Maryland Council on Open Data

Annual Report
January 10, 2021

The Honorable Lawrence J. Hogan, Jr.
Governor
State House
Annapolis, MD 21401 - 1925

The Honorable William C. Ferguson IV
President of the Senate
State House, H-107
Annapolis, MD 21401 - 1991

The Honorable Adrienne A. Jones
Speaker of the House
State House, H-101
Annapolis, MD 21401 – 1991

INTRODUCTION

The COVID-19 pandemic has affected our actions and impacted our decisions throughout the better part of 2020. Throughout the year, the State of Maryland has remained focused on providing quick and easy access to reliable data and information. This focus has resulted in developing new and strengthening existing partnerships; empowering collaborative analysis and revealing correlations between previously, independently maintained data; affording the opportunity to have the best and brightest contribute answers and solutions; and reaching beyond government to include members of the community who contribute valuable insights and new perspectives.

> "Under the Hogan administration there are more Marylanders, than ever before, using Maryland's Open Data Portal. Interest in open data has expanded throughout the world and with over 15,000 visitors accessing Maryland's Open Data Portal per month, our state is no different. During the time of COVID-19 the need for transparency, accessibility and ease of use in terms of data is of the utmost importance. During these uncertain times, when people are searching for information from the State, they need to know that it is accurate and easy to understand. This is exactly what our team has accomplished with our COVID-19 website." -- Michael G. Leahy, Maryland Department of Information Technology Secretary and Council on Open Data Chair

We present this year's Council on Open Data Annual Report with examples of data empowering and positively impacting the lives and livelihoods of Marylanders.

VISION

Make government curated data easily searchable and available to all citizens of Maryland and beyond.

MISSION

To promote easy and direct access to data that empowers Marylanders to effect change and enables executive branch state agencies and coordinating offices to better deliver services to constituents, businesses, and visitors in Maryland.

LEGISLATION

The Maryland open data act (state government, chapter 69, section 10-1501 through 10-1504) was established in 2015. The intent of the act is "that open data be machine readable and released to the public in ways that make the data easy to find, accessible, and usable [...]". in addition, the act ensures that open data does not include data that would compromise the security, privacy or integrity of systems, programs or persons.

MARYLAND OPEN DATA

HISTORY

The State of Maryland, seen as a national leader in emerging technologies and innovation, has been leveraging open data to drive transformative change and accelerated those efforts with the introduction of Maryland's Open Data Portal in 2012 and the adoption of the Maryland Open Data Act in 2015. Establishing governance, policies and standards for data consistency, quality, reliability, security and privacy have been imperative to the State's continued success in ensuring valuable data is available to support business decisions and to the public.

Successes throughout the years

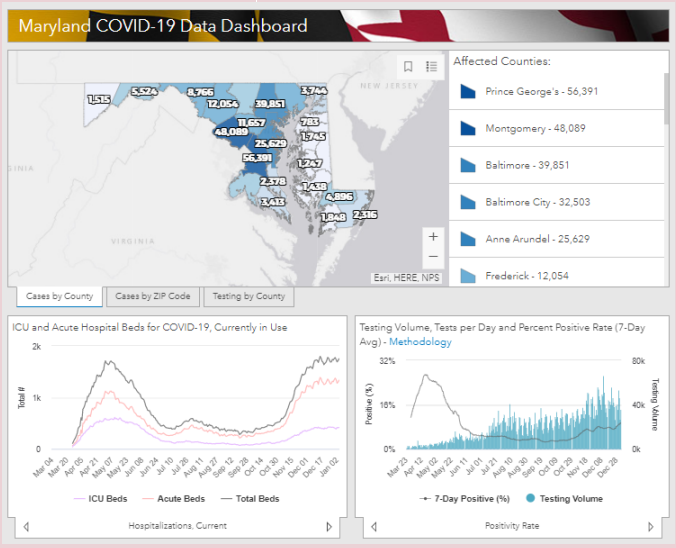
- Ability to search, explore, visualize, download or link to data from Maryland's Open Data Portals;
- Release of the State of Maryland Open Data Policy and Standards version 1.0 document;
- Establish state agency Data Coordinators to promote data accessibility and reusability statewide;
- Automate scripts to perform inspections on submitted data prior to posting to open data portals;
- Publish a transparency hub where citizens can explore Maryland's budget and spending data;
- Continual monitoring tracks data quality, freshness, duplication, as well as changes to the data;
- Common and interoperable platform usage facilitates improved data analysis performance;
- Foster reliability and fair representation of data through citizen and business engagement;
- Modernize and expand engagement of paper reports with interactive dashboards;
- Combat misinformation by directing users to a single, reliable source for data in Maryland; and
- Encourage collaborative analysis and development of new partnerships and sharing agreements.

Partnerships and open communication are key to making effective improvements to Maryland's open data program. Collaborative initiatives have seen levels of government (state, regional, county and municipal) working with the private, non-profit and academic sectors to strengthen and build out Maryland's open data program.

FEATURED ACCOMPLISHMENT

In March 2020, the Maryland Department of Health, along with partners from the Governor's Office, the Maryland Department of Information Technology and the Maryland Emergency Management Agency collaborated to launch Maryland's COVID-19 response site @ https://coronavirus.maryland.gov.

The site was built on the state's existing enterprise Geographic Information Systems (GIS) and Open Data platforms, The site serves as a hub for authoritative information regarding health and safety during the State of Maryland's response to COVID-19.
The site provides a polished user experience that includes immediate access to dozens of



vital statistics. A prominent dashboard features interactive maps, graphs, charts and numbers of cases, deaths, testing, and more. Site visitors can search, explore and download these vital statistics through Maryland's Open Data Portals (https://data.imap.maryland.gov and https://opendata.maryland.gov).

Data feeds promote embedding the data directly into other hosted sites and results in consistent information across all levels of government, as well as citizen visualizations found throughout social media platforms.

The site features links to additional COVID-19 resources on the Governor's website, social media posts and advice from the Centers for Disease Control and Prevention (CDC). It provides ready access to information on testing and participation in the contract tracing initiative, covidLINK (https://covidlink.maryland.gov), as well as transparency of the impact of the COVID-19 vaccine.

Continuous monitoring and upgrades of the site ensure it remains accurate, reliable and informative. The site increases transparency of the state's response, centralizes data from multiple partners, promotes data sharing, supports decision making from authoritative data and provides a clear narrative regarding the reality of the event.

Maryland's COVID-19 site has welcomed more than 10,000,000 users to date.

KEY INITIATIVE #1

BETTER UNDERSTANDING OUR CITIZENS

Ensure awareness of available data and provide data that reflects popular topics.

Communication is a strategic component to deliver more effective and more relevant solutions. It is essential that we reach beyond state government to include members of the larger community who contribute new insights and unique perspectives.

Outreach to Universities

The State of Maryland is well known for its world class universities and centers for higher education and it is a great privilege to form new partnerships with these institutions. This past winter, a budding partnership began with an Open Data Workshop hosted at the University of Maryland Baltimore County (UMBC). During this half day workshop, staff from the UMBC Division of Information Technology and the UMBC Center for Social Science Scholarship were shown how to gain access and develop user's competence and self-sufficiency leveraging the data on the Maryland Open Data Portal and the Maryland GIS Data Catalog for potential research or development projects.

One of the presenters at this workshop was a UMBC graduate student participating in an internship with the Maryland Department of Information Technology (DoIT). This dynamic intern presented the results of two research projects. The first project consisted of an analysis of the search terms entered into the Maryland Open Data Portal and the Maryland GIS Data Catalog. The results of this project are contributing to a plan to implement enterprise data tagging across all partner's open data platforms, which will serve to improve discovery and cataloging of available open data assets statewide.

The second project was an analysis of vehicle crash data available on the Maryland Open Data Portal. Leveraging the probability theory, the location of vehicle crashes was mapped and the relative frequency was calculated. Hot spot analysis determined the locations with the highest normalized frequency of vehicle crashes. These and additional insights have been provided to the Maryland Department of Transportation (MDOT) for discussion regarding the impact of traffic mitigation efforts to reduce vehicle crashes on Maryland's roadways.

Partnerships with Local Jurisdictions

Partnerships with local governments are an essential component of delivering valuable data to Marylanders. Local governments serve the citizens and businesses within their communities firsthand and as a result possess greater insights and knowledge at a detailed level. State government serves to collaborate with and consolidate resources and efforts to assist in the successful delivery of better services and support that continues to make Maryland a great place to live, work, raise a family and retire.

Decades long efforts have built foundational partnerships that continue to reap benefits of sharing data, resources and technology. Maryland's open data portals continue to federate data from local partners and provide a reliable centralized resource for discovery, exploration, download, filter, visualization and connection to more than 1,600 machine readable datasets.

This year kicked off the ninth year of Maryland's digital high-resolution imagery program. Through this program aerial photography, photographs taken from an aircraft, is captured for the entire state of Maryland. This data is a valuable framework dataset, critical in supporting emergency response dispatch, surveying, environmental conservation and planning. An abundance of other programs at the federal, state, local governments, private sector, non-governmental organizations, academic and research institutions and the general public benefit from the availability of this open data.

The Open Street Map project (https://openstreetmap.org) is a collaborative, nationwide initiative to create a basemap of crowd sourced and open data information. The value of sharing the state's imagery as open data improves Maryland's results for this project. This puts Maryland in a better position ahead of many other states who do not offer this vital and current resource.

Thanks to funding from the Maryland 911 Board and support from local government partners, this data is and will continue to be made available as open data.

The imagery program is managed by the Maryland Department of Information Technology (DoIT). The state hosts and provides open access to this highly popular data and hosts more than 7 terabytes of archival versions that are available for search, exploration, download and connection.

KEY INITIATIVE #2

IMPROVE ACCESS TO DATA

Deliver access to open data in a manner that best serves the interests of our portal visitors.

Maryland Open Data Portal - opendata.maryland.gov
Maryland GIS Data Catalog - data.imap.maryland.gov

The State of Maryland hosts two open data portals that invite visitors to search, explore, download and connect to more than 1,600 datasets contributed and maintained by dozens of partners at the local, city, county and state levels of government.

Technology Hard at Work 24/7

In support of the efforts and initiatives of the Council, the Maryland Department of Information Technology (DoIT) continuously investigates and evaluates technology and software platforms to determine their value and ability to contribute to making Maryland data easy to find, access and use. In 2020, these efforts focused on the leading edge technologies of Business Intelligence (BI), Location Intelligence (LI), Machine Learning (ML), Robotic Process Automation (RPA) and Natural Language Processing (NLP).

NLP provides users with the ability to ask questions in "plain language". The data is prepared and the platform is configured to conduct the heavy lift of "translating" and querying the data to provide a response. Gone are the days when users need to build select statements using querying syntax to obtain the answers to even the most basic questions. In addition, NLP has the ability to reveal insights and correlations within a dataset or between datasets that in the past would have taken considerable manual effort. It is a prime example of the complementary relationship between human and machine, with employees developing hypotheses while tasking technology to deliver unbiased conclusions.

Can I See That in an Interactive Format?

There are numerous programs that empower Marylanders to obtain housing in safe and vibrant neighborhoods. One initiative of the Maryland Department of Housing and Community Development (DHCD) is the Maryland Housing Beat, a quarterly report that reviews Maryland's housing economy regarding trends in housing and distressed property statistics. Previously released as paper reports, the data statistics were displayed as static graphs and printed within a limited space on the pages.

Launched in 2020 as interactive dashboards, site visitors are now able to immediately visualize trends and patterns in the data, receive updates and corrections as soon as they are available assuring that the site is never out-of-date and engage interactive maps to enhance personalized research of the data. With more than 2,000 views anticipated within the first year, this is just one example where Maryland is making strides to apply the use and expand access to the results of government decisions and the information that led to those decisions.

KEY INITIATIVE #3

STRENGTHEN USE OF OPEN DATA

Improve the ability to understand data context, constructs and value.

Data users come from a broad spectrum of backgrounds and apply numerous, unique perspectives to the analysis, interpretation and evaluation of data. Proactive engagement serves to improve the reliability of the data by ensuring the potential, as well as the limitations of the data are better understood. In addition, it provides users with an understanding of how they contribute to the data, fosters a sense of investment in the condition and quality of data and combats misinformation.

Data Used to Effect Change and Save Lives

The data collected by government agencies holds the key to addressing some of society's most difficult challenges. The Operational Opioid Command Center (OOCC), established in 2017, has diligently collected, analyzed and recommended measures to combat the ongoing opioid crisis. Recent data analysis revealed a 51.85% reduction in opioid overdoses in one Maryland county. Data showed an expansion of mobile crisis and crisis stabilization services in this county, while other existing services remained stable. Further analysis will reveal whether expansion of these particular services would see a similar reduction of cases in other counties and whether the long-term impacts.

This information is publicly available and regularly reported from the OOCC and their partners within the Maryland Department of Health. In 2020, the OOCC has been taking additional steps to release this and other related datasets in a more readily accessible manner with the ability for data scientists to use built-in tools of Maryland's Open Data Portal for analysis and visualization, as well as the ability to connect to this data to enhance analysis capabilities through the application of other platforms.

MD Next Generation 9-1-1 Partners with Apple and Google for Improved Response

A nationwide initiative is underway to migrate and advance the 911 call systems to Next Generation 9-1-1 (NG9-1-1). Geospatial data provides the foundation upon which NG9-1-1 systems rely to improve response times and location accuracy each time a 911 Specialist answers the call. A significant aspect of NG9-1-1 is the expansive and expanding presence of mobile devices and data shared with mobile device vendors contributes to improvements in 911 call response times and caller location accuracy.

The state coordinated with the 24 primary Public Safety Answering Points (PSAPs) in Maryland to prepare an authoritative, conterminous PSAP boundary layer. Available from Maryland's Open Data Portal, the PSAP boundary layer has been provided to Apple and Google who are estimated to hold 99% of the nationwide market share of mobile devices. Through these partnerships, the boundary is correlated with the location data of the mobile device caller and securely connects the caller with the appropriate PSAP. On-going maintenance of the PSAP boundary layer and open communication with the vendors will ensure the reliability of this data for NG9-1-1 systems and will help save lives.

The COVID Tracking Project & The Johns Hopkins Coronavirus Research Center

The COVID Tracking Project, an organization launched from *The Atlantic* and the Johns Hopkins Coronavirus Research Center (CRC) have dedicated thousands of hours to consolidate authoritative statistics related to the COVID-19 pandemic. The Maryland Department of Health (MDH), along with the Maryland Department of Information Technology (DoIT) proactively engaged these organizations to ensure continuity of authoritative data sharing regarding the coronavirus in Maryland.

PROGRAM HIGHLIGHTS FROM 2020: YEAR IN REVIEW

Newly appointed Director of the Governor's Office of Performance Improvement

In early 2020, the Governor's Office of Performance Improvement (GOPI) welcomed a new Director, Allison L.M. Cordell who, per statute, serves as the Vice Chair of the Council on Open Data. The GOPI Office serves to welcome, connect and inspire to change Maryland for the better.

Digital States Survey

Receiving a grade of B+, the State of Maryland submission was assessed on the benefits and advances of the open data program administered by the Maryland Department of Information Technology (DoIT). Contributing to this favorable score was the Maryland Transparency Portal which was featured in last year's Council on Open Data Annual Report as all data and visualizations were developed and are maintained on Maryland's Open Data Portal.

Customer Service Survey Results from Marylanders

The collection of 160,000+ Marylander's responses to the Governor's Customer Service Initiative survey has resulted in an 88% satisfaction rating.

The Hogan-Rutherford Administration received an award as a "Rising Star State"

During the National Governors Association 2019 Results for America Invest in What Works State Standard of Excellence Awards for evidence-based practices and then a State Spotlight in the 2020 Results for America Invest in What Works State Standards of Excellence for five promising examples in which the state furthered the use of data-driven and evidence-based practices, policies, programs and systems.

PPE Tracker Dashboard

Tracking Personal Protective Equipment required compiling data across federal, state and local government, private and nonprofit entities. The state began early in the pandemic to use the data provided to track PPE from all available sources, including private sector manufacturers and distributors. The state continues its procurement of PPE due to the critical importance of PPE in protecting frontline workers from infection and allowing progress under the state reopening plan.

Early Detection Dashboard

At the end of July 2020, the Governor's Office of Performance Improvement (GOPI) coordinated the creation of an internal dashboard to help the state track indicators that could detect early warning signals to combat COVID-19. Datasets were identified to utilize for this dashboard from various state agencies and third party open data.

MARYLAND OPEN DATA IN THE NEWS

The Open Data Program and related projects were highlighted in a number of media publications throughout 2020.

StateScoop Radio
GIS plays critical role in states' response to coronavirus pandemic
https://statescoop.com/podcast/gis-plays-critical-role-in-states-response-to-coronavirus-pandemic/?welcome=true

StateScoop
How Maryland used GIS to build its COVID-19 response website
https://statescoop.com/maryland-gis-covid19-response-website/

Harvard Kennedy School Ash Center > Data-Smart City Solutions
Maryland's GIS- and Data- Driven Governance Model for Pandemic Response
https://datasmart.ash.harvard.edu/news/article/marylands-gis-and-data-driven-governance-model-pandemic-response

Beeck Center @ Georgetown University Blog
7 Ways to Boost Data Impact in Response to the Pandemic
https://beeckcenter.georgetown.edu/report/7-ways-to-boost-data-impact-in-response-to-the-pandemic/

State of 911 Webinar Series
GIS Data in Pandemic Response
https://youtu.be/g8mvYl0n274

TylerTechnologies Webinar
How Maryland Builds Better Data Partnerships
https://www.tylertech.com/resources/videos-and-webinars/how-maryland-builds-data-partnerships

ArcNews Article
ArcGIS Hub Enables Communities to Rapidly Share Up-to-Date Data on COVID-19
https://www.esri.com/about/newsroom/arcnews/arcgis-hub-enables-communities-to-rapidly-share-up-to-date-data-on-covid-19/

Baltimore Sun
Maryland releases more contact tracing data showing 'high-risk locations' for coronavirus
https://www.baltimoresun.com/coronavirus/bs-md-high-risk-locations-coronavirus-20200923-tiky7niftzb4vgbyji2vvqgoqq-story.html

GovernmentTechnology
Digital States Survey 2020: Cloud is More Critical Than Ever
https://www.govtech.com/computing/Digital-States-Survey-2020-Cloud-Is-More-Critical-Than-Ever.html?page=3

MissionCritical Communications
Maryland Uses GIS Data to Track Public-Safety Operations Amidst COVID-19
https://www.rrmediagroup.com/News/NewsDetails/NewsID/19681#.XsV3YaWsOvs.facebook

LIST OF COUNCIL MEMBERS

Executive Branch Agency Secretaries and Coordinating Office Directors

Secretary of Information Technology (Chair)
Michael G. Leahy

Director of the Governor's Office of Performance Improvement (Vice Chair)
Allison L.M. Cordell

Secretary of Agriculture
Joseph Bartenfelder

Secretary of the Environment
Ben H. Grumbles

Secretary of Natural Resources
Jeannie Haddaway-Riccio

Secretary of Planning
Robert S. McCord, Esq.

Secretary of Transportation
Gregory I. Slater

Secretary of Housing and Community Development
Kenneth C. Holt

Secretary of Commerce
Kelly M. Schulz

Secretary of General Services
Ellington Churchill, Jr.

State Superintendent of Schools
Karen B. Salmon, Ph.D.

Secretary of Health
Dennis R. Schrader (Acting Secretary)

Secretary of Public Safety and Correctional Services
Robert L. Green

Secretary of State Police
Col. Woodrow W. (Jerry) Jones, III

Director of Assessments and Taxation
Michael L. Higgs, Jr.
Secretary of Budget and Management
David R. Brinkley

Adjutant General of the Military Department
Maj. Gen. Timothy E. Gowen

Director of the Maryland Emergency Management Agency
Russell J. Strickland

Secretary of Labor
Tiffany P. Robinson, Esq.

Secretary of Human Services
Lourdes R. Padilla

Governor's Homeland Security Advisor
Walter F. (Pete) Landon

Executive Director of the Governor's Office of Crime Prevention, Youth & Victim Services
V. Glenn Fueston, Jr.

Executive Director of the Maryland Institute for Emergency Medical Services Systems
Theodore R. Delbridge, M.D.

Executive Director of the Department of Legislative Services
Victoria L. Gruber, Esq.

State Archivist
Timothy D. Baker

Appointees from Senate and Appointee from House of Delegates

Senate of Maryland
Senate President, Bill Ferguson

House of Delegates of Maryland
Representative Bonnie L. Cullison

Appointees of elected officials or employees from local entities to represent each of the following groups of counties

Allegany County, Frederick County, Garrett County, and Washington County
John E. (Bud) Gudmundson

Caroline County, Cecil County, Dorchester County, Kent County, Queen Anne's County, Somerset County, Talbot County, Wicomico County, and Worcester County
The Honorable Travis Marion

Anne Arundel County, Calvert County, Charles County, and St. Mary's County
The Honorable Malinda Miles

Montgomery County and Prince George's County
Harash N. (Sonny) Segal

Baltimore City, Baltimore County, Carroll County, Harford County, and Howard County
Rob Livermore

Appointees from the private, private utility, academic, or nonprofit sectors

Scott Shaffer

Linda M. Loubert, Ph.D.

Elliott Plack

Cheryl Knott

Vacant

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