Virginia Association of Counties

ACHIEVEMENT AWARDS

Virginia Association of Counties

SUBMISSION FORM

All submission forms must include the following information. Separate submission forms must be turned in for each eligible program. **Deadline: Friday, April 3, 2026.** Please include this submission form as the first page of your electronic entry. Contact **Gage Harter** with any questions.

PROGRAM INFORMATION

County: Loudoun County

Program Title: Locational Clearance Review Mapping Tool

Program Category: Technology

CONTACT INFORMATION

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SIGNATURE OF COUNTY ADMINISTRATOR OR DEPUTY/ASSISTANT COUNTY ADMINISTRATOR

Name: DocuSigned by: Joe Kroboth 6AC7403CCCB14AC...

Title: Deputy County Administrator

Signature: 03/23/2026

Executive Summary

Staff from the Loudoun County Department of Building and Development (DBD), Office of Mapping and Geographic Information (OMAGI), and Department of Public Affairs and Communications (PAC) developed and implemented the Locational Clearance Review Mapping Tool (LCR Mapper), an interactive, GIS-based application designed to streamline the permit process for small residential projects such as sheds, pools, and accessory structures. The creation began in January of 2024 with a soft launch in June of 2025 and an official live website launch on September 3, 2025.

This innovative online tool allows applicants to digitally draw proposed structures directly onto their property within the County's mapping platform. The system displays all applicable zoning overlay districts, natural and environmental resources, soil types, and topography, immediately alerting both applicants and staff to potential compliance requirements under the County's Zoning Ordinance. Applicants submit the finalized map with their permit application, enabling staff to analyze permits quickly and accurately.

By integrating real-time spatial data with regulatory standards, the LCR Mapper enhances transparency, improves application accuracy, reduces processing delays, and promotes informed decision-making at the earliest stage of project planning. Notably, the tool was developed entirely in-house through collaboration among three County departments, without the use of outside consultants, demonstrating strong internal expertise and cross-departmental coordination. The tool is now also being used to support multiple County programs including the Invasive Plant Species Management Program and Health Department permitting.

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The tool is being used to support multiple County programs. For example, in 2025, staff from DBD, the Department of General Services (DGS), and the Loudoun Soil and

Water Conservation District (LSWCD) launched the County's Invasive Plant Species Removal Program. The LCR Mapper was incorporated as a required component of that application process. Applicants use the tool to delineate invasive removal areas, allowing staff to quickly determine whether additional zoning requirements apply. Because these applications have accelerated review timelines, the Mapper has proven essential in helping staff meet program deadlines efficiently and consistently.

The Challenge

Loudoun County's Zoning Ordinance contains detailed regulatory standards governing development within designated Zoning Overlay Districts and Natural and Environmental Resource Areas, including the Mountainside Overlay District, Limestone Overlay District, Floodplain, Steep Slopes, and River and Stream Corridor Resources. Properties located within these areas often have reduced buildable footprints and are subject to strict development limitations.

Historically, applicants had limited ability to determine how these constraints affected their property. They were required to navigate the County's LOGIS system, Loudoun's local GIS mapping tool, and interpret layered GIS data independently—a complex task for most homeowners and small-scale contractors.

Without a digital method to depict proposed structures, applicants submitted sketches on plats or aerial imagery. These drawings were frequently not to scale, inaccurately sized, or incorrectly located. Staff then spent considerable time manually overlaying these sketches onto official GIS layers to determine compliance. This process

was labor-intensive, prone to error, and often resulted in delays, revisions, and applicant frustration when previously unidentified constraints were discovered during review. The absence of an integrated, user-friendly spatial planning tool created inefficiencies for both the public and County staff, extending review timelines and increasing avoidable resubmittals and potentially project costs.

The Solution and Innovation

In response, 4 existing staff members from DBD's Natural Resources Team and OMAGI collaborated over several months to design and implement the LCR Mapper. This web-based GIS application provides a single, intuitive interface where users can visualize all relevant zoning overlays and environmental constraints affecting their property.

Applicants can draw proposed structures to scale directly onto their parcel and submit this information digitally with their permit application. The system immediately identifies potential conflicts with environmental resources or overlay regulations, allowing applicants to address issues proactively before formal review begins.

The tool was intentionally designed for accessibility, eliminating the need for specialized GIS knowledge. By placing accurate, real-time regulatory information directly in the hands of applicants, the County has significantly improved efficiency, reduced avoidable errors, and enhanced the overall customer experience.

The program's adaptability further underscores its value. Just prior to launch, staff integrated an additional GIS layer to support the Invasive Plant Species Removal Program, a collaborative program involving Loudoun County, the Loudoun Invasive Removal Alliance

, and the Loudoun Soil and Water Conservation District. This tool enables applicants to map project areas and allows staff to quickly determine whether expedited or full review is required. The tool has since been identified by other County Departments for potential expansion, including the Health Department for well and septic permitting and the Department of Economic Development's Business Assistance Team supporting western Loudoun businesses. Furthermore, as the tool is a living application, staff can readily respond to customer feedback to optimize the user experience. Since the launch of the program, staff have developed additional guidance for documenting land clearance calculations and created an additional GIS layer for soil testing requirements in response to customer feedback.

Because the LCR Mapper is built using widely available GIS technology, it is readily transferable and scalable for other jurisdictions seeking to modernize development review processes.

Outreach and Implementation

To ensure successful adoption, staff from PAC and DBD implemented a comprehensive outreach strategy. A dedicated landing page was created on the Loudoun County website to serve as a centralized access point for the tool. The page was intentionally designed to connect users with related DBD divisions and other County departments, reinforcing the LCR Mapper as a shared County resource.

Recognizing that many applicants may be unfamiliar with GIS technology, staff developed a detailed, step-by-step user guide to assist applicants in locating their

property, drawing structures to scale, identifying constraints, and completing submission requirements. Staff also hosted live webinars to demonstrate the tool's functionality and answer questions in real time. These sessions provided direct engagement with applicants, contractors, and design professionals, increasing confidence in the tool and encouraging early adoption.

Through intentional outreach, training, and thoughtful design, the County ensured that the LCR Mapper is not only innovative, but practical and accessible to the community it serves.

Results and Impact

Since implementation, the LCR Mapper has substantially improved the efficiency, accuracy, and transparency of Loudoun County's permit review process.
By allowing applicants to identify zoning overlays and environmental constraints prior to submission, the County has reduced incomplete applications and minimized resubmittals. Applicants are better informed at the outset, enabling design adjustments before review and reducing costly revisions. As a result, overall review timelines have decreased, and staff can focus on substantive regulatory analysis rather than correcting mapping inaccuracies. The tool has also increased trust between applicants and the County as applicants are informed up front about the possible constraints their projects may face.

Digital submission of accurately scaled project locations has eliminated the need for staff to manually interpret and overlay hand-drawn sketches onto GIS systems, resulting in measurable staff time savings and improved review consistency.

Since it's official live launch, the LCR landing page has received more than 2,000 views, averaging approximately 14 views per day—demonstrating sustained public engagement and demand. Additionally, it has been used in the submission of all 98 invasive species plan applications and is a required document for the program.

Beyond operational efficiencies, the LCR Mapper has strengthened customer service by increasing transparency and accessibility. Applicants now have a clear, visual understanding of regulatory constraints affecting their property, empowering them to make informed decisions and engage with staff proactively.

Conclusion

The Locational Clearance Review Mapping Tool exemplifies innovation in county government by combining technology, collaboration, and customer-centered design to address a longstanding regulatory challenge. Developed entirely in-house through strong coordination among DBD, OMAGI, and PAC, the tool modernizes the permit review process while strengthening environmental compliance and public service delivery.

Its scalability, adaptability, and reliance on widely available GIS technology make it a model program for jurisdictions seeking to streamline development review and improve transparency. By proactively addressing regulatory complexity through innovation and outreach, Loudoun County has created a forward-thinking solution that enhances operational effectiveness, interdepartmental collaboration, and public trust.