



Making Mitigation Work Webinar
Natural Hazards Center
September 8, 2020

ArcGIS Capabilities for Mitigation Planning

Ryan Lanclos

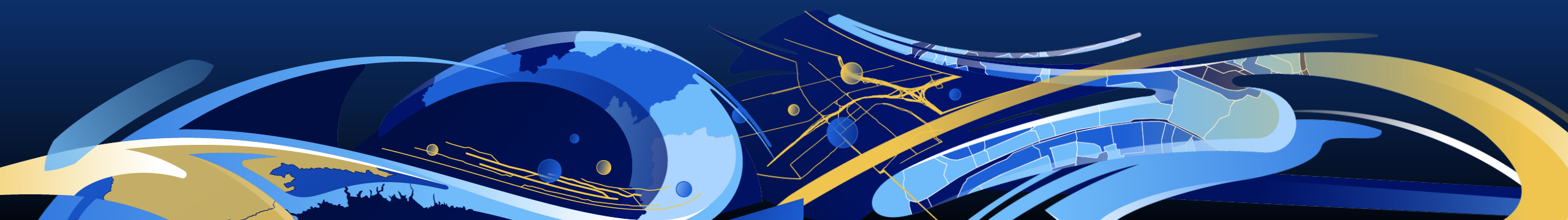
Director of Public Safety Solutions & Disaster Response, Esri

Marianne Cardwell

GIS Program Coordinator, The Polis Center

Shelby Hines

Solution Engineer, Esri





We have a unique opportunity...

COVID-19 has opened the door many of us have been knocking on for years

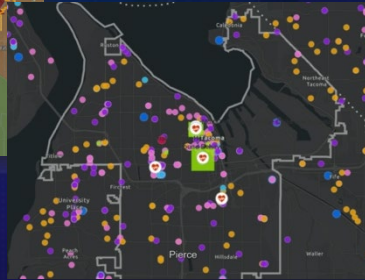
COVID-19 Response

Case Demand & Hospital Resources



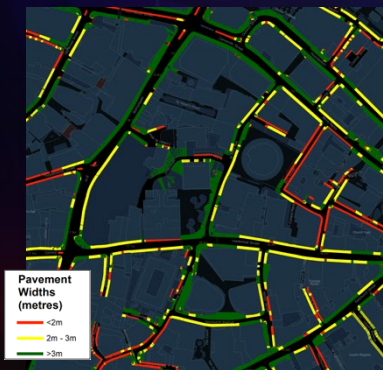
City of Tacoma
Washington

ICU Beds and Available Staff



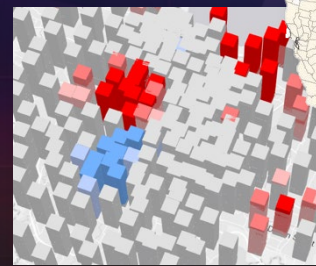
City of Tacoma
Washington

Social Distancing Sidewalk Analysis



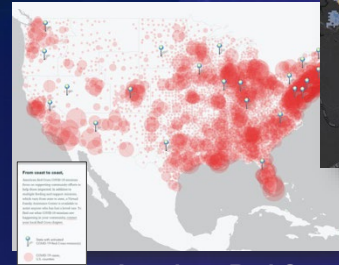
City of London Corporation
United Kingdom

Space-Time Cube Hot Spot Analysis



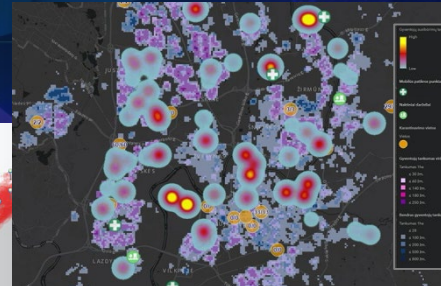
Jakarta

Red Cross Response Resources



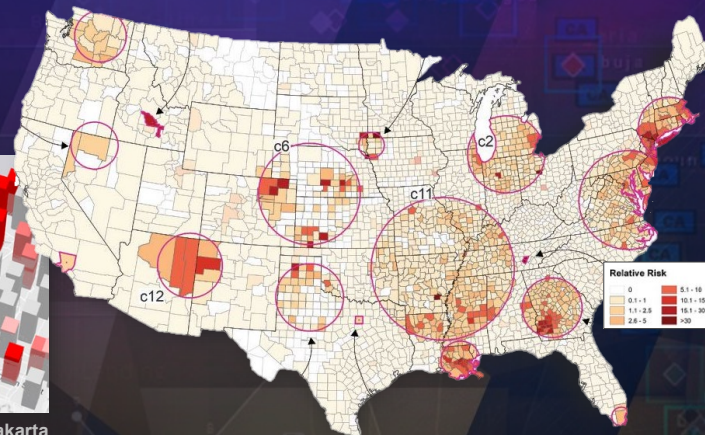
American Red Cross
US

Coordinated Response Map



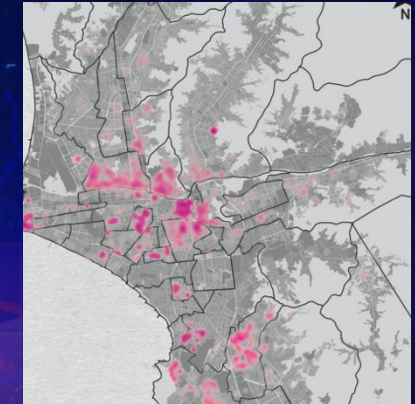
City of Vilnius
Lithuania

Statistical Analysis of Space-Time Clusters



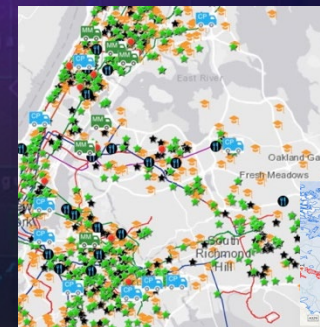
Johns Hopkins Bloomberg
School of Public Health
US

Vulnerable Urban Population



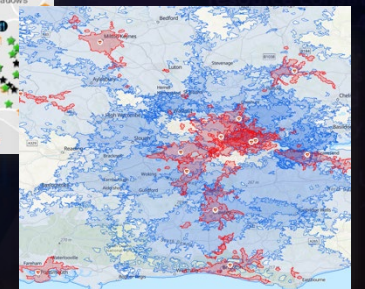
Espacio y Análisis
Peru

Emergency Food Distribution



City Harvest
New York

Testing Sites and Travel Time



TravelTime
England



Communicate & Provide Context

Transform complex decisions into understandable information



Global Cases

26,072,551

Cases by

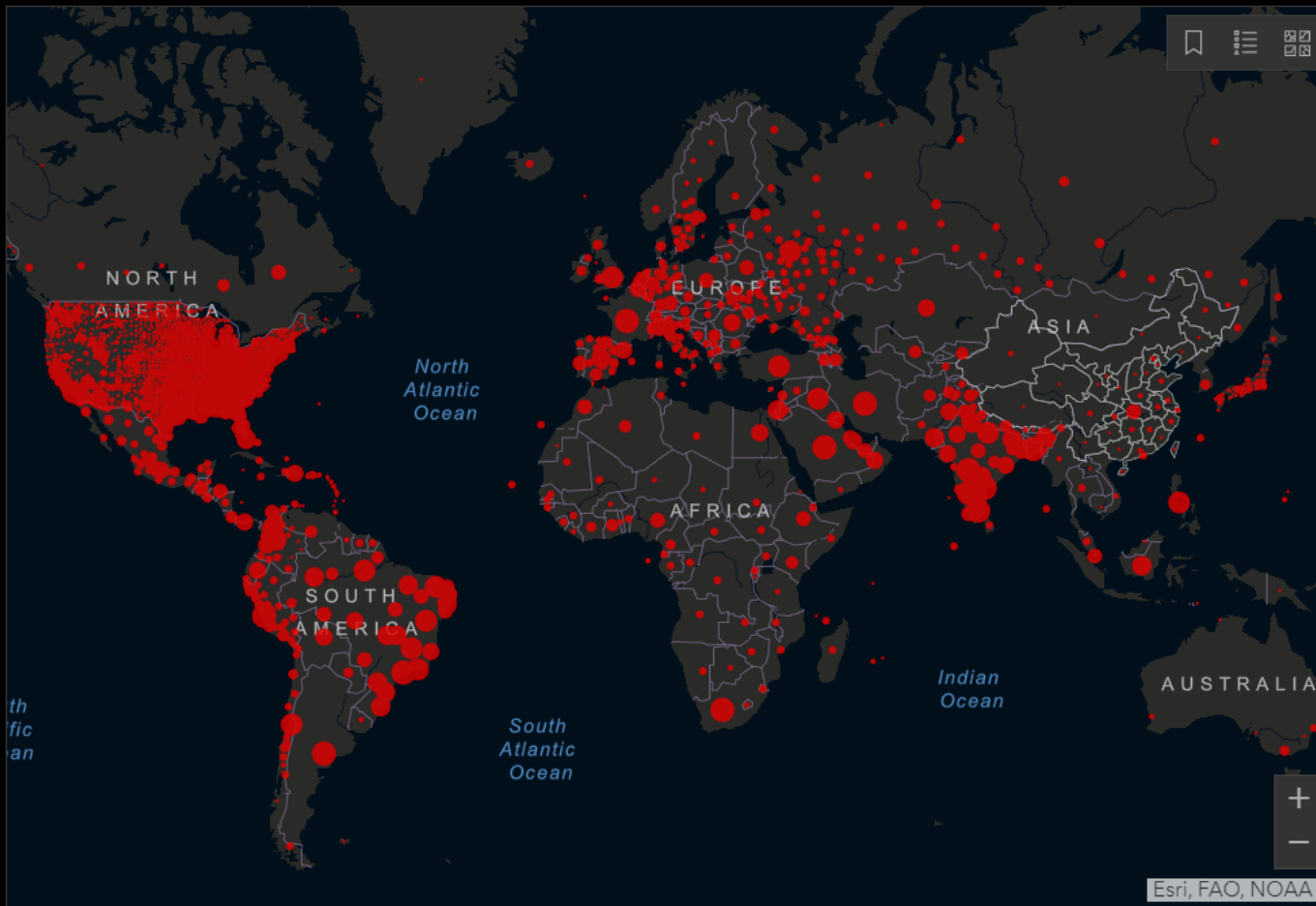
Country/Region/Sovereignty

- 6,117,725 US
- 3,997,865 Brazil
- 3,853,406 India
- 1,006,923 Russia
- 657,129 Peru
- 633,321 Colombia
- 630,595 South Africa
- 610,957 Mexico
- 479,554 Spain
- 439,172 Argentina
- 414,739 Chile
- 380,746 Iran
- 340,949 United Kingdom
- 331,060 France

Admin0 Admin1 Admin2

Last Updated at (M/D/YYYY)

9/3/2020, 9:28 AM



Cumulative Cases Active Cases Incidence Rate Case-Fatality Ratio Testing Rate

188

countries/regions

[Lancet Inf Dis Article: Here](#). Mobile Version: [Here](#). Data sources: [Full list](#). Downloadable database: [GitHub](#), [Feature Layer](#).
 Lead by JHU CSSE. Technical Support: [Esri Living Atlas team](#) and [JHU APL](#). Financial Support: JHU, NSF, Bloomberg Philanthropies and Stavros Niarchos Foundation. Resource support: [Slack](#), [Github](#), [LAMC](#), [GitHub](#), [Twitter](#), [Facebook](#), [YouTube](#), [LinkedIn](#), [Medium](#), [RSS](#), [Email](#), [JHU COVID-19](#)

Global Deaths

863,933

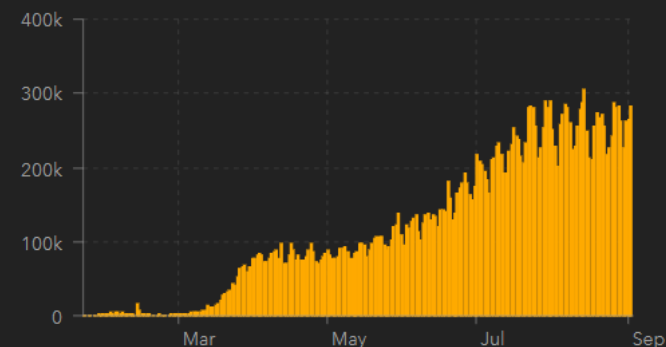
- 185,782 deaths US
- 123,780 deaths Brazil
- 67,376 deaths India
- 65,816 deaths Mexico
- 41,602 deaths United Kingdom
- 35,497 deaths Italy
- 30,692 deaths

Global Deaths

US State Level Deaths, Recovered

- 32,972 deaths, 75,203 recovered New York US
- 15,964 deaths, 33,991 recovered New Jersey US
- 13,341 deaths, recovered California US
- 13,104 deaths, 522,087 recovered Texas US
- 11,501 deaths, recovered Florida US

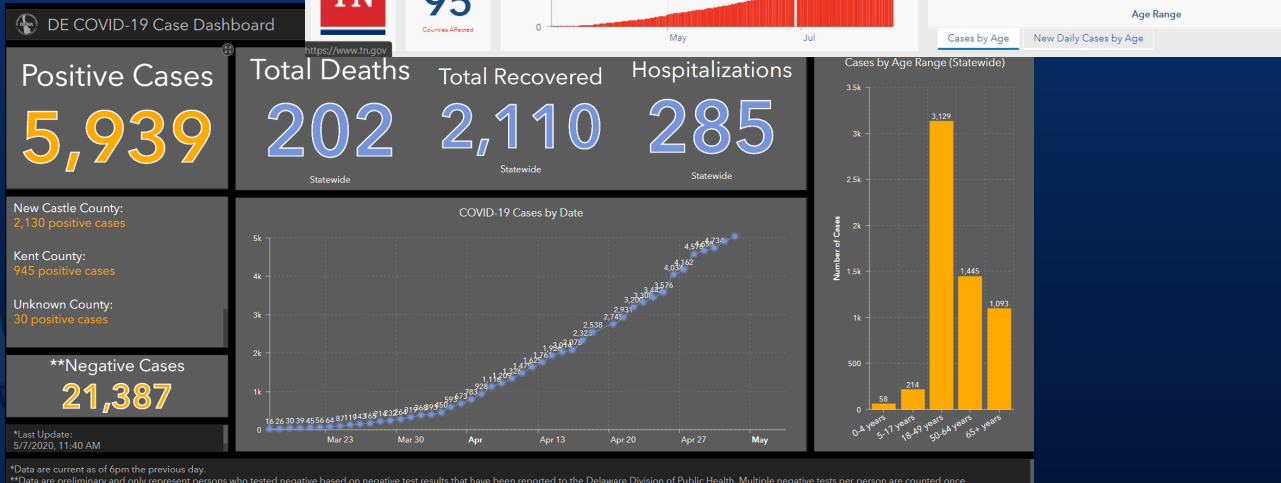
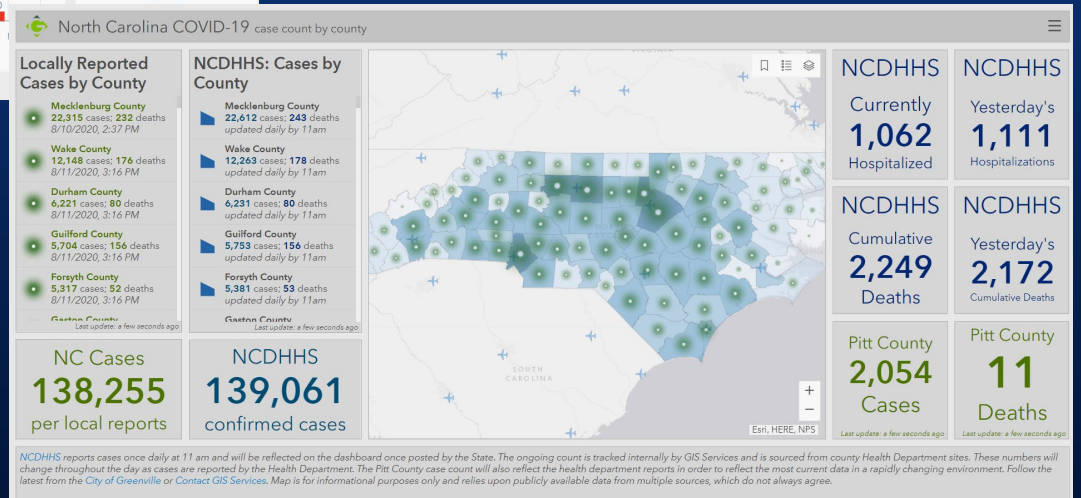
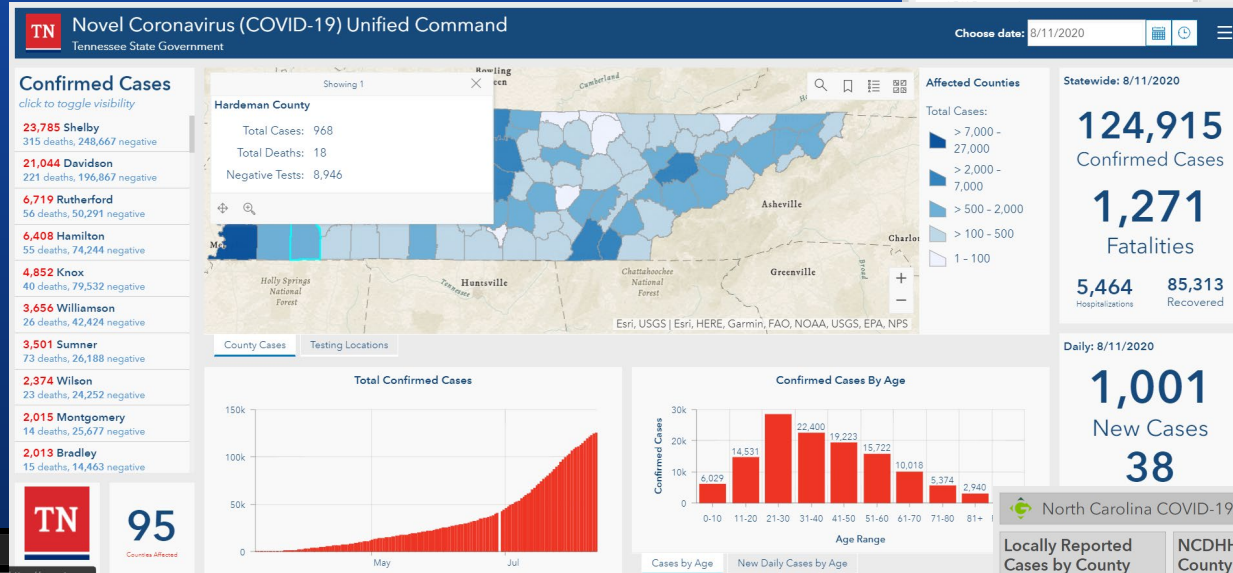
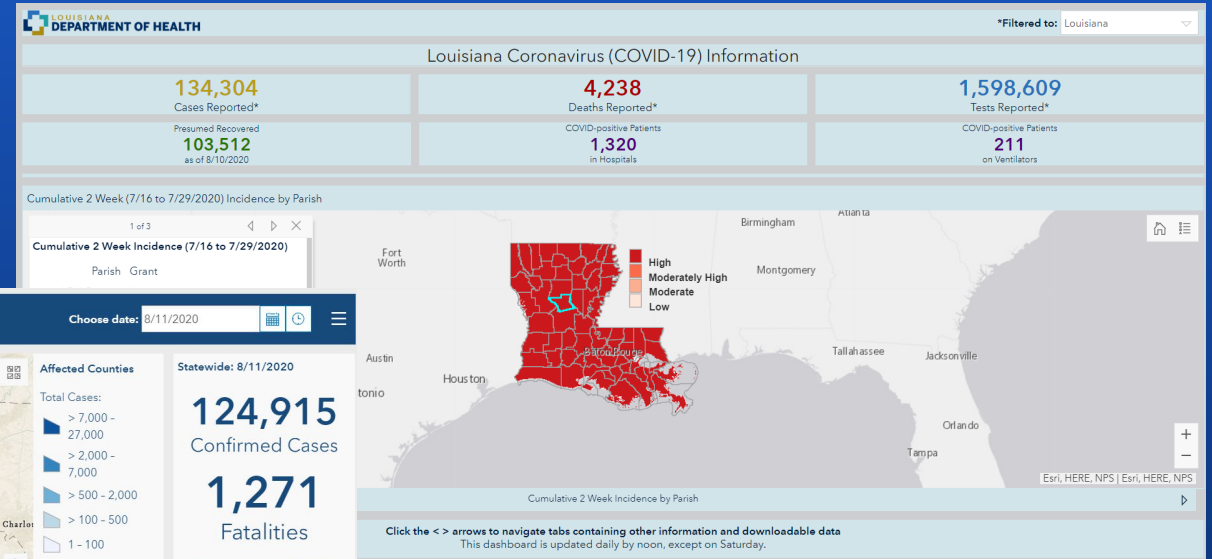
US Deaths, Recov...



Daily Cases

Dashboards Driving Awareness

Providing a common location for status





Base Decisions on Data & Science

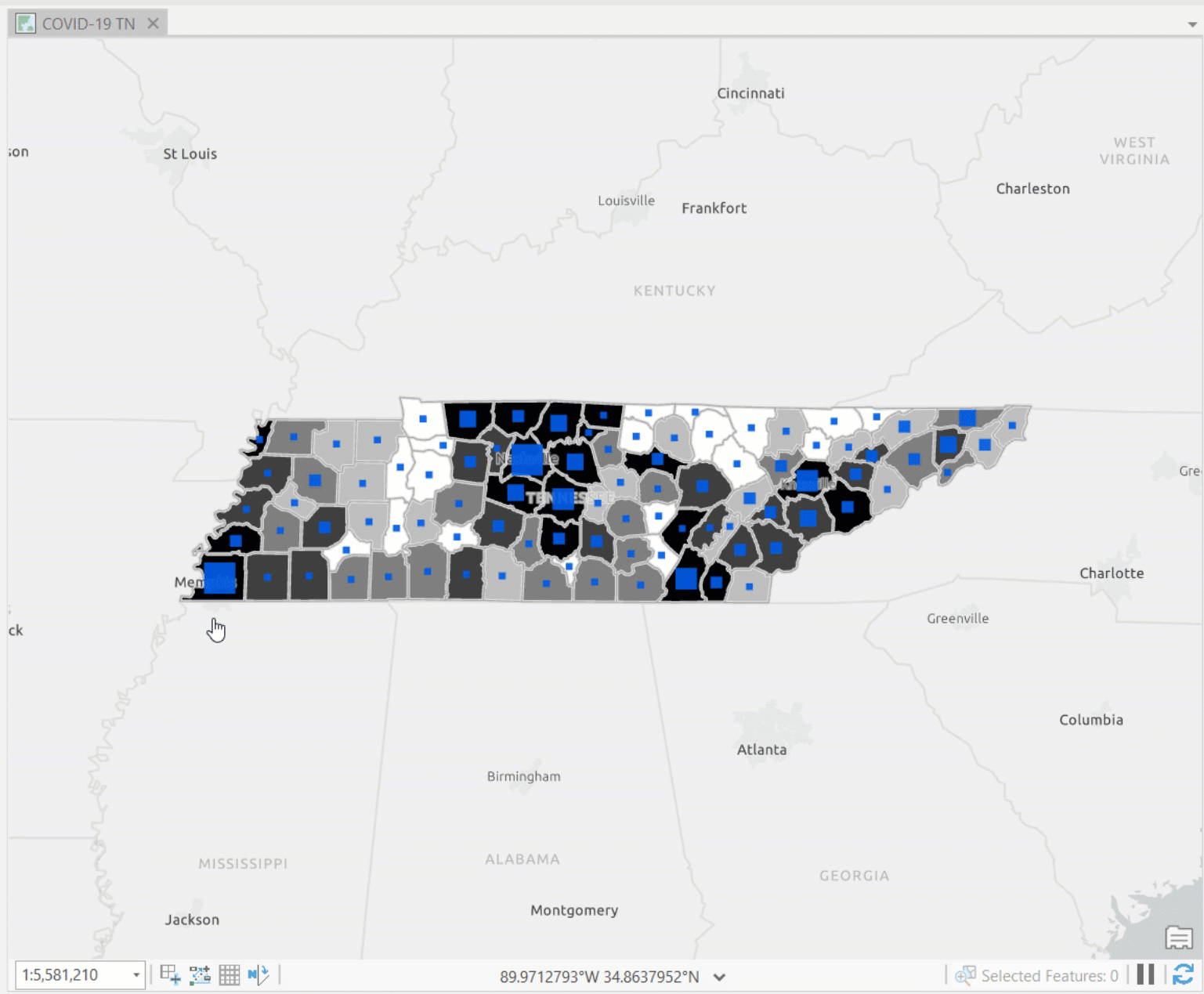
Understanding **where** risk and needs across the community exist

Contents

Search

Drawing Order

- COVID-19 TN
 - Light Gray Reference
 - TN CHIME Summary
 - Peak Hospitalized Census
 - ≤29.598919
 - ≤72.537983
 - ≤151.513497
 - ≤312.786120
 - ≤649.439739
 - TN CHIME Daily
 - Hospitalized Census
 - ≤12.909938
 - ≤49.113949
 - ≤116.799446
 - ≤210.960480
 - ≤329.070648
 - Charts
 - New Daily Admissions Projections
 - Daily Hospital Census Projections
 - SIR Projections
 - TN COVID-19 Cases
 - Total Cases
 - ≤24
 - ≤51
 - ≤90
 - ≤276
 - ≤9139



Geoprocessing

CHIME Model v1.1.5

Parameters Environments

Input Feature Class: TN COVID-19 Cases

Daily Forecast Output Feature Class: TN_CHIME_Daily

Summary Output Feature Class: TN_CHIME_Daily

Population: POPULATION

Number of Currently Hospitalized COVID-19 Patients: CURRENT_HOSP

Number of Days to Project: 30

Start Date: 6/27/2020

Unique ID: FIPS

Field-Based Model Parameters

Constant Model Parameters

Additional Outputs for Visualization

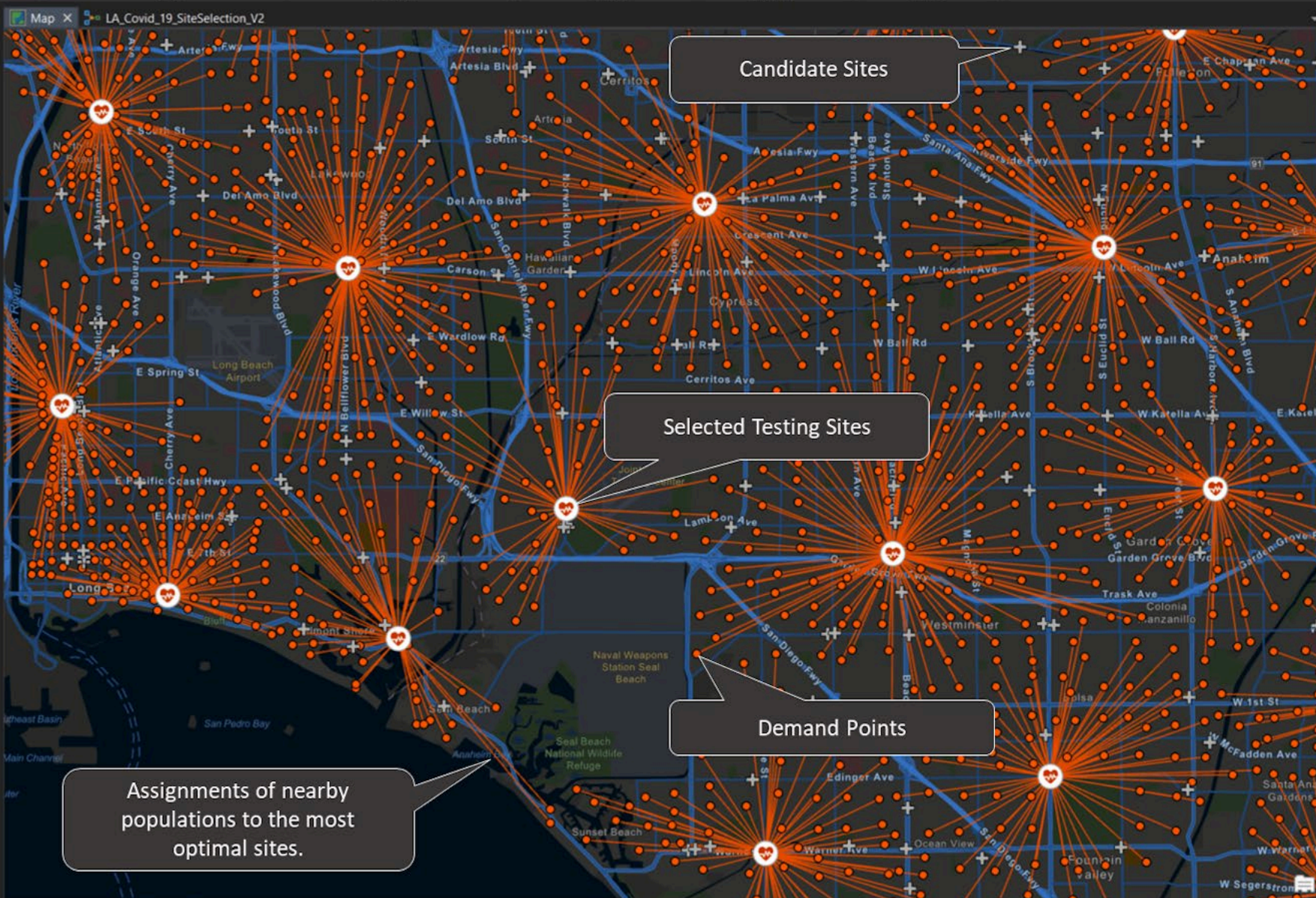
Run

Contents

Search

Drawing Order

- Map
- Facilities
 - Candidate
 - Required
 - Competitor
 - Chosen
- Demand
 - LA_BG_centroid
 - Routes
 - LA_MSA
 - World Street Map (Night)



Geoprocessing

LA_Covid_19_SiteSelection_V2

Parameters Environments

- US Business data
 - us_businesses
- Study area
 - LA_MSA
- Demand Input Points
 - LA_BG_centroid
- Network Data Source
 - Routing_ND
- Service Area Cutoffs
 - 10
- Location Allocation
 - Cutoff: 10
 - Location Allocation Problem Type: Minimize facilities

Run

Assignments of nearby populations to the most optimal sites.

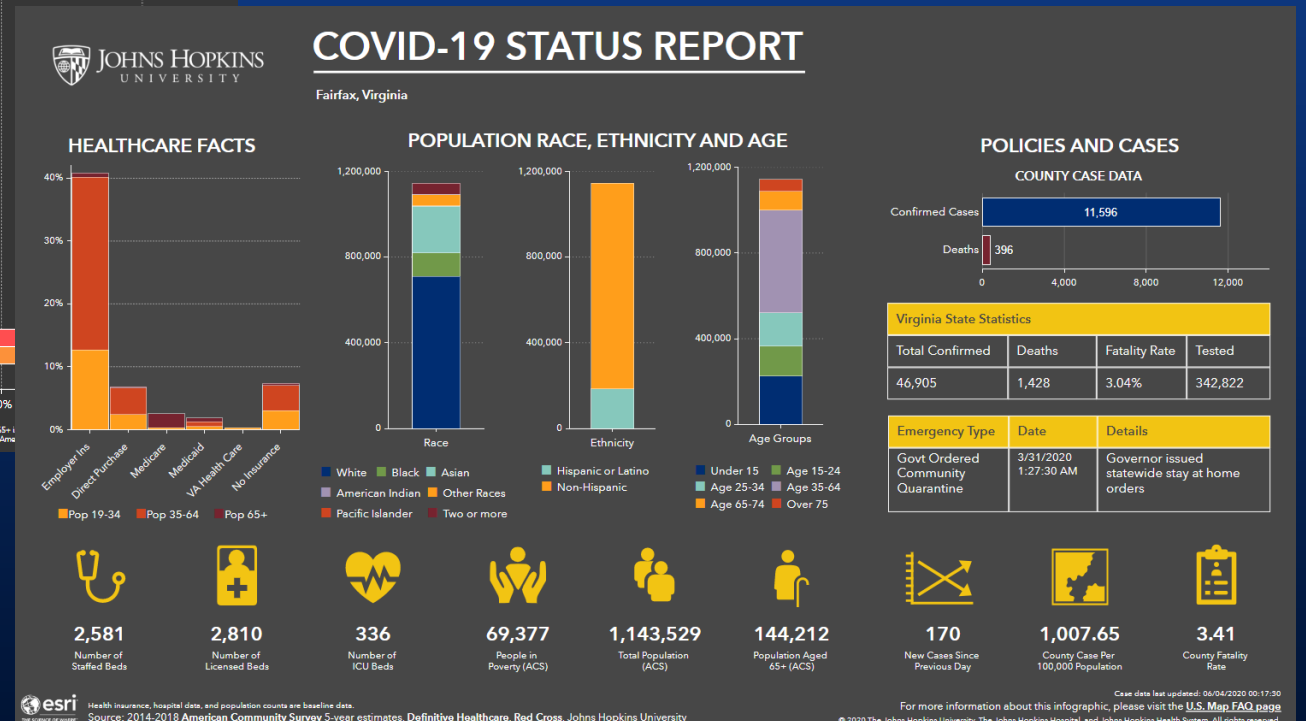
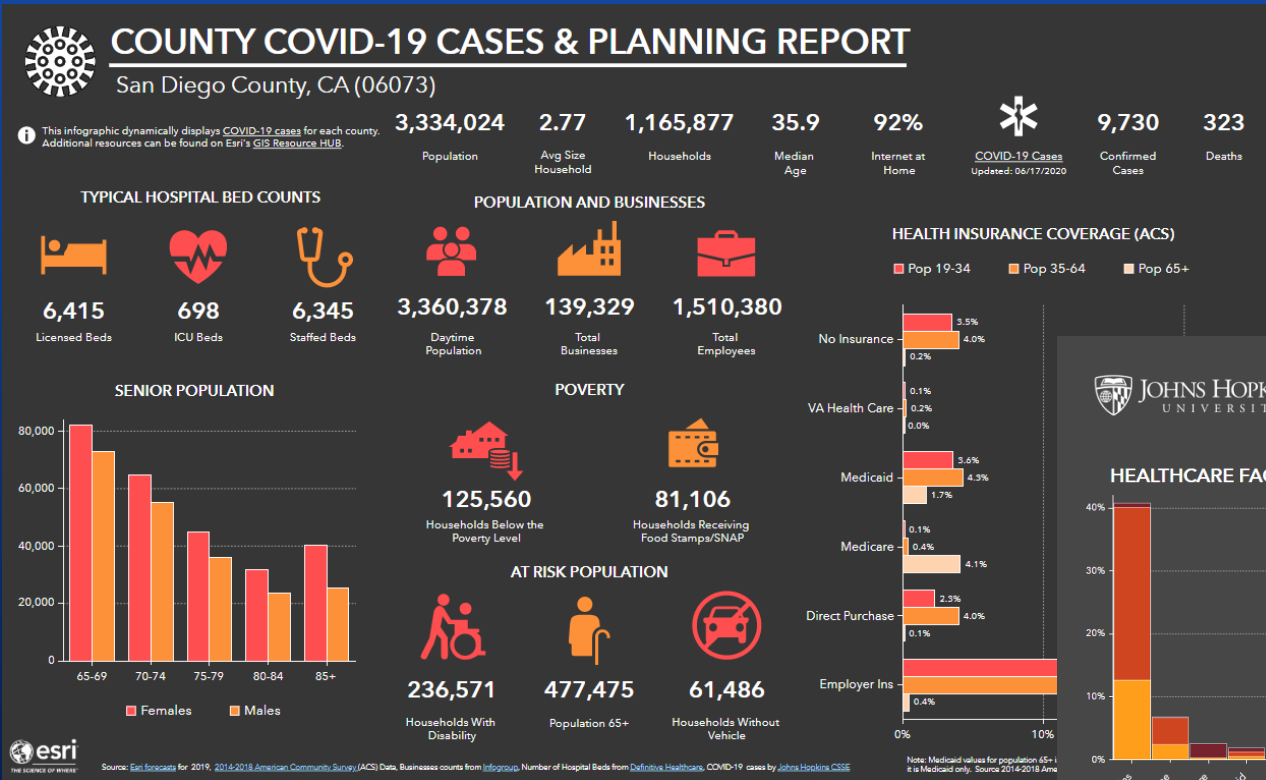
Candidate Sites

Selected Testing Sites

Demand Points

Understanding the Community

Infographics to assess planning assumptions





Collaborate Across Sectors

Combining expertise and engaging the whole community

Hubs Providing a Destination

Engaging the community on initiatives

TDEM COVID-19 Response Data Hub

TDEM.TEXAS.GOV ESRI Data Hub FEMA Data Hub CDC COVID Interactive US Census Bureau COVID-19 Hub

Sign In

Texas Division of Emergency Management

COVID-19 Response Data Hub

COVID-19 is an infectious disease that spreads from person to person before the outbreak.

<https://tdem-bdps-hub.arcgis.com>

Florida Division of Emergency Management GeoPortal

Data and Maps for the Prepared

Storm Surge

Division of Emergency Management's Open Data Portal, which provides the ability to search, filter and view geographic data developed by the State Emergency Response Team's GIS Unit. To search for search terms in the text box above or you can view featured interactive mapping applications, additional resources below.

Featured Web Applications

- Tropical Weather
- Forecast Heat Index
- Know Your Zone

Oregon COVID-19 GIS Resources

STAY HOME. SAVE LIVES.

Cases (OR)	Total Deaths (OR)	Total Negative Tests (OR)
774	368	435,314

Oregon COVID-19 Cases

Coronavirus COVID-19 Cases

PPE Summary Daily Update Dashboard

PPE Summary					
Surgical Masks	N95 Masks	Gowns	Face Shields	Gloves	Ventilators
11,015,100	301,210	3,790,930	453,480	1,451,900	8
15,000	2,200	0	0	24,000	0
0	0	0	0	0	0
11,000,100	299,010	3,790,930	453,480	1,427,900	8
0	0	0	0	0	0

MINNESOTA Department of Public Safety

State Emergency Operations Center

Minnesota COVID-19 Data and Statistics

62,303 Confirmed Cases	1,678 Deceased	55,855 Released From Isolation
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Minnesota COVID-19 County Status

MN COVID-19 Dashboard

Response and Preparation Dashboard

SEOC News/Updates Minnesota COVID-19 Website Stay Safe MN FAQs Department of Health

California COVID-19 Response Hub

Home Data covid19.ca.gov

COVID-19 Response Hub

Click Here to Request Access to the Secured Hub

Currently Access will Only be provided to State and Federal Agencies Supporting This Incident.

Daily Change in Positive COVID-19 Patients

Daily Change in Positive Cases

Daily Change in Deaths

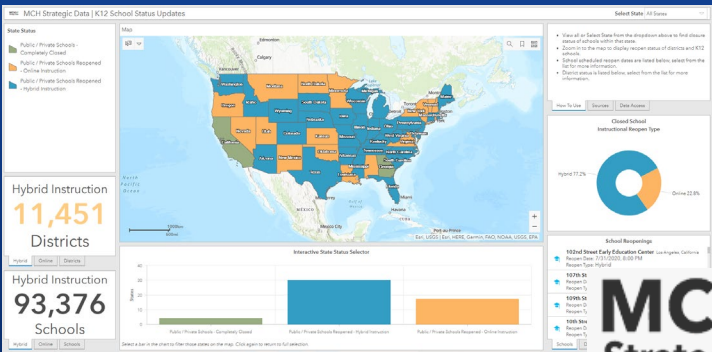
Total Positive COVID-19 Patients: 0

Total Positive Cases: 586,056

Total Deaths: 10,648

Collaborating Across Sectors

Connecting & Sharing Data and Insight



Roadmap to Recovery: A Public Health Guide for Governors

April 21, 2020

NGA

Baltimore COVID-19 Free Food Sites

Food and address or place

For interactive week of April 20

"Site name" indicates Grocery Boxes are being distributed at the site for all residents whose supplies list.

Enter an address to find a free food site, or one in your surrounding area.

In addition to using an address, feel free to use one of these search methods:

- Click the search box and type in an address or choose the current location
- Click within the map

Here is a Detailed Legend:

Baltimore Food Distribution Locations

- Grouped School
- Grouped Food
- Grouped Other Adults
- Grouped All Resources
- Food Pantry Sites

CITY OF BALTIMORE

COVID - 19 Demographic and Economic Resources

United States Census Bureau

Release version 1.0. Release date: 04/29/2020. Site periodically updated, check back soon. [Sign up here](#) to stay connected.

US Demographic and Economic Data At A Glance

Population Aged 65 Years and Older	Total Unemployed Population	Total Employer Establishments
49,238,581	29,752,767	7,912,745

US Census Bureau COVID-19 Impact Report

Click here to open the dashboard in a new tab.

Maryland DEPARTMENT OF HEALTH

FEDERAL EMERGENCY MANAGEMENT AGENCY

FEMA

Walmart

Store Status

Pharmacy Status

Online Grocery Pickup Status

Pharmacy Delivery Status

Grocery Delivery Available at	1,803 Stores
Online Grocery Pickup Available at	3,193 Stores
Pharmacy Open at	5,289 Stores

COVID-19 Geospatial Resource Center

The federal government continues to take aggressive and proactive steps to address the COVID-19 threat as the health and safety of the American people remain a top priority.

The **Geospatial Community** can help answer key questions in support of response efforts. Data and analysis is needed to inform forecasting and prediction models and allocate resources. Geospatial products can also help inform the public.

Contribute: Help Fill Data Gaps

Discover: View Current Apps

Access: Public Hubs

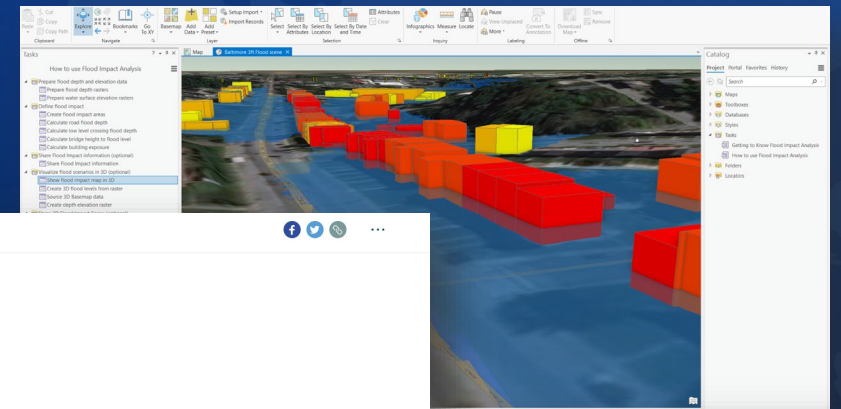
American Red Cross

COVID-19 Public Health Emergency Status by County Viewer

We have a unique opportunity

Building on current momentum & awareness

- **Case Study: Statewide mitigation plan update for the State of Indiana**
- **Tools: New capabilities and solutions for ArcGIS**
- **Q&A: Engage with the panel**



The Polis Center
Indiana's Multi-Hazard Mitigation Plan



Indiana's Multi-Hazard Mitigation Plan

Highlights from the 2019 update

The Polis Center at Indiana University - Purdue University Indianapolis (IUPUI)





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