

**THE MARYLAND COUNCIL ON OPEN DATA
ANNUAL REPORT
January 10, 2019**

The Honorable Larry Hogan
Governor
State House
Annapolis, MD 21401 - 1925

The Honorable Thomas V. Mike Miller, Jr.
President of the Senate
State House, H-107
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The Honorable Michael E. Busch
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Executive Summary

The 2018 Maryland Council on Open Data Annual Report highlights successes and innovations to showcase why Maryland continues to be a leader in open data.

2018 Successes

- More than doubled the number of datasets on the Portal, and solidified the Maryland Open Data Portals as a central resource for state, county, municipal, federal and other partner data.
- Expanded to more than 8,500 unique customers; also experienced an increase in the number of page views, downloads, and feeds.
- Improved features including search, layout, and overall customer experience.
- Maintained ready access to over 1,270 datasets providing customers access to reliable data.
- Improved data quality and governance, operating procedures, and data standards.
- Trained over 500 people with in-person, online, and on-demand training options.

2019 Innovations

- Identify opportunities to verify and validate datasets through the governance process.
- Add more datasets to the Portal. Continue to listen to requests from the customers, and continue to seek out opportunities to add new open data.
- Schedule innovative ways to train people. For example, code-a-thons, public library kiosk, and proactively give open data ideas to agencies.
- Study monetizing open data that is being sold by the private sector.

Open Data in Maryland

There are more Marylanders, than ever before, using Maryland open data. Interest in open data in Maryland has expanded, with more than 8,500 unique customers, accessing the open data portals. The State continues to focus on providing ready access to over 1,270 curated datasets, via download or direct data connection. The State is expanding access to open data from partnering jurisdictions, including counties and municipalities, allowing the open data portals to serve as a central data source for open data in Maryland.

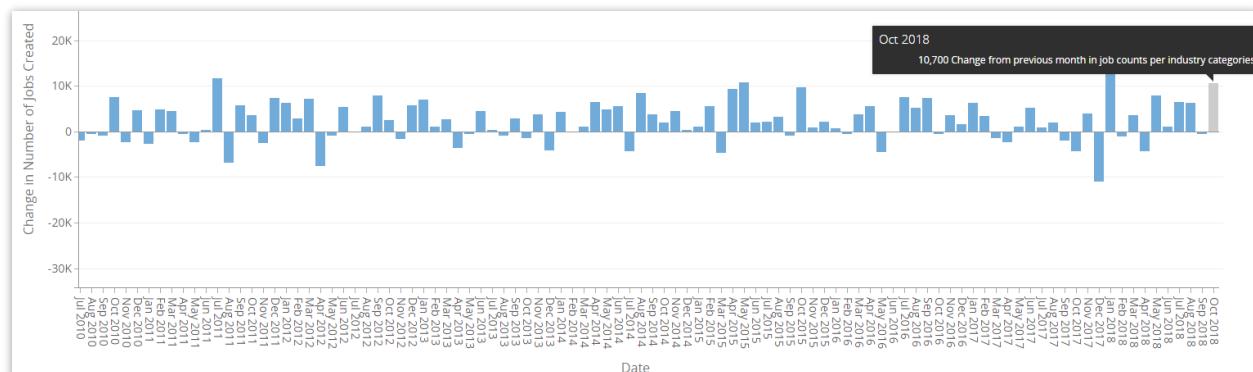


Figure 1: Chart from the Maryland Open Data Portal - ‘Number of Jobs Created by Month in Maryland’

Data Management

A Council initiative in 2018 was to formalize the State’s open data management processes. This included developing policies and standards for entering data into the open data portals, resulting in consistent data quality and completeness. This also included the development of data inspection tools to verify that the data in the portals are, in fact, meeting these standards. Additionally, the State’s dataset freshness report and dashboard, which provides a daily assessment of each dataset and if it is as up-to-date as required, was redeveloped and expanded to provide a complete catalog of all open data available from the State.

Open Data Access Improvement

Improving the customer’s experience on the open data portals was another important initiative of the Council in 2018. It is also important to emphasize how the customer accesses the data, that they understand the context of the data, and can see how the data is being used throughout the state. This was achieved through redesigns of the open data portals to provide a more organized flow of information. This also included new “area of interest” subpages that focus on the data’s use in a particular industry, applications for interacting with the data or deriving analysis, and stories and videos that explain how the data was used. The customer’s search capabilities were also improved by introducing a new centralized search portal that drives the customer to the appropriate portal based on their interests or data requests.

Workgroup Development

The Council established three ad-hoc working groups to carry out specific business activities:

- Administrative and Management Working Group
- Outreach and Training Working Group
- Data and Technical Resources Working Group

These three workgroups were charged with activities, detailed in this report, including operational guidelines, conference and user group presentations on Maryland’s Open Data Program, and data tagging and licensing.

The remainder of the Annual Report provides more details of the activities of the Council in 2018, and the Council’s outlook for open data in 2019.

Background

The Maryland Council on Open Data was established as part of the [Open Data Act](#) (State Government, Section 10-1501 through 10-1504). The duties of the Council are to recommend, coordinate, identify, advise, encourage, plan, promote, and advocate for Maryland’s open data.

The Maryland Council on Open Data has 37 members, including Cabinet agencies, five county representatives, and five private citizens. The Council Chair is the Secretary of the Department of Information Technology, with the Director of the Governor's Office of Performance Improvement serving as the Vice-Chair. The Council meets quarterly and all meetings are open to the public. Meeting transcripts, Open Data Act law documents, access to Maryland's open data portals and other information is available at opendata.maryland.gov.

The intent of the Open Data Act, is to provide transparency so that businesses, residents, visitors, and civil servants can use state data to aid in decision making. Moreover, the transparency of data helps improve accountability, as data owners share the responsibility for ensuring that data is accurate, up-to-date and available to the public. Open data also has the potential to help improve performance, by enabling greater analysis of data and providing more opportunities for collaboration.

Open Data in Maryland

Demand for open data continues to grow, and customers, constituents, and businesses expect data to be available to them as fast as they request it. Maryland provides open data access to more than 1,270 datasets through two open data portals:

- Maryland Open Data Portal - <http://data.maryland.gov>
- Maryland's GIS Data Catalog - <http://data imap.maryland.gov>

The open data portals are truly open to anyone in the public. On average, the open data portals see a combined traffic of 8,630 unique customers a month and roughly 40,600 monthly page views. The open data portals serve distinct audiences in terms of type of data searched and the toolsets used for viewing and analyzing data. The following list shows the top dataset searches from each portal, with no overlapping search criteria:

Open Data Portal	GIS Data Catalog
1 Violent Crime & Property Crime by County: 1975 to Present	1 Maryland Property Data – Tax Map Grids
2 Violent Crime & Property Crime by Municipality: 1975 to Present	2 Maryland Property Data – Parcel Points
3 Violent Crimes & Property Crime Statewide Totals: 1975 to Present	3 Maryland Traffic Cameras - Traffic Cameras
4 Minority Business Enterprise: Statewide Directory – MBE, DBE (Disadvantaged Business Enterprise), SBE (Small Business Enterprise), and ACDBE (Airport Concession Disadvantaged Enterprise) Certified Business	4 Maryland Annual Average Daily Traffic - Annual Average Daily Traffic (SHA Statewide AADT Lines)

5 Maryland Real Property Assessments: Hidden Property Owner Names	5 Maryland Roadway Posted Speed Limits
6 Maryland Port Administration General Cargo	6 Maryland Waterbodies – Rivers and Streams
7 MTA Average Weekday Ridership – by Month	7 Maryland Physical County Boundaries – Generalized
8 Employment, Unemployment, and Labor Force Data	8 Maryland Annual Average Daily Traffic - Annual Average Daily Traffic (SHA Statewide AADT Lines)
9 Maryland's 8 Digit Sub-Watersheds	9 Maryland Road Centerlines - Maryland Routes
1 Choose Maryland: Compare Counties – 0 Taxes	10 Maryland Road Centerlines - Local and Other Roads

The different customer behaviors, and the tools they are using within each portal, clearly indicates a need to maintain separate portals, but build a search bridge that allows the customer to switch back between portals with ease – a function that was accomplished and implemented in 2018.

Though all data on the portals are available for download, in many cases customers prefer to directly connect Application Programming Interfaces (APIs) and bots to datasets that ping the portal as often as every minute. An average of 495,890 application programming interfaces (API) calls occur from the Open Data Portal monthly.

Over the last few years, efforts were made to collaborate and centralize additional datasets from partnering jurisdictions. Based on these efforts, an additional 600+ datasets are shared on the Open Data Portal from approximately 7 partnering jurisdictions, and accessible through this centralized resource. For example, counties federate data from their open data portals to the state’s portal. Federal partners, including the U.S. Census Bureau, through the Maryland State Data Center also contribute significant datasets. The state also established a partnership with the Maryland Association of Counties (MACo) to store data from their research initiatives on the Maryland Open Data Portal. The value of this allows portal customers to access MACo research on county tax studies, and also includes the ability to compare the salaries of county employees for hundreds of positions.

Additionally, all Maryland county maintained GIS data is available, via linked icon, from the GIS Data Catalog.



Figure 2: Links to County Data from GIS Data Catalog

The GIS Data Catalog can be treated as a centralized, statewide resource directing traffic to local sources for access to data that is not hosted or maintained at the state level.

Both portals are administered by the Maryland Department of Information Technology and offer search, discover, display, and download capabilities in a variety of formats to meet a broad spectrum of customers. Each agency has a Data Coordinator that is trained on how to utilize the Portals. The Governor's Office of Performance Improvement assists to help curate datasets. As demand for data grows and requests for self-service, on-demand access continue to increase, we continue to strive to deliver a cost effective and value-added product to those customers. One way this is done is by posting thousands of rows of data for data scientists to either export, or connect directly via API, from the portals for import and analysis in their own tools. Customers can connect data from the Portal to third party analytics and visualization software to extend data analysis to best in class analytics software in order to gather additional insights from the data. We will continue to promote data interoperability in 2019.

Data Management

The Department of Information Technology released its Data Management Standardization Report on June 1, 2018. As open data is part of the overall state data platform, a number of updates were released to compliment the goals set in the Data Management Standardization Report.

Open Data Policy and Standards

To ensure that the data that is being made available to all customers, the Department of Information Technology developed Open Data Policy and Standards in 2018. The specifications and guidelines in the Policy and Standards will improve data consistency and availability of information. It will ensure that all levels of government and the public have access to the most up-to-date information; reduce or eliminate overlapping data requests and redundant data maintenance; ensure metadata is consistently created; and ensure that data services can be displayed by the consumer with the software of its choice.



OPEN DATA POLICY AND STANDARDS

AUGUST 2018

Version 1.0

Data Inspection Tools

Validating data accuracy, currentness, and completeness are important factors in data management. As part of the process for making data available on the Open Data Portal, each dataset is reviewed for completeness adhering to the Data Management Standards that have been developed. This process is done manually by the Open Data Portal administrator as part of the approval process prior to the data being made available to the public. To compliment this process, the Department of Information Technology developed data inspection analysis, which are performed using automated scripts. This is done to examine all data available on the open data portals, by collecting statistics where additional information can be derived. The analysis is performed on a dataset level, inspecting each record/value in the dataset, as well as an analysis on the specific fields to assess valid data schema. The analysis looks for data quality, data quantity, data duplication, as well as changes to the data. Information such as blank or null values, inconsistent cell characters, and count of changed records are made available to assess overall quality value of the data. This analysis occurs on a monthly basis and runs on all 1,270 plus datasets available on the Open Data Portals.

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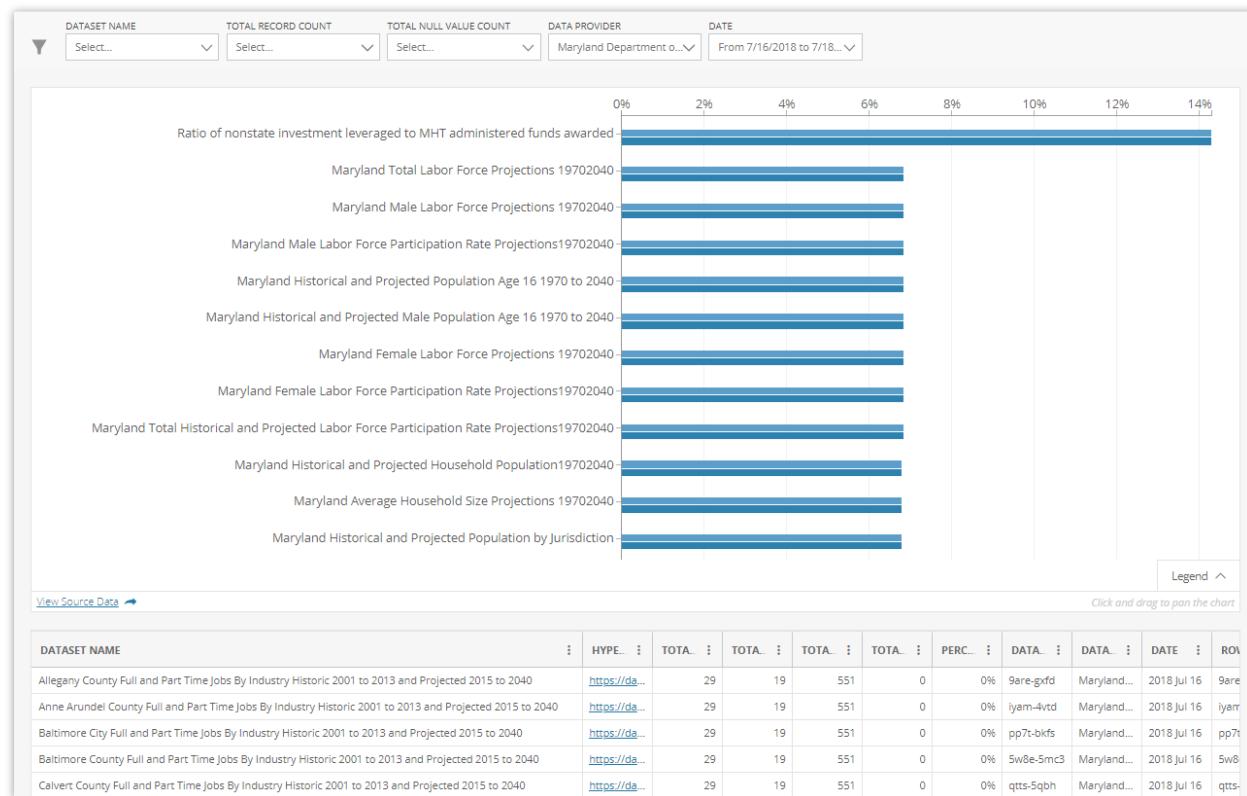


Figure 3: Open Data Inspection Report

Data Updating (Data Freshness)

When a State agency creates a dataset in the open data portal, there is maintenance timeframe that is selected. This may include daily, weekly, monthly, or annual data updates. A continuous goal has been to improve the overall timeliness of the data updates on the portal. The Data Freshness Dashboard was launched in 2016 to allow data owners to identify which of their datasets were up-to-date and which were in need of data updates. The Dashboard displays data from a daily script that is run to inventory all open datasets. The Dashboard reflected the datasets found on the Open Data Portal, however did not include a comprehensive list of datasets that are available to the public, including all geospatial and non-geospatial data. In 2018, this process was updated to include all 1,270-plus datasets to provide accountability for dataset updating and maintenance. Additionally, a new Data Freshness Dashboard was developed, using commercial-off-the shelf software to replace the prior custom-developed dashboard. This will allow for easier maintenance and management of the dashboard moving forward, moving away from the reliance on customer development and programmers.

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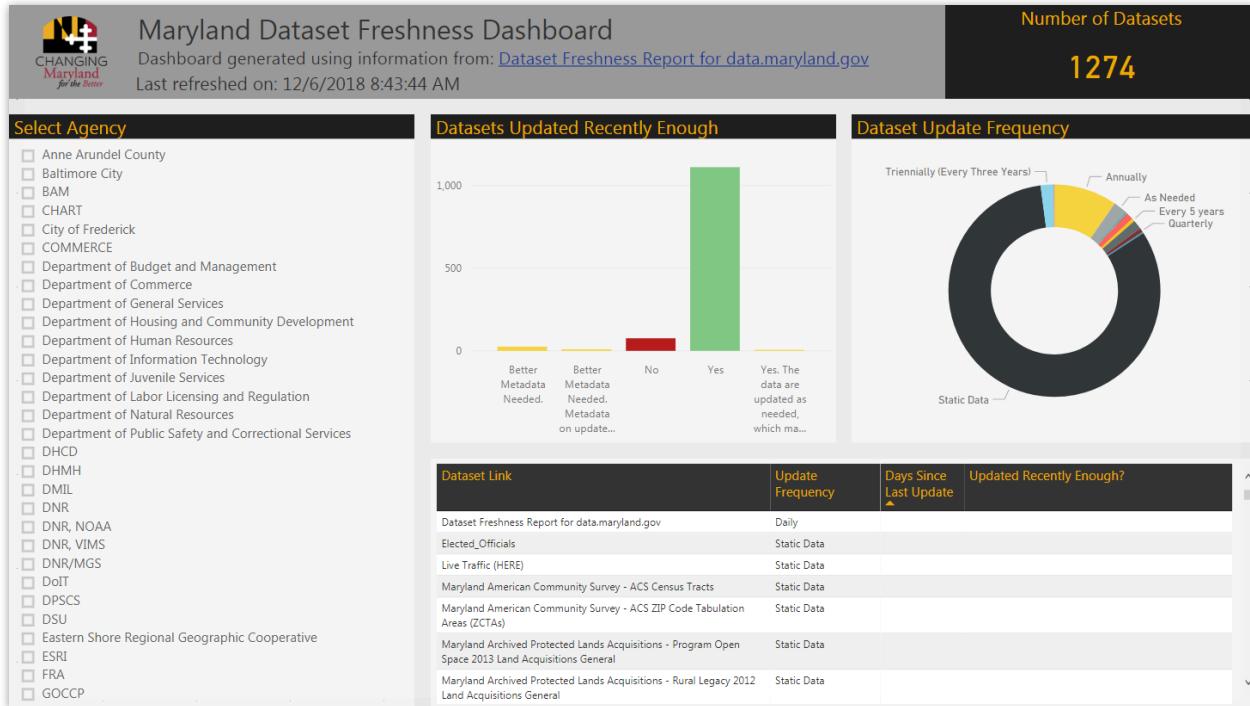


Figure 4: Updated Dataset Freshness Dashboard

Open Data Access Improvement

In 2018, the State's Open Data Portal received updated home pages to better streamline and organize access open data, as well as provide additional context to the information available to the public and the programs these datasets support.

GIS Data Catalog

The Geospatial Open Data Portal has been updated to include area of interest subpages that allow customers to explore data, applications, and stories about particular areas of interests, including Emergency Management, Environment, Community Investment and Planning, and Transportation. This was done to better serve customers providing resources based on the data topic or category, rather than the agency that maintains the data.

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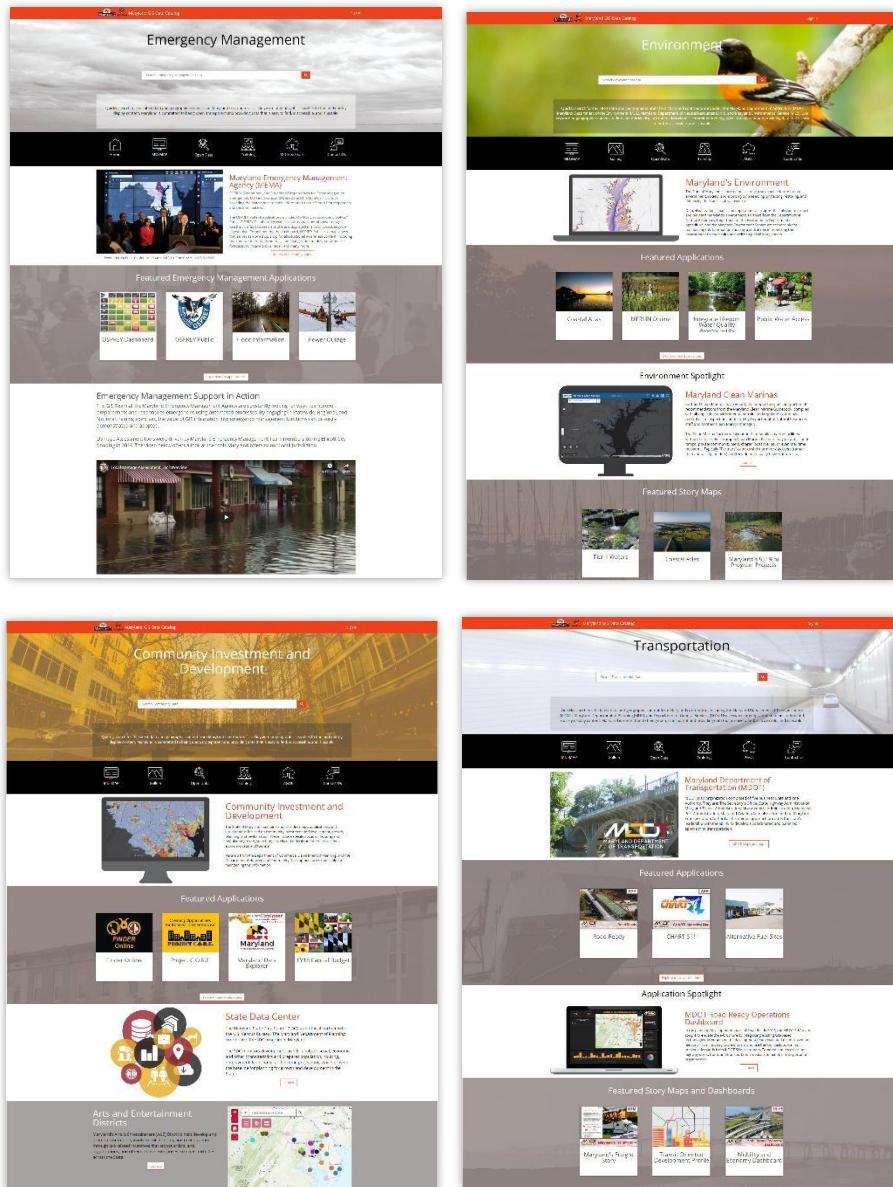


Figure 5: GIS Data Catalog Areas of Interest

Open Data Portal

The Open Data Portal was redesigned to more effectively serve data to the customer. This was achieved by adding category tiles, enhanced story features, which allow for more narrative content to be associated with the data being provided. This provides more foundational information enabling the customer to understand the broader picture about the data.

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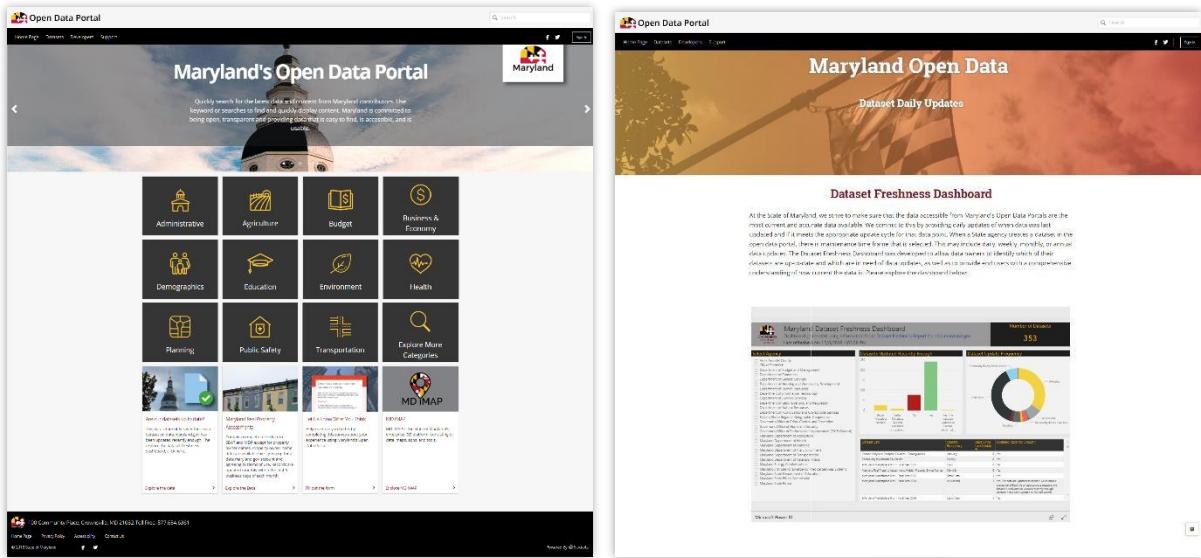


Figure 6: New Open Data Portal Homepage and Stories Page

Dataset Search

Providing a streamlined approach to accessing the data was a major focus on 2018. Rather than require the customer to have to click through a number of pages to access the data categories or switch back and forth between portals, a single search function was added that allows the customer to enter a single dataset name, category, or tag and be returned all of the datasets that match the search criteria in both portals. The customer can then select the appropriate dataset be taken to the appropriate Portal.

Workgroup Development

The Council established consists of three workgroups to carry out initiatives identified by the Council. These workgroups are:

- Administration and Management
- Outreach and Training
- Data and Technical Resources

Administration and Management

The Administration and Management Workgroup was created to develop guidelines of governance, for the Council workgroups, that extend beyond the statutory specifications. Guidelines would create the process for establishing and organizing workgroups, who serve in an advisory role to the Chair and Vice-Chair of the Council, to include their composition and structure, meeting frequency, process for voting to present information under advisement, and operating procedures.

In 2018, the Administration and Management Workgroup drafted proposed guidelines for organizational governance, with the intention of submitting to the Council, for consideration. Once a consensus is achieved, the Workgroup will provide the Chair and Vice-Chair of the Council with a recommendation on how to proceed with establishing guidelines for Council workgroups.

Additionally, the term for five of the Council appointees expired in June of 2018. The Administration and Management Workgroup has worked to support the application and appointment process for two of the expiring appointments. The three remaining positions are under evaluation and the workgroup will continue to support the appointment process for these three.

Outreach and Training

The Outreach and Training Workgroup was created to draft the communications and collateral for increasing awareness about Maryland's open data. The workgroup has been developing and implementing ways to encourage the executive, legislative, and judicial branches, as well as local entities, to increase participation in Maryland's open data.

2018 activities included leading the “Open Government Work Group Roundtable Discussion” at the Maryland Association of Counties Annual Conference, presenting Maryland’s Open Data

Program at Montgomery County's *dataMontgomery* meeting, presenting at Esri's Federal GIS Conference, and participating in the Socrata Community of Practice user group.

Data and Technical Resources

The Data and Technical Resources Workgroup was created to organize individuals who are interested in detailed data or technical related topics around open data. This includes data standards, structure, and organization, development tools, and applications.

The workgroup was established in 2018 and has taken on two primary initiatives:

- Data tagging
- Data licensing

The workgroup is currently piloting a data tagging program that is identifying commonly used tags between the state and local governments. Data tags are included with each dataset and allow for alternative terms or phases to be applied to the data to ensure it is returned during a data search request. The intention of workgroup is to develop a standards document that would identify the comprehensive list of tag for a given data category and provide government data programs with a resource to reference when generating their data tags.

The workgroup is also drafting recommendations for data licensing adoption in 2019. Currently all data on the open data portals are listed as "Public Domain", however this is not a universally adopted license type. The workgroup has identified a number of licensing options to be presented to the Council for adoption in 2019.

Road Ahead for 2019

In addition to continuing to advance the initiatives already underway as listed in the report, the Council also is looking at additional opportunities in 2019. These include Marketing and Communication and Expanded Data Marking.

Marketing and Communication

A charge of the Council is to recommend, coordinate, identify, advise, encourage, plan, promote, and advocate for Maryland's open data. Currently, communication is done primarily through the open data portals, presentations, meetings, and word of mouth. A successful effort has been made to ensure that data, made available through the open data portals, are easily identified through search engine optimization (SEO) on commercial search engines. To further expand the reach of open data in Maryland, and how open data is being used, an increased social media profile will be necessary. Enhanced marketing through social media, as well as the opportunity to

proactively share new data available and how that data is successfully used to help solve problems, will expand the adoption of data use, further promote the open data portals as the “data resource” for state data in Maryland, and lend additional support to Maryland’s place as a leader in open data across the country.

Data Marking

As indicated earlier in the report, the Department of Information Technology released its Data Management Standardization Report on June 1, 2018 that includes the assessment and implementation of a data governance strategy. Part of this includes the concept of data marking which identifies the data classification requirements for all data within government – open data included. Maryland is leading an initiative with a number of states across the country to establish a data classification and marking framework that complements the Federal Government’s Controlled Unclassified Information (CUI) program. The resulting framework will allow data to be easily identifiable both within Maryland as well as across state and jurisdictional boundaries. The progress made will be reported back to the Council on a regular basis.

Meet the Council on Open Data

The Council consists of the following 37 members:

<i>Executive Branch Agency Secretaries and Coordinating Office Directors (25)</i>	
Secretary of Information Technology (Chair)	Michael Leahy
Director of the Governor’s Office of Performance Improvement (Vice Chair)	Michael Morello
Secretary of Agriculture	Joseph Bartenfelder
Secretary of the Environment	Ben H. Grumbles
Secretary of Natural Resources	Mark J. Belton
Secretary of Planning	Rob McCord
Secretary of Transportation	Pete K. Rahn
Secretary of Housing and Community Development	Kenneth C. Holt
Secretary of Commerce	R. Michael Gill
Secretary of General Services	Ellington Churchill, Jr.
State Superintendent of Schools	Karen B. Salmon, Ph.D.
Secretary of Health	Dennis R. Schrader
Secretary of Public Safety and Correctional Services	Stephen T. Moyer
Secretary of State Police	Col. William M. Pallozzi
Director of Assessments and Taxation	Michael L. Higgs, Jr.
Secretary of Budget and Management	David R. Brinkley

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Adjutant General of the Military Department	Maj. Gen. Linda L. Singh
Director of the Maryland Emergency Management Agency	Russell J. Strickland
Secretary of Labor, Licensing and Regulation	Kelly M. Schulz
Secretary of Human Services	Lourdes Padilla
Governor's Homeland Security Advisor	Walter F. Landon
Executive Director of the Governor's Office of Crime Control and Prevention	V. Glenn Fueston, Jr.
Executive Director of the Maryland Institute for Emergency Medical Services Systems	Kevin G. Seaman, M.D.
Executive Director of the Department of Legislative Services	Warren G. Deschenaux
State Archivist	Timothy D. Baker

<i>Appointee from Senate and Appointee from House of Delegates (2)</i>	
Senate of Maryland	Senator Bill Ferguson
House of Delegates of Maryland	Representative Bonnie L. Cullison

<i>Appointees of elected officials or employees from local entities to represent each of the following groups of counties (5):</i>	
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	Michael S. Scott, Ph.D.
Anne Arundel County, Calvert County, Charles County, and St. Mary's County;	William E. Dollins, III
Montgomery County and Prince George's County	Harash N. (Sonny) Segal
Baltimore City, Baltimore County, Carroll County, Harford County, and Howard County	Rob Livermore

<i>Appointees from the private, private utility, academic, or nonprofit sectors (5):</i>	
Scott Shaffer	
David Zlowe	
Linda M. Loubert, Ph.D.	
Elliot Plack	
Vacant	

Appointment of New Council Members

Five of the Council members represent local entities and five of the Council members represent the private, private utility, academic or nonprofit sectors. Each is appointed to serve a term of four years. Five members have been appointed to serve an initial three-year term for staggered membership. Five of the appointments expired in 2018. Two of the expiring appointment positions have been filled, while the remaining three positions are under evaluation. Until the open positions are filled, the three prior appointees will continue to serve on the Council. It is important that the Council invest time this year to quickly identify new members to replace expiring appointments.

Contact Information

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