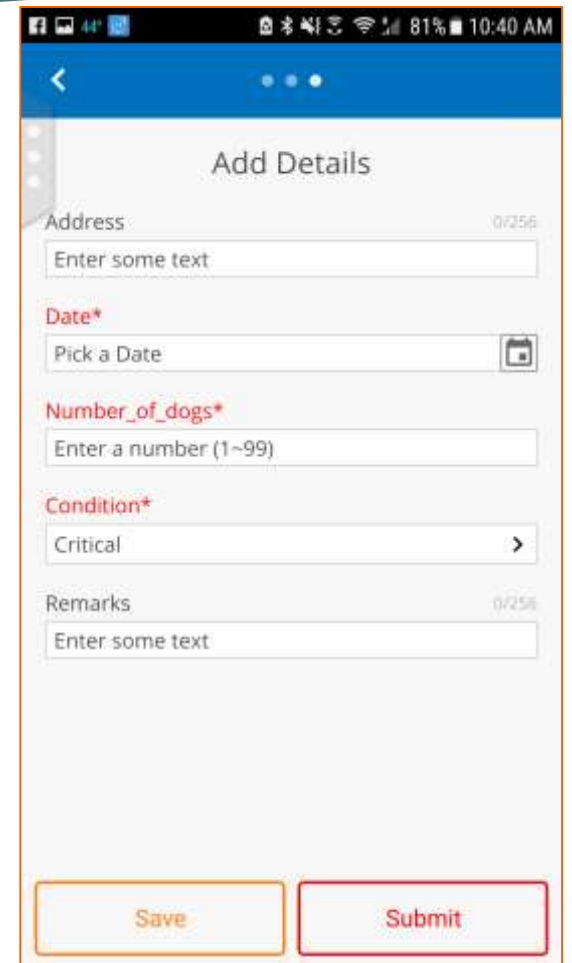
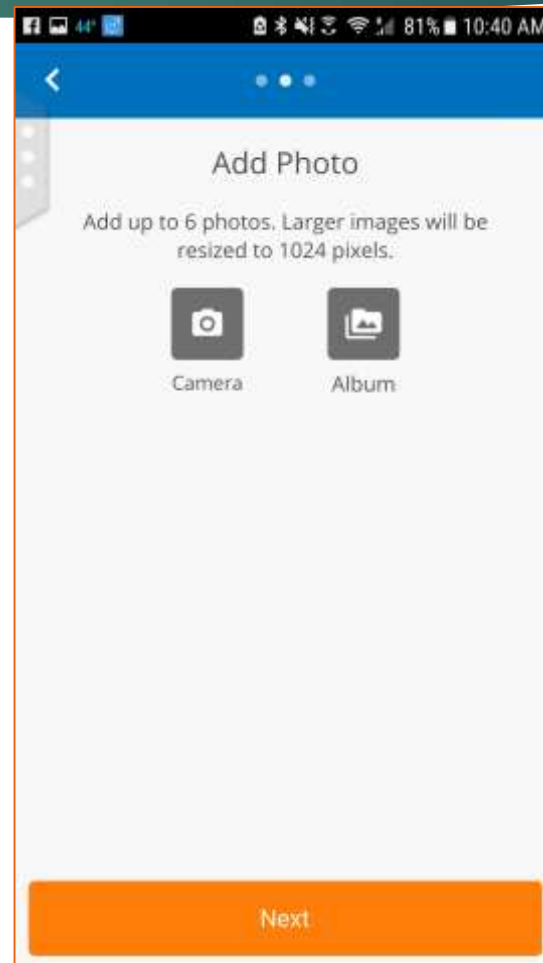
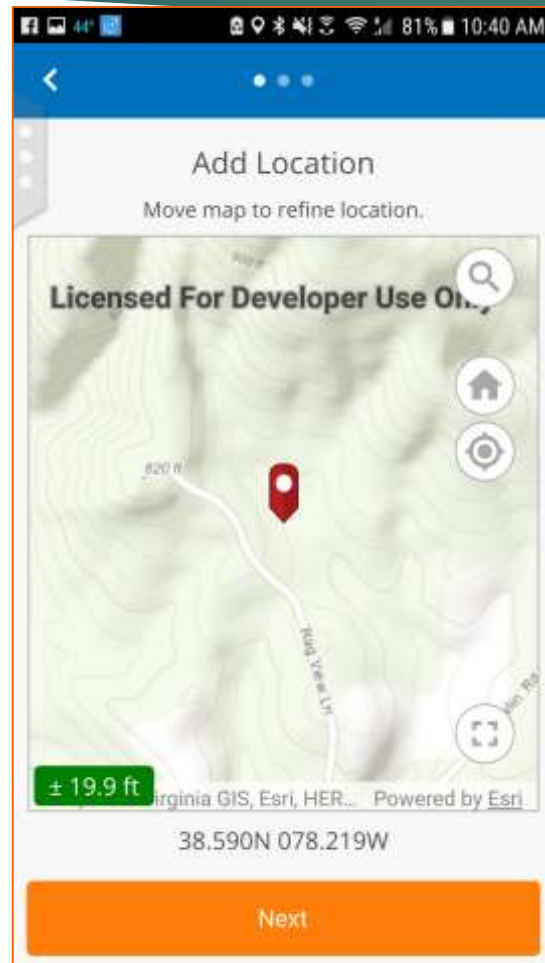
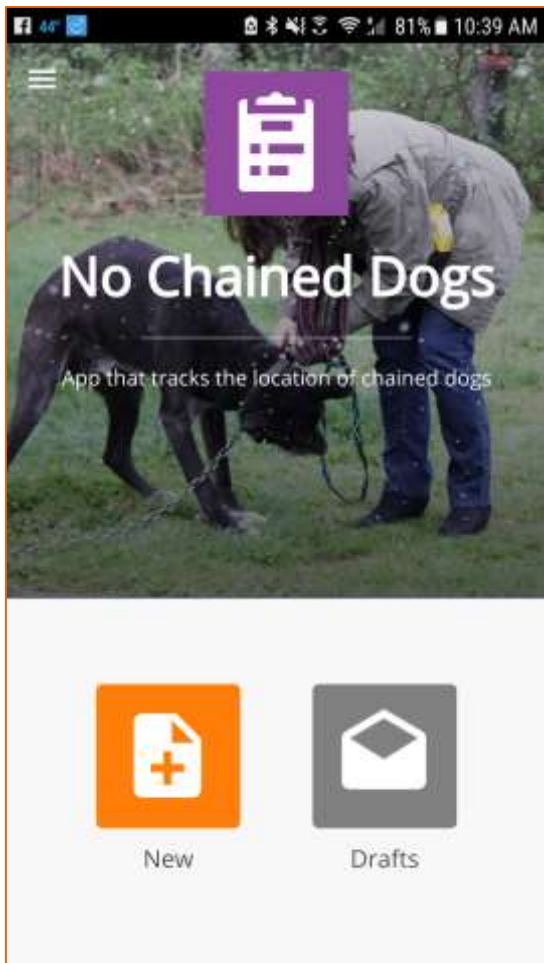
# State of current anti-tethering laws



# Legislation

- ▶ How can data help?
- ▶ Who would use the data?
- ▶ To whom would the data be presented?

# No Chained Dog Application

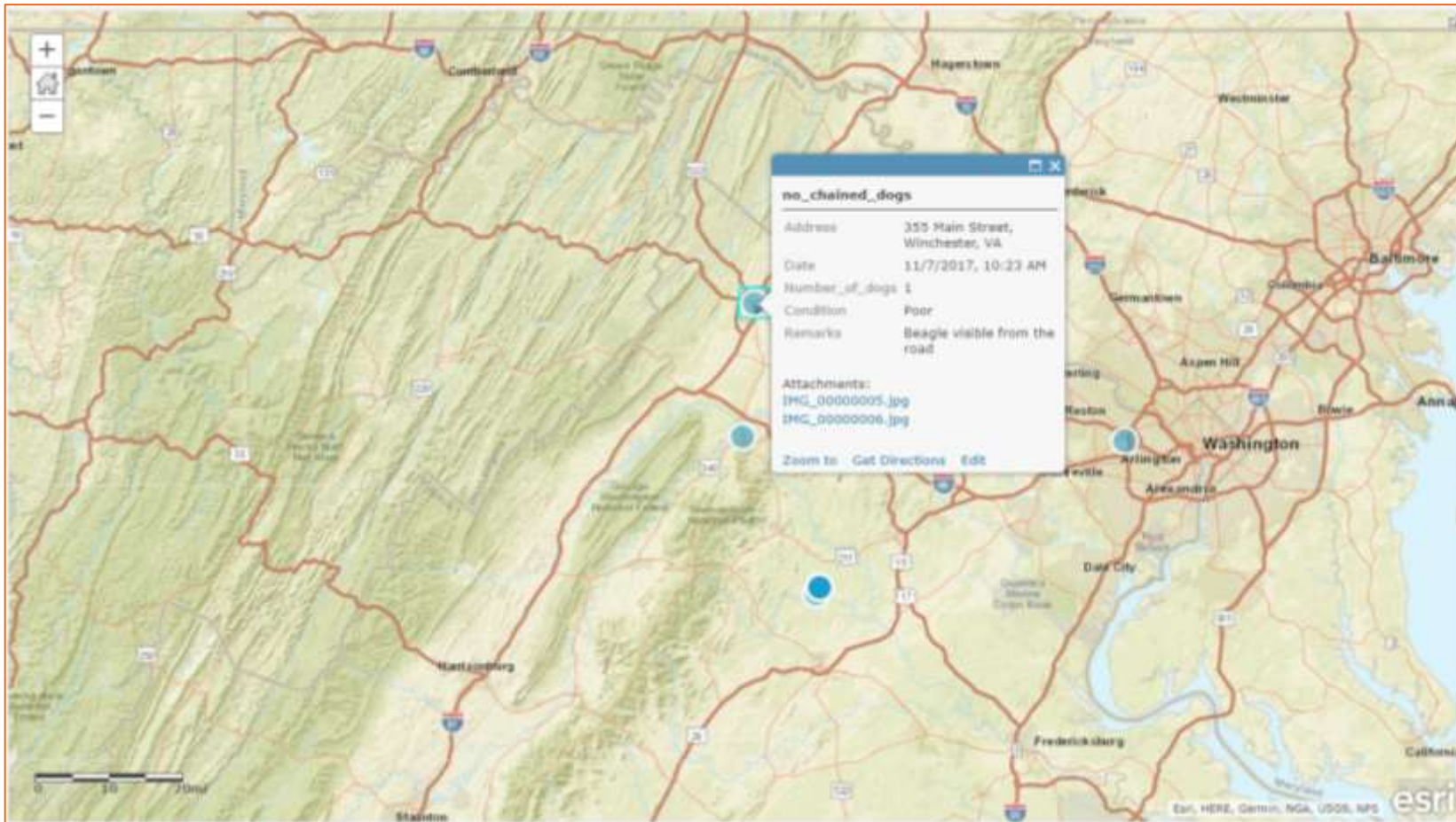




# No Chained Dog Application Output



# No Chained Dog Application Detail



# No Chained Dog Application Image



# Ethics / Privacy Concerns

- ▶ No personal data released to general public
- ▶ No addresses will be collected.
- ▶ Pictures showing people will be removed
- ▶ Database will be designed to be searchable by public for general statistics

# Issues to be addressed

- ▶ Application still not able to be made public
- ▶ Progress using ArcGIS stopped
- ▶ Will switch to open source option if necessary

# Dogs in custody



# Factors

- ▶ Factors possibly affecting treatment of dogs in Virginia.
  - ▶ Per capita
  - ▶ Population
- ▶ Shelter data retrieved from the Virginia Department of Agriculture and Consumer Services (VDACS)

# Reasons for custody

- ▶ Stray
- ▶ Seized
- ▶ Surrendered by owner
- ▶ Received from another in-state agency
- ▶ Received from out-of-state agency
- ▶ Bite case / Quarantine
- ▶ Miscellaneous (i.e. dogs born in custody)



# Reasons dogs are no longer in custody

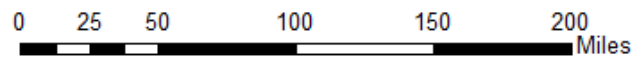
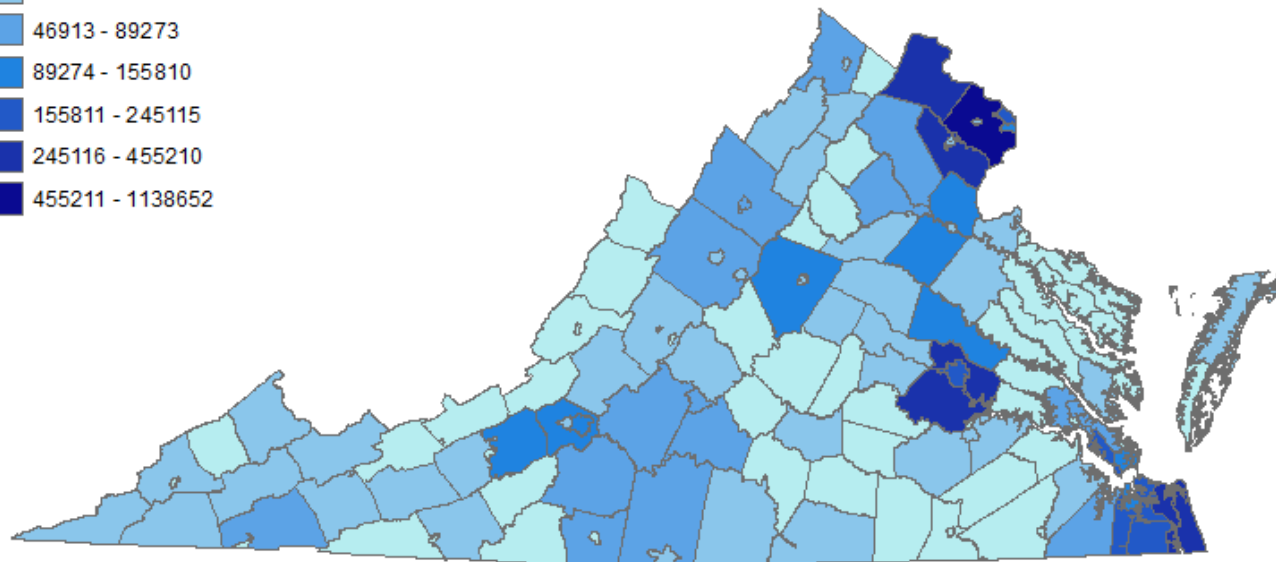
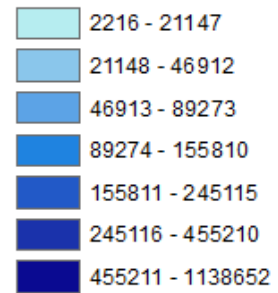
- ▶ Positive outcome
  - ▶ Reclaimed by owner
  - ▶ Adopted
- ▶ Negative outcome
  - ▶ Died in custody
  - ▶ Euthanization
- ▶ Neutral
  - ▶ Transferred to another in-state agency
  - ▶ Transferred to an out-of-state agency

# Population

## Virginia Population by County

VA\_COUNTY

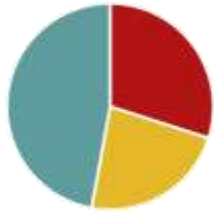
Est. 2016 Population



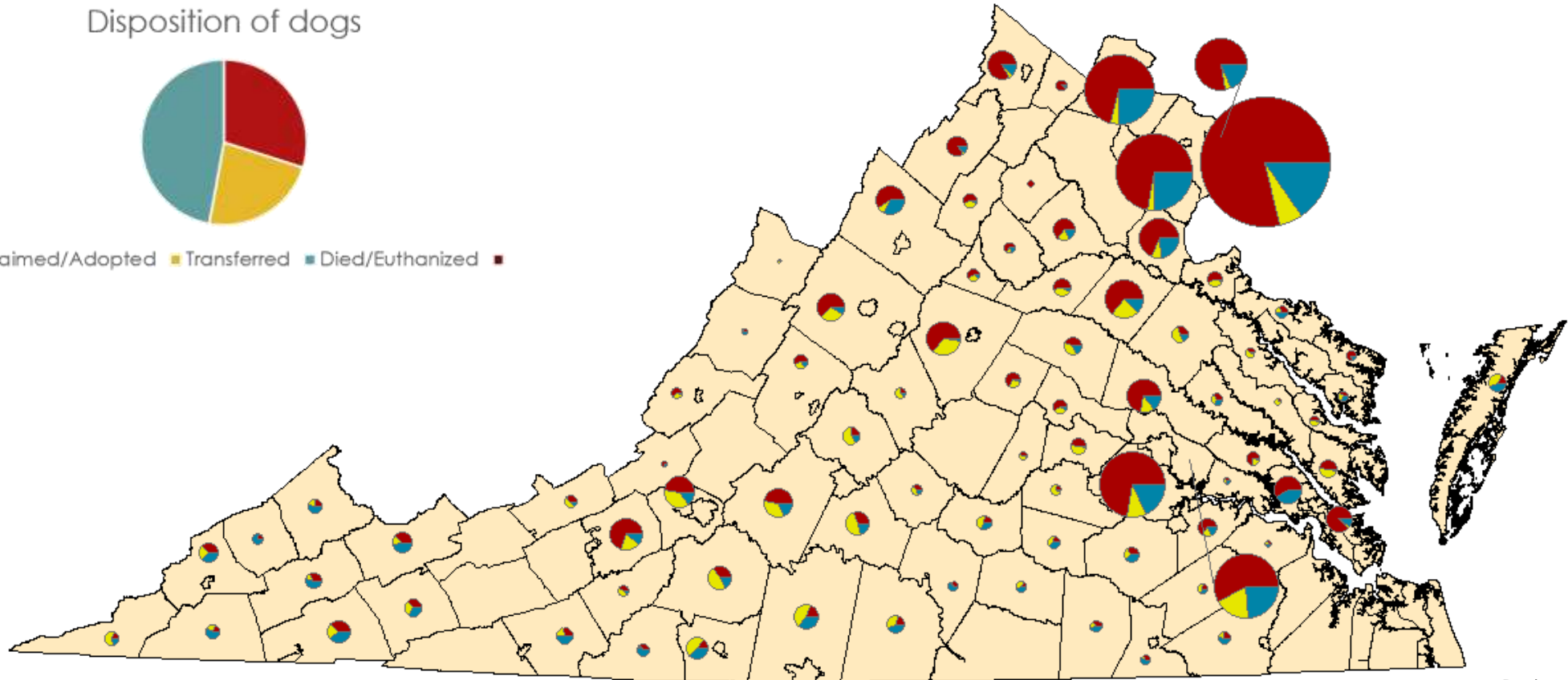
Population data retrieved from [factfinder.census.gov](https://factfinder.census.gov)

# Disposition by County based on Population

Disposition of dogs



■ Reclaimed/Adopted ■ Transferred ■ Died/Euthanized ■

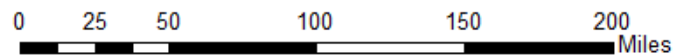
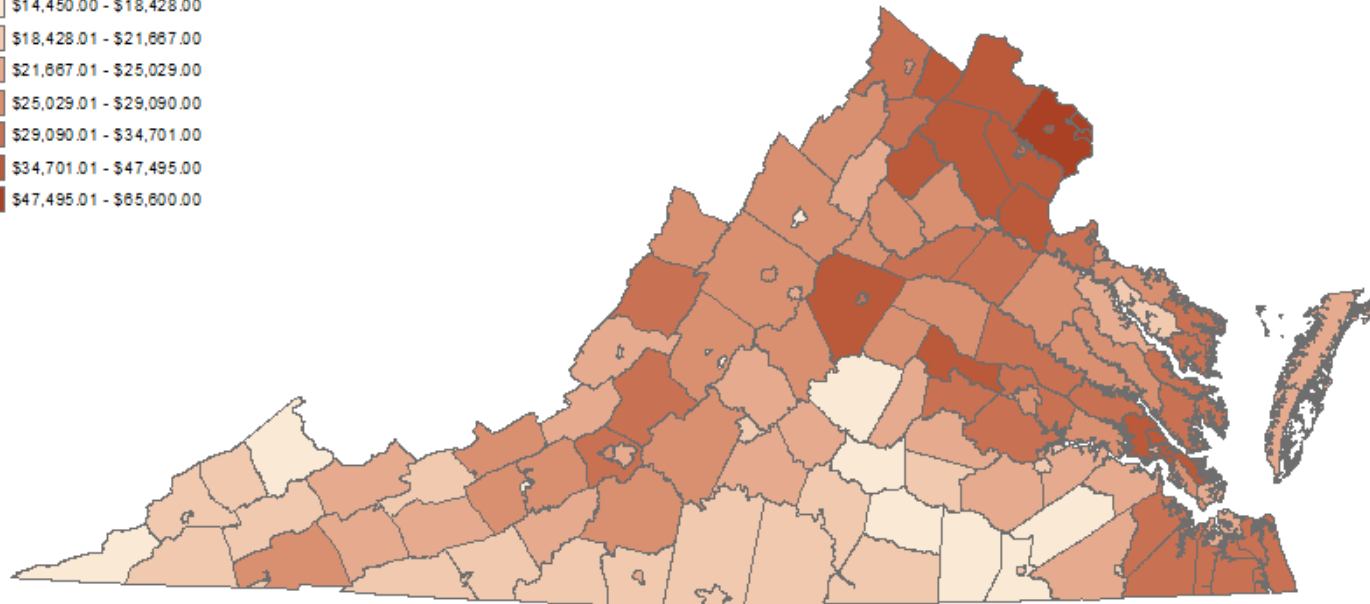
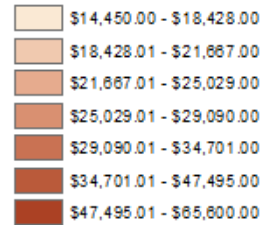


# Per Capita

## Virginia Per Capita by County

VA\_COUNTY

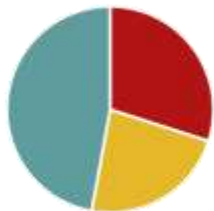
Per Capita



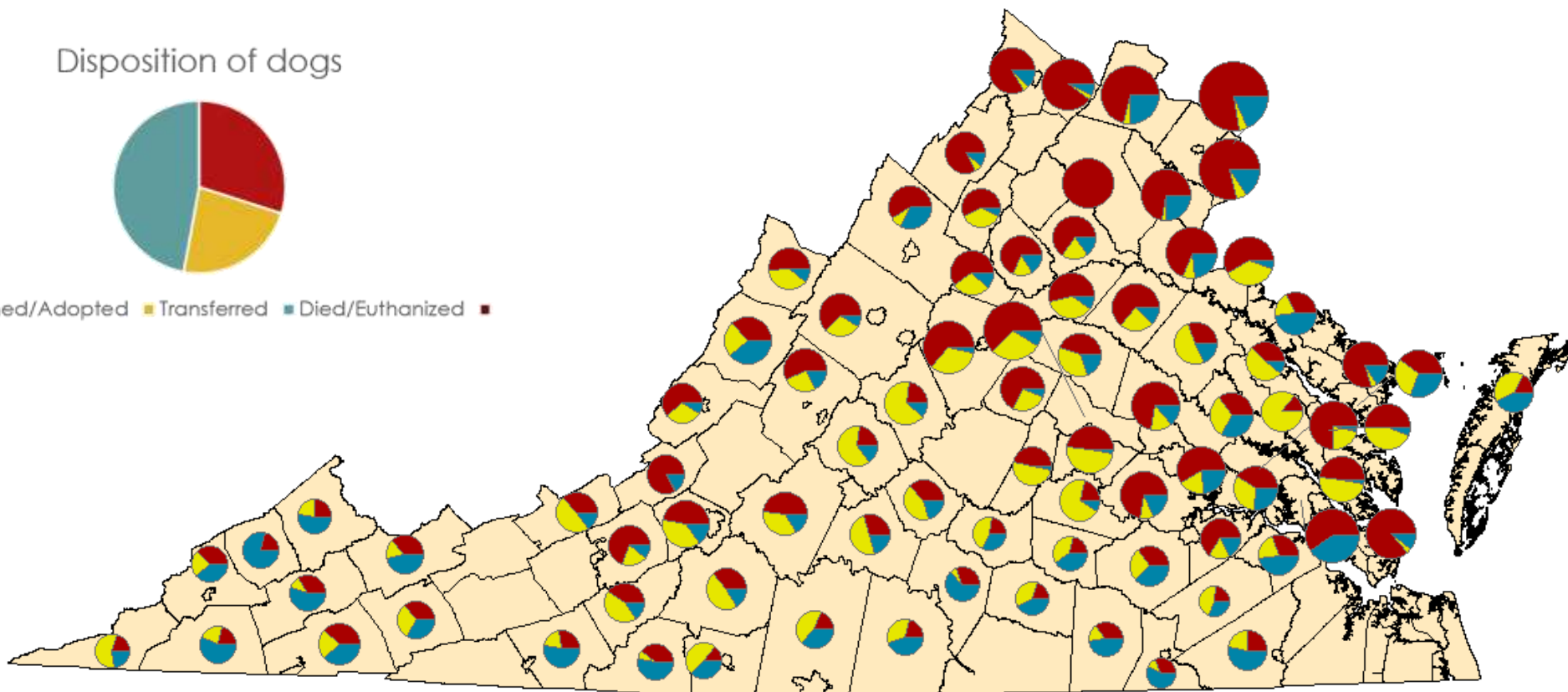
Per Capita data retrieved from [factfinder.census.gov](https://factfinder.census.gov)

# Disposition by County based on Per Capita

Disposition of dogs



■ Reclaimed/Adopted ■ Transferred ■ Died/Euthanized ■



# Results

- ▶ Is there a correlation between per capita, population, and the number of dogs that end up in the county shelter?
- ▶ Is there a correlation between per capita, population, and the number of dogs that are chained?
- ▶ The data acquired from this software application will hopefully be used as a tool to bring awareness to the issue of 24/7 tethering

# Conference Venues

- ▶ PA GIS in State College in May, 2018,
- ▶ Animal Rights National Conference

# Resources

- ▶ VA counties map retrieved 12 Oct 17 from <https://vgin.maps.arcgis.com/home/item.html?id=777890ecdb634d18a02eec604db522c6>
- ▶ Animal statistics retrieved on 12 Oct 17 from <https://arr.va-vdacs.com/Reports06>
- ▶ List of counties per capita retrieved 12 Oct 17 from [https://en.wikipedia.org/wiki/List\\_of\\_Virginia\\_locations\\_by\\_per\\_capita\\_income](https://en.wikipedia.org/wiki/List_of_Virginia_locations_by_per_capita_income)
- ▶ Data for median income retrieved from 25 Oct 17  
[https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS\\_15\\_5YR\\_S2001&prodType=table](https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_15_5YR_S2001&prodType=table)
- ▶ State laws that address chaining retrieved on 25 Oct 17 from <https://www.peta.org/issues/companion-animal-issues/current-legislation-tethering-dogs-state-laws/>
- ▶ Community laws that address chaining retrieved on 25 Oct 17 from <https://www.peta.org/issues/companion-animal-issues/current-legislation-tethering-dogs-prohibited-communities/>
- ▶ Communities that allow limited tethering retrieved on 25 Oct 17 from <https://www.peta.org/issues/companion-animal-issues/current-legislation-tethering-dogs-limited-chaining/>
- ▶ Per capita/median income statistics retrieved on 25 Oct 17 from <https://www.census.gov/quickfacts/>
- ▶ Source of United States map retrieved on 12 Dec 17 from <https://www.arcgis.com/home/item.html?id=f7f805eb65eb4ab787a0a3e1116ca7e5>
- ▶ Shelter dog picture retrieved on 12 Dec 17 from <http://people.com/pets/its-official-california-is-the-first-state-to-ban-the-pet-store-sale-of-puppy-mill-dogs/>



# Questions?

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