Virginia Association of Counties
ACHIEVEMENT AWARDS

APPLICATION FORM

All applications must include the following information. Separate applications must be submitted for each eligible program. **Deadline: June 2, 2017.** Please include this application form with electronic entry.

PROGRAM INFORMATION

County: County of Henrico

Program Title: Local Governnment Website Redesign and Development

Program Category: Information Technology

CONTACT INFORMATION

Name: Holly Zinn

Title: Management Specialist

Department: County Manager's Office

Complete Mailing Address: 4301 E. Parham Road, Third Floor, Henrico, VA 23228

Telephone: 804-501-4370   **Website:** henrico.us

Email: zin01@henrico.us

SIGNATURE OF COUNTY ADMINISTRATOR OR CHIEF ADMINISTRATIVE OFFICER

Name: John A. Vithoulkas

Title: County Manager

Signature:

1. Program Overview

The main website for Henrico County, henrico.us, received a complete visual and structural overhaul, which was completed in May of 2016. The goal of the project was to update the county's website to better reflect how the public expected to use the web in modern times. This included full mobile support, streamlined navigation, a simple organizational structure, and a modern user interface. New sections focusing on Services, Public Data, Projects, and Events were developed to move away from the previous department-based silo of information approach. These new sections present similar data consistently across the site. The data is stored in one place but dynamically accessed on different pages to reach our end users in multiple ways. Accessibility was a large part of this project and was developed to meet modern web accessibility standards, which allows our site to be better used by screen readers and other assistive devices.

The website was completely designed and developed by the county's Department of Information Technology (IT) web team. It provides a model that other local governments may learn from or implement in their own localities because of the way the county's information and services are structured and presented to the user. Because modern web practices were followed, the site is well-suited to engage our users and provide a positive web experience for many years to come.

2. Problem/Challenge/Situation Faced by Locality

The web is constantly changing, often responding to new ways to manage content, visual presentation, and the technology used to build it all. To address this, the county usually performs a website redesign every five years, although those changes are mostly visual. When this redesign project started, we were nearing seven years with the same, dated look and feel, heavily siloed content, and an aging technical infrastructure.

The previous site was maintained with software that incurred licensing costs and was not sustainable in adding more content managers. As staffing was changing within the IT department as well as all other departments, the county needed a way for departments to manage their own content rather than rely on IT resources where the content was unfamiliar to them.

Finding content on the site was also very difficult. As most of the information was organized by department, users needed to know which exact department provided a specific service or how to phrase their request. Navigation was more difficult, and, once a user completed a task with one department, beginning the next task would lead to frustration as they often had to start at the beginning of the site again. Focusing on a service-first organization and then grouping other content by its similar type provided an optimal user experience. This drove the organization of the site as a whole to focus on the end user, versus the department or county itself.

Several things had changed technically on the internet in the seven years since the last redesign. One of the largest was the significant increase of mobile browsing on phones and tablets. During the early planning stages of the entire site restructure and redesign, around 20% of users accessed our website on a mobile device. The site users were asking for more mobile access to county services, information, and resources. A simple mobile theme was added to the previous site to address this need before the complete redesign, but a larger focus was needed to handle the entire workflow of a mobile user.

3. **How Program Fulfilled Awards Criteria**

The redesign of henrico.us offers an innovative solution that other localities can implement, including the following:

- Major overhaul of content organization to break down silos of data in departments

- Visual redesign to accentuate the new content organization as well as provide a modern look and feel

- Responsive pages to work on a variety of devices from phones to large monitors

- Meeting accessibility standards to improve the web for all users

- Introduction of county web standards

- SEO and metadata tagging

- Providing an agile platform to separate content from design and prepare us for the future

For the last 15 years, the county's web presence was mostly focused on various county departments and agencies having a place on the web. Content would be siloed on a per-department basis, without many cross-department collaborations - in content, style, or organization. One of the first steps in the redesign was to break down these silos and organize content by its type versus its creator. This included the buildout of several new sections including Services, Public Data, Events, Locations, and Projects. By organizing the content this way, users could, for example, find a service they needed without knowing which department provided the service (a common pitfall of our earlier structure). This also allowed web developers to focus on each section and target the display and organization specifically. Examples include showing top services depending on trends, sorting public data by date, and displaying events on a calendar. Because departments are focused on how they interact with their users, each one of these objects is tagged with the department. Therefore, department pages dynamically display all the services, events, data, and more associated with them. This exposes the information in multiple places on the web site which provides a better user experience. Content can also be grouped in other ways – by tags or categories – without duplicating content. This feature was used to populate new Resident and Government sections.

To promote and realize this new content organization, a visual redesign was completed to bring a modern user interface and experience to the content. The IT web team researched common web experiences and picked common trends determined to achieve the site's goals. These trends included bright and pleasing colors, white space and font sizes to assist with readability, and technical features like mega menus (complex menus with their own HTML), 'sticky' menus to provide navigation anywhere on the page, and 'cards' to present groups of similar data. Colors were chosen to stick with themes, for example Services are always green, and Projects are always orange. Keeping this theme across the site assists users in quickly identifying the different types of content they see. After determining a layout and color scheme, a common CSS (Cascading Style Sheets) and JavaScript framework were chosen to help build the site - as well as stay within standards.

A major part of this visual redesign needed to focus on mobile users, now at 40% of the county's web traffic. A user should be able to access 100% of our site and navigation, regardless of the device they are using. In the past, developers would often create separate mobile sites which provided limited navigation or required multiple versions of the site. Our team developed this site using responsive design which uses modern technology to set rules depending on screen size that adjusts the site's content as you go from smaller to larger screens. This provides both optimal desktop and mobile user interfaces with only one technical solution.

Accessibility has been a growing trend in web design to make sure that a wide variety of users can view and interact with a website – even if they have difficulties with vision or motor skills. While this is a subgroup of the county's users, many of the design and technical choices help every user. The county chose to follow the WCAG (Web Content Accessibility Guidelines) 2.0 AA standards as they were more current than other alternative standards, followed the HTML

specifications better, and provided the best feature set to the users. The website theme was validated using various tools, and issues were resolved to try to meet the accessibility standards.

Standards and documentation were produced for county content editors to provide a common language when presenting content online. A large majority of the content on henrico.us is managed by individual departments that host the services, events, and other content their department produces. By having these users maintain content, they better understand their end users and can target those groups specifically. With the introduction of standards to these editors, IT can assure that the county has a common presentation regardless of the actual content being displayed.

While the county wants users to browse our site and interact with us, most of our users come to henrico.us through various search engines. We followed search engine optimization best practices to help with user search queries. Certain features included clear and concise titles, tagging, page structure, and the cleanup of actual content. We follow trends in search results and how people access the site to then reflect those changes in the code and content to deliver users to the content they are looking for faster. In recent years, search engines and other 'smart assistants' began using a common markup (metadata) to 'tag' content in machine-readable ways. IT implemented this tagging in the development as well, using structures provided by schema.org. For example, all Services are tagged as a Government Service, and location pages are tagged as a Government Building or Historical Site. As henrico.us gets indexed, this metadata is added to the search engine. Therefore, when you search for 'Henrico Public Works', a phone number and address are presented directly in search results.

While the primary focus of this project was a site restructure and redesign, it was developed in such a way that content is separated from look and feel. Therefore, as the web continues to

change, the county can quickly respond to those changes and continue to present an optimal solution to the citizens and businesses that use the site every day.

4. How Program Was Carried Out

The site was developed completely by the Henrico IT web team on the WordPress platform, a very popular open source Content Management System that powers around 25% of the internet. Custom plugins and themes were developed to provide the actual restructure and redesign. Due to the size and popularity of WordPress, there is a large support, developer, and extension community available to the web team.

The User Interface and Experience is driven by the Bootstrap CSS and JavaScript framework. By using a framework like Bootstrap, several complex tasks like responsive web design, content markup, and animations are built-in and require significantly less custom code. This allowed the web developers to use a standard library to develop a user interface that is consistent across the various tools they develop.

As for development, several modern methodologies were adopted to increase IT's productivity and maintain modern development practices. Sass was used for its enhancements over standard CSS like variables and nesting. IT also used Grunt to compile our Sass files, optimize our CSS and JavaScript output for production and speed, and strip development files away from production code. The developers used Git for source control so they could work on the project concurrently and merge code seamlessly.

The entire project took almost two years, but multiple steps were user facing before the entire project was completed. The site structure and development of plugins for the Content

Management System on the key content areas like Services, Calendar, Projects and Data were addressed first. Each one of these rolled out individually. Our largest section, Services, was available to the public almost a year before the visual changes occurred. Once the organization was complete in Fall of 2015, the web team focused on the redesign, which was launched to the public in May of 2016.

Beyond the technical aspects of building a website, several internal changes were made on how IT and other departments worked to build the site. IT started by increasing engagement with county content editors. The web team also created an Internet Strategy Team, which included the most engaged editors and representatives from key departments. This team not only served as a test bed for new technical changes but also presented many non-technical, user-experience ideas to IT during implementation. Their work helped the team refine the concepts that were being developed to enhance the site. Web developers and management also used an Agile development approach on this project, iterating through various parts of the project and receiving feedback early and often. Right before the visual redesign was launched, IT provided a "beta-test' instance of the site for all county employees to review and to offer feedback. This final test was a tremendous push in the final stages of development – with over 100 points of overwhelmingly positive feedback. This helped to encourage county staff to be more engaged with and take ownership of the new website, which provided benefits to the site, and in turn, provided added benefits to our public users.

5. Financing and Staffing

All work was done in house using the free, open source Content Management System, WordPress as well as free, open source frameworks for Bootstrap and JavaScript. The county only used its internal staff and did not outsource any of the development, design, or

implementation tasks. The entire site is hosted on hardware used to maintain other public web applications, which is part of a larger infrastructure that powers all servers for the county.

6. Program Results

Since launching the site, IT and other county departments have seen several measurable results that benefit our end users. This is tracked by metrics of feedback as well as analytics software.

Mobile usage has grown from around 20% during the early parts of this project to over 40%. Part of this can be attributed to the natural trend of users online in general, but this project's mobile redesign has provided a better experience for that growing number. Using our analytic tools, we have seen the breadth of content that mobile users consume better matches that of our desktop website, versus a very specific subset of content previously viewed on mobile devices.

Due to the organizational change, the per-user page view has gone down (as well as the time spent on a page), but the number of users has been maintained and continues to grow. The paths a user would follow to find specific content have been shortened and streamlined. The sustained real-time user load has also grown 20%. Henrico now averages around 110 users at any given time during business hours.

Henrico.us has also seen an increase in the amount of services offered online. Previously, this was limited to an estimated 20 services that could be fully completed online. This number now reaches around 80, and it continues to grow. As departments and users have seen the benefits of a better website, more departments have been willing to allow online access to their services.

After the launch, several improvements were made to the core infrastructure that hosts the virtual servers on which the site runs. This improvement alone gave the site a significant speed boost,

moving our average page load time from around four seconds to around two seconds. These speed improvements increase user satisfaction as well as search engine ranking.

With a new technical infrastructure and development workflow, the internal web developers in IT are better tooled and prepared to make updates and add features upon request. For example, if a simple bug is reported, it can often be corrected, tested, and deployed in the same day. Similarly, due to our agile development methodologies, we can test proof-of-concept solutions throughout the software development life cycle.

Beyond analytics metrics, IT has also seen a rise in end user engagement and feedback. While feedback was always welcome, this tool would only see a few responses per year. Now, IT sees a new suggestion much more frequently. Feedback from the community has been overwhelmingly positive, and the new organization has been embraced by our users.

7. Brief Summary

Redesigning and developing the website provided ample improvements for residents, businesses, and visitors to consume more of the county's resources online. Providing clear and concise access to services, data, and other features has increased efficiency for both citizens and the county. The migration to more available online services reduces staff requirements and can increase speed and turnaround of services. This method of virtual interaction is becoming a first choice for many of our citizens. Allowing citizens to access this information from the device they choose allows flexibility in the always-changing online world.

By developing this system entirely in house, both IT and all other involved departments saved the county various resources in time and money and reduced dependencies on external vendors and

systems. The initial and ongoing improvements made to the website allow for county services and

information to be available 24 hours a day and provide non-stop benefits to our residents.

This has been viewed as a very successful web project and launch.

Original Website Design

HENRICO COUNTY VIRGINIA

| HOME | ABOUT HENRICO | SERVICES | DEPARTMENTS | GOVERNMENT | FAQS | CONTACT US |

Quick Links

- Traffic Conditions
- County Agencies
- Apply for a Job
- Pet Adoptions
- Board of Supervisors
- Board of Supervisors' Streaming Meetings
- Henrico County TV
- Henrico's Budget
- Henrico County Schools
- Henrico County Library

Online Services

- Real Estate Property Information
- Personal Property Tax
- Pay Bills Online
- Water, Sewer, & Refuse Collection Services
- Building Inspections
- Report a Pothole
- GIS Parcel Viewer
- GIS Parcel Viewer - all devices (beta)
- Find Your Polling Place
- Register for a Recreation Program
- Reserve a Park Shelter

Residents

Visitors

Businesses

News & Announcements

Henrico sets final hearing on community development needs for March 26

March 12, 2015 - Henrico will hold a final public hearing to help guide the county's use of federal housing & community development funds over the next five years. Read More

Free tax-preparation service for qualified residents

March 11, 2015 - Families and individuals who earned less than $53,000 last year can receive free assistance with their 2014 income tax returns. Read More

New electronic payment information

February 13, 2015 - Henrico County enacts changes for electronic payments. Read More

Tax break for spouses of military killed in action

February 11, 2015 - Surviving spouses of members of the U.S. armed forces who were killed in action can qualify for a tax exemption on their home. Read More

HCTV Live Programming

January 3, 2015 - Watch Henrico County Television live! Read More

UPCOMING EVENTS

SUN 15
Sunday Afternoon with Mustang: An American Icon
March 15 at 2:00 pm - 3:30 pm
Deep Run Park

MON 16
Driver's License
March 16 at 5:00 pm - 8:30 pm
Henrico Western Government Center

WED 18
Frank Thornton's Constituent Meeting
March 18 at 7:00 pm - 8:30 pm
Eastern Henrico Recreation Center (804) 225-2056

THU 19
Mental Health & Developmental Services Board Meeting
March 19 at 6:00 pm
MH/DS Woodman Road

FRI 20
Adventure Series – A Fly Fishing Journey
March 20 at 7:30 pm - 9:00 pm
Henrico Western Government Center

View More…

Website During Content Reorganization

HENRICO COUNTY VIRGINIA

HOME	ABOUT HENRICO	SERVICES	DEPARTMENTS	GOVERNMENT	FAQS	CONTACT US

Home > Services

Services

Below are the categories of services provided by Henrico County with the most viewed services for each category. To see all of the services for each category, click on the category heading link or the "More" link. You may also type in the search bar for a service and possible matches will be displayed.

Search All Services:

Careers & Employment

Job Search & Application

More

Community

Translation Services

Citizen Survey for Community Development

Free Mosquito Inspection/Standing Water Complaint

More

Construction

Building Inspection Scheduler

More

Finance & Taxes

Payment Options

Disabled Veterans Real Estate Tax Exemption

Tax Relief

More

Fire

Fire Apparatus Appearance

Fire Safety Education

Fire Extinguisher Training

More

Government

Review County Code

Report Fraud

More

Leisure

Libraries

Living

Redesigned Website

Henrico County
VIRGINIA

Traffic | Jobs | Schools | Libraries | Events

| HOME | SERVICES | GOVERNMENT | DEPARTMENTS | HISTORY | NEWS | CONTACT |

Friday, February 17th, 2017

Weather
52.0°F | A Few Clouds

Hours of Operation
M-F, 8:00 am - 4:30 pm

Quick Links

Board of Supervisors' Streaming Meetings

Henrico County TV

Henrico's Budget

Freedom of Information Act (FOIA)

Employees

Real Estate Property Information

Map Viewer

Newsletter signup

Calendar

FEB 17
CASA child advocates volunteer application due
Friday, February 17th
Hungary Spring Office Park

FEB 18
Rabies Clinic
Saturday, February 18th
Henrico Western Government Center

FEB 18
Legendary Dance Night - Sold Out
Saturday, February 18th
Eastern Henrico Recreation Center

More Events

News

Henrico Today's winter issue is now available.
Henrico mourns longtime Supervisors Richard W. Glover of Brookland and David A. Kaechele of Three Chopt. [...]

Henrico board appoints Hinson as interim supervisor for Brookland
Harvey L. Hinson appointed to serve as interim supervisor for the Brookland District following the death of represe [...]

Henrico berry plant sale benefits 4-H youth program
Blackberry, raspberry and blueberry plants are available for $5 each. A bundle of 25 strawberry plants is $8. [...]
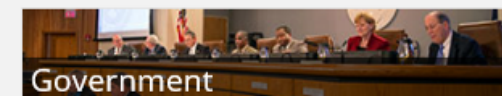
More News

Residents

Visitors

Businesses

Government

Services

Apply for a Job

Pay Utility Bill

Public Use Areas for Disposal

Make Online Payment

Water, Sewer, & Refuse Collection Application

Traffic Violation Payments

Marriage Licenses

Public Data

Incident Crime Reports (ICR)

Calls for Service Reports

Arrest Reports

Real Estate Database

GIS Open Data

Building Permits by Census Category - January 2017

Certificate of Occupancy (C/O) - January 2017

Projects

Short Pump Park

Cobbs Creek Reservoir

Tuckahoe Creek Park

Greenwood Park

Creighton Road Improvements

Sadler Road Improvements

Libbie Mill Library

Website's Inclusion of "Cards"

Henrico County
VIRGINIA

HOME | SERVICES | GOVERNMENT | DEPARTMENTS | HISTORY | NEWS | CONTACT

Home / Transparency / Public Data

Public Data

To see all of the data items for each category, select the image or title of the category. You may also start typing a keyword in the search bar below to filter all data items and select from the possible matches in the options presented to go directly to that Public Data item.

Find Public Data:

Community
Data on Henrico's population, voting precincts, and government *Ex. Census Information*

Environment
Data on environmental quality and sustainability *Ex. Water Quality Report*

Financial Reports & Local Economy
Data on Henrico's finances, businesses, labor force, and economic indicators *Ex. Henrico's Budget*

Plans & Development
Data on housing, permits, building inspections, and construction activity *Ex. Monthly Permit Report*

Public Safety
Data on crimes, fire, accidents, and inmates *Ex. Annual Police Report*

Transportation
Data on roads, public transit, and airport activity *Ex. Traffic Counts*

Henrico County
VIRGINIA

Home / Services, Programs, and Resources

Services, Programs, and Resources

Below are the categories of services provided by Henrico County with the most viewed services for each category. To see all of the services for each category, click on the category heading link or the "More" link. You may also start typing a keyword in the search bar below to filter all services and select from the possible matches in the options presented to go directly to that service.

Find a Service:

[   ]

[Services Home] [All A-Z] [All By Action] [All By Category] [Online Services]

📧 Careers & Employment

Apply for a Job

Become an Intern

Employment with Health Department

Become an Election Official in Henrico County

Become A Deputy

More Careers & Employment

🏠 Community

Find Community Cleanup Date

Become a Volunteer

Dog License

EngAGE in Henrico: Resources for Older Citizens

File a Zoning or Environmental Complaint

More Community

🚧 Construction

Plans of Development

Building Inspections Scheduler / Plan Review Status

Plan Review Comments (Planning only)

More Construction

⚖️ Courts

Traffic Violation Payments

Recording of Land Records

Probate & Estate Administration

File a Civil Case in General District Court

View Circuit Court Online Records

More Courts

▦ Development

Plans of Development

Subdivisions

Rezoning and Provisional Use Permit

Zoning Appeals Applications (Variances/Conditional Use Permits/Appeals)

POD Signature Plan 10-Day Expedited Process

More Development

👪 Family

Marriage Licenses

Mental Health Services

Women, Infants & Children (WIC)

Adolescent Services

Adult Substance Abuse

More Family

🧮 Finance & Taxes

Make Online Payment

Personal Property Tax Relief

Real Estate Advantage Program

🔥 Fire

Smoke Alarm Assistance

Fire Explorers Post 651

Citizens Fire Academy

🏛 Government

Provide a Website Suggestion

Report Fraud, Waste or Abuse

File a Claim