

AASHTO Innovation Initiative

[Proposed] Nomination of Innovation Ready for Implementation

Sponsor

Nominations must be submitted by an AASHTO member DOT willing to help promote the innovation

1. Sponsoring DOT (State): Virginia Department of Transportation
2. Name and Title: Hari Sripathi, Director, Office of Strategic Innovation

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3. Is the sponsoring State DOT willing to promote this innovation to other states by participating on a Lead States Team supported by the AASHTO Innovation Initiative? Yes No

Innovation Description (10 points)

The term “innovation” may include processes, products, techniques, procedures, and practices.

4. Name of the innovation:

VDOTPEDIA

5. Please describe the innovation. Describe how this innovation transforms your existing “state of play.”

VDOTPEDIA is a knowledge management system which builds upon the proven importance of the largest general reference sites on the internet, Wikipedia. There is a desire from employees, at all levels of the agency, to share and learn which is not satisfied by current methods. VDOTPEDIA provides a centralized online site for VDOT employees to create, edit, and learn from articles which are crowdsourced by other employees within the agency. The first stage of this project will be to populate the site with the initial 500 topics. These initial topics will help demystify acronyms, terms which new and veteran employees find confusing, incorporate the job roles for positions within the agency, employee processes, and project management procedures. Many employees are already creating job aids for their own use, but that knowledge and experience is not being shared and is often lost when the employee moves to another positions or leaves the agency. By providing a medium for which to share information, the knowledge will be retained and iterated upon to continuously improve the efficiency and accuracy of the concept or process. The next phase will incorporate live data and interactive articles. This would allow employees to submit forms or work requests using the same page they use to learn about the process increasing accuracy. There is already a VDOT effort to implement an online document system which could be integrated. Other articles will link to existing backend datasets providing live information embedded within the text, displayed as tables, or shown on a map. By collocating our learning system alongside business processes this would increase employee preparedness, reduce interruption of coworkers for help, and encourage collaboration within the agency.

6. If appropriate, please attach photographs, diagrams, or other images illustrating the appearance or functionality of the innovation (if electronic, please provide a separate file). Please list your attachments here. Attach photographs, diagrams, or other images here.

Handicap Ramp Article Mock-up

7. Briefly describe the history of its development.

VDOTPEDIA was initially conceived by a VDOT employee who developed a proof of concept and presented the idea at VDOT’s Innovation lab competition where the concept won first place. Since that time VDOT has been developing an official release of the idea utilizing internal resources and was able to demonstrate a prototype version with initial feature sets. VDOT has decided to proceed with implementation starting with the traffic engineering and construction division business units for evaluation of full-scale adoption.

State of Development (40 points)

Innovations must be successfully deployed in at least one State DOT. The All selection process will favor innovations that have advanced beyond the research stage, at least to the pilot deployment stage, and preferably into routine use.

8. How ready is this innovation for implementation in an operational environment? Please check of the following options. Please describe.

- Prototype is fully functional and yet to be piloted
- Prototype demonstrated successfully in a pilot environment
- Technology has been deployed multiple times in an operational environment
- Technology is ready for full-scale adoption

The proof of concept was demonstrated for a small group and the agency is moving forward to populate the initial topics using a mix of technical writers, on-call consultants, and business unit crowdsourcing.

9. What additional development is necessary to enable routine deployment of the innovation? What resources—such as technical specifications, training materials, and user guides—are already available to assist with the deployment effort?

Additional development is needed to generate the initial technical articles. In addition the agency will need to develop communication and marketing materials for employee understanding. Leadership must take an active role in reinforcing that this is a priority for the agency. Additionally, some of the more advanced features require some IT development. The resources to successfully deploy VDOTPEDIA include following the development path and design of Wikipedia as a roadmap to ensure a familiar user experience.

10. Has any other organization used this innovation? Yes No

If so, please list organization names and contacts. Please identify the source of this information.

Organization	Name	Phone	Email
Missouri DOT	Keith Smith	Click or tap here to enter text.	Keith.Smith@modot.mo.gov
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.

Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.
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Potential Payoff (30 points)

Payoff is defined as the combination of broad applicability and significant benefit or advantage over other current practice (baseline).

11. How does the innovation meet customer or stakeholder needs in your State DOT or other organizations that have used it?

Currently, there is no appropriate avenue for employees to share their knowledge across the agency and existing knowledge resources are scattered across dissimilarly organized online libraries. There are many versions of documents which creates an uncertainty of where the current version of the information is located. VDOTPEDIA will satisfy the demand for knowledge by providing a centralized place for employees to learn and share knowledge on a wide range of topic. As the workforce changes with time due to physical and mental automation, the demand for a high quality and up to date knowledge base will be critical for employees to continue to sharpen their skills and learn new ones. In addition, by providing employees the power to create and edit pages they will be creating tools for others to use which will increase productivity, reduce job-aid duplication, and collaborate to refine procedures. By creating these resource municipalities, consultants, and contractors will also gain the benefits of information sharing.

12. What type and scale of benefits have your DOT realized from using this innovation? Include cost savings, safety improvements, transportation efficiency or effectiveness, environmental benefits, or any other advantages over other existing baseline practice. Please identify the following benefit types:

Check boxes that apply	Benefit Types	Select a rating from the drop-down menu
<input checked="" type="checkbox"/>	Cost Savings	5-High
<input checked="" type="checkbox"/>	Shortened Project/Service Delivery Schedule	2-Low to Moderate
<input checked="" type="checkbox"/>	Improved Customer Service	5-High
<input checked="" type="checkbox"/>	Improved Quality	6-High to Exceptional
<input checked="" type="checkbox"/>	Environmental Benefits	3-Moderate
<input checked="" type="checkbox"/>	Organizational Efficiency	7-Exceptional
<input checked="" type="checkbox"/>	Improved Safety	3-Moderate
<input checked="" type="checkbox"/>	Improved Operation Performance	6-High to Exceptional

<input checked="" type="checkbox"/>	Improved Asset Performance	3-Moderate
<input type="checkbox"/>	Other (please describe)	Choose an item.

Provide an additional description, if necessary:

VDOTPEDIA creates an environment which will encourage knowledge sharing and the incentive to document processes.

13. Please describe the potential extent of implementation in terms of geography, organization type (including other branches of government and private industry) and size, or other relevant factors. How broadly might the technology be deployed?

This concept can and has been deployed at the global, national, state, public, and private levels already. A national level of this concept may be AASHTO providing encyclopedic knowledge base for policy and standards for all forms of transportation. This concept could also be a new national delivery method for FHWA's Manual of Uniform Traffic Control Devices (MUTCD) which would be helpful for reference to public servants, private companies, and citizens. These wiki's could be deployed statewide to provide information on projects both upcoming and historically. A wiki could be created by municipalities which incorporate easily updateable information on who to contact for utilities, upcoming events, school information such as closures and many others. Many of the methods for deploying a Wiki are free and open source. A list of sites currently using this innovation can be found here:

https://en.wikipedia.org/wiki/List_of_wikis#WikiIndex

Market Readiness (20 points)

The All selection process will favor innovations that can be adopted with a reasonable amount of effort and cost, commensurate with the payoff potential.

14. What specific actions would another organization need to take along each of the following dimensions to adopt this innovation?

Check boxes that apply	Dimensions	Please describe:
<input checked="" type="checkbox"/>	Gaining executive leadership support	Leadership needs to relate to benefit
<input checked="" type="checkbox"/>	Measuring performance (e.g. benefits documentation)	Decreased training time and interruptions due to lack of employee knowledge
<input type="checkbox"/>	Improving technology understanding	Click or tap here to enter text.
<input type="checkbox"/>	Overcoming financial constraints	Click or tap here to enter text.

<input checked="" type="checkbox"/>	Addressing legal issues (if applicable) (e.g., liability and intellectual property)	Governance of these sites will vary depending on content.
<input checked="" type="checkbox"/>	Acquiring in-house expertise	Deployment of this solution can be done in-house or externally which will cause cost to vary.
<input type="checkbox"/>	Resolving conflicts with existing regulations and standards	Click or tap here to enter text.
<input type="checkbox"/>	Other Challenges	Click or tap here to enter text.

15. What is the estimated cost, effort, and length of time required to deploy the innovation in another organization?

Please describe:

Cost: There are many forms of this knowledge resource system. Some of these resources can be deployed and hosted for free within a day including MediaWiki which is the engine which runs Wikipedia. Other instances such as Microsoft's SharePoint Online Wiki is billed on a per license price.

Level of Effort: Effort to set-up the initial instance of the wiki is trivial and could be done by a single person, but larger deployment would require more effort to scale and maintain. VDOT was able to put together a proof of concept using SharePoint Online Wiki in about two weeks and will continue to grow this program.

Time: Generating the page content will take the majority of the time. VDOT is anticipating a six month to one year duration to generate the initial content and pilot before being tested at full-scale within the agency.

16. To what extent should the implementation of this innovation require the involvement of third parties, including vendors, contractors, and consultants? If so, please describe. List the type of expertise required for implementation.

VDOTPEDIA will mostly be done in-house with help from IT staff, admin staff for logistics, technical writer, on-call consultant, and an internal Innovation Champion to lead.



VDOTPEDIA

- Main page
- Contents
- Featured content
- Current events
- Random article

Interaction

- Help
- About Wikipedia
- Community portal
- Recent changes
- Contact page

Tools

- What links here
- Related changes
- Upload file
- Special pages
- Permanent link
- Page information
- Wikidata item
- Cite this page

Print/export

- Create a book
- Download as PDF
- Printable version

CG-12—Curb

From the VDOTpedia

The CG-12 curb ramp is one type of [ADA Curb Ramp](#) which is designed to assist those who are in wheelchairs and blind pedestrians. The main portions of the design consist of multiple parts: approach, landing, ramp, flare, detectable warning surface, and gutter. Consideration must also be given to the placement of [push buttons](#) relative to landings. VDOT uses truncated domes for the detectable warning surface. There are 3 types of Curb Ramps—Type A, B, and C each with their own advantages. The only difference between type B and type C is the utility strip. There are laws which govern what application is required for [new installation](#) and [existing facilities](#).

CG-12 consist of the following pay items which are all paid for separately and should be summarized

- Hydraulic Cement Sidewalk (depth in inches, area in square yards)
- Curb when required [CG-2](#) or [CG-3](#) (Measured in Linear Feet)
- Detectable Warning Surface (Area in Square Yards)

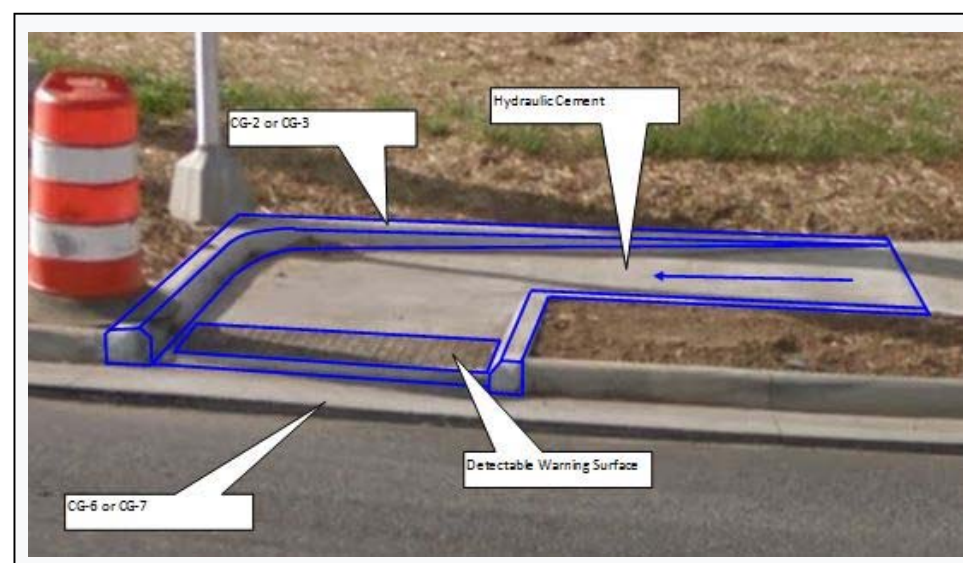
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Examples of Properly Installed CG-12

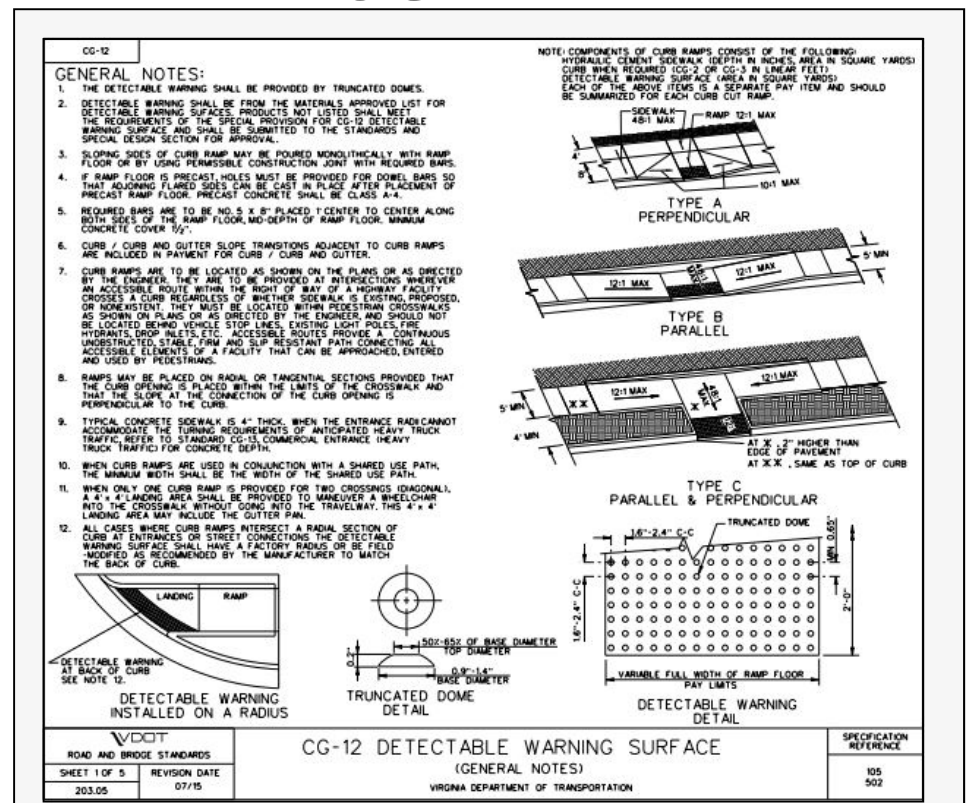


This is an example of a CG-12 type A curb ramp installed on Elm Avenue in the City of Roanoke [Google Maps Link](#)



This is an example of a CG-12 type B curb ramp installed at Exit 150 in Botetourt County [Google Maps Link](#)

CG-12



CG-12 Road and Bridge Standard

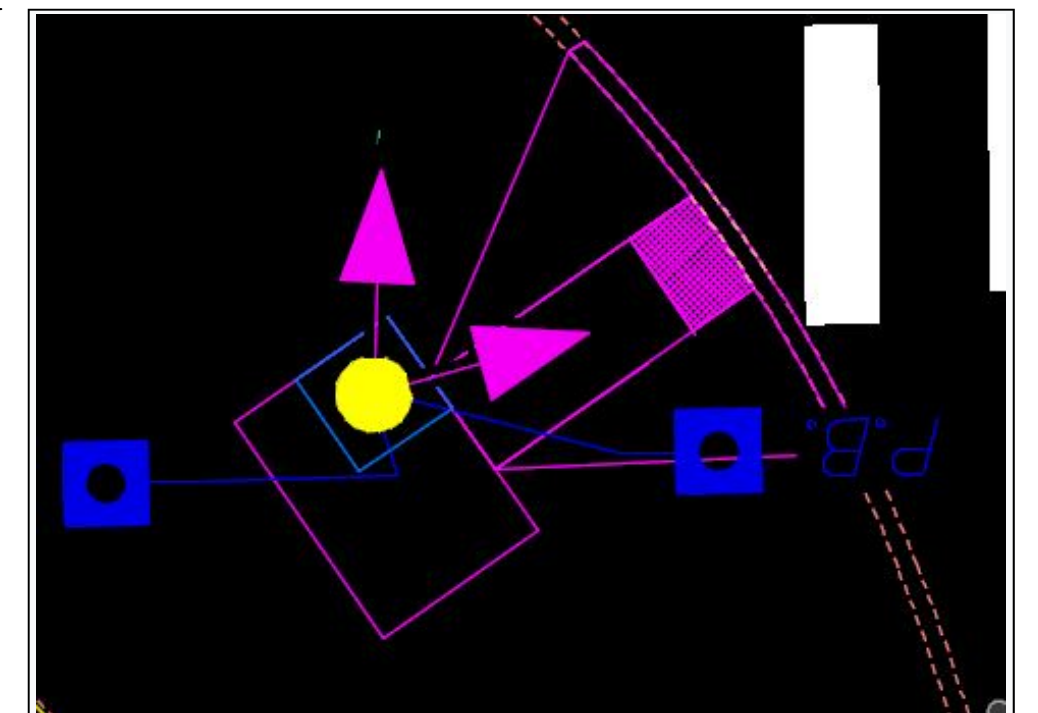
Division	Traffic Engineering
Road and Bridge Section	200
Road and Bridge Specs	105 , 502
Latest Standards	2016
Sunset Date	None
3D model	Request 3D Print from C.O.

Plan

There are many considerations which need to be considered when designing curb ramps. The first piece of reference material should be [T.E. Memo 372](#) which specifies the Roles and Responsibilities for Compliance with the [Americans with Disabilities Act](#), Curb Ramp Assessment, Curb Ramp Improvement. This memo also details what is considered maintenance and alternation which ultimately dictates whether a curb ramp must be brought up to the current standard.

The first step in design is conduct a site visit. This visit will allow the designer to conceptualize the layout and determine which type of ramp will both fit within the physical constraints of the corner and accommodate the directional path of the pedestrian.

There are many resources within MicroStation which speed up the design of curb ramps including the [Central Office](#) cells library.



Example of MicroStation drawing illustrating a curb ramp, PF-2 Foundation, and Push buttons

Deliver

VDOT curb ramp installations can typically be categorized into Type A Perpendicular, Type B Parallel, or Type C Parallel & Perpendicular ramps. Standard drawings can be found in VDOT's Road and [Bridge Standards](#). Handicap ramps should be oriented in the desired direction of pedestrian travel and include a 4' maneuvering area at the bottom of the ramp. The slope of a ramp should not exceed 12:1. There should be smooth transitions between the street level pedestrian facility, the curb ramp, and the sidewalk. A detectable warning surface (DWS) should be placed at the back of curb, along the entire width of the ramp. Before placement of forms, check the foundation and grades for conformance with specifications on [Pages 203.5 through 203.09](#). If the foundation is questionable, contact District Materials Engineer. Before placement of concrete, verify that field and slope conditions are met and check and document line, grade, elevation, dimensions, condition of forms, and bracing. Ensure that the contractor has a VDOT certified concrete field technician on site. Ensure concrete is placed, finished, cured, and protected according to plans and [Road and Bridge Specifications](#). In the case of a CG-12 Specifications [105](#) and [502](#) are required to be followed. Ensure uniform backfill compaction.

Operate >

Maintain >

Support >