

Nomination Summary
Customized Reporting Tool for the Vision Zero Web Map

ABSTRACT OF THE PROGRAM

Vision Zero is a nationwide effort that aims to eliminate all traffic fatalities and related severe injuries. In late 2017, then Montgomery County Executive Mr. Isiah Leggett launched a Vision Zero plan to eliminate severe and fatal traffic collisions on Montgomery County, Maryland, roads by the year 2030.

In support of this effort, the County's Department of Technology Services (DTS) – Geographic Information Systems (GIS) team (DTS-GIS) created a Vision Zero map application that aims to allow County residents the ability to inform County decision makers about issues on County roads that they consider dangerous. A dozen or so roadways and intersections with dangerous conditions are now able to be reported to County departments via the Vision Zero map. Appropriate actions can then be taken by County Department of Transportation (DOT) staff to cure roadway hazards that might contribute to traffic accidents.

THE PROBLEM OR NEED FOR THE PROGRAM

Current estimates indicate that over 40,000 people are killed annually in traffic accidents across the U.S. In Montgomery County, severe crashes occur in certain geographic areas more so than in others. Many safety issues can be observed simply by looking at annual maps of serious collisions, but some issues are better seen from the eyes of residents on County streets. County planners involved with the Vision Zero project wanted to hear from residents when they encounter traffic issues threatening the safety of those on County roads and sidewalks.

Recognizing the need for online maps to support local governments efforts to achieve the goal of zero pedestrian fatalities, the GIS software company Esri published a Vision Zero online map template for local government GIS groups to adopt. However, the baseline Vision Zero map template is not always sufficient in allowing jurisdictions such as the County to meet all visualization and reporting objectives. Specifically, Esri does not provide any tools for creating PDF reports with official letterhead, logos and County data inside the map. Therefore, DTS-GIS embarked on a project to leverage the Esri tool but add custom features and functionality to meet County needs.

DESCRIPTION OF THE PROGRAM

The DTS-GIS Vision Zero map project has three main modules:

- Public View – front end for data collection. This is a smartphone based app that allows the general public to report traffic issues either on the spot or later at their home or office. Residents can also take a photo of a sidewalk, roadway, or intersection exhibiting the hazardous condition(s) and submit the photo(s) along with the selection of a specific condition from a drop-list of values. The Vision Zero Public View map can be viewed here: <http://mcgov-gis.maps.arcgis.com/apps/CrowdsourcingReporter/index.html?appid=f774c28eba93437d8d22a625604292fb>

- Management View – this map is used internally to manage and respond to incidents or roadway hazardous conditions submitted by County residents. DOT (and in some situations, the Police Department) can view residents input on a case by case basis, or a HOT SPOT picture can be generated to help DOT planners quickly grasp the sidewalk, roadway or intersections with the most reported traffic safety issues. A modern reporting utility REPORTLAB generates case by case reports in a nicely designed layout.
- Dashboard – this too is for the County’s internal use (DOT, Police, and the County Executive’s office) and displays all timely pedestrian safety issues and their status.

The report generation tool using open source REPORTLAB libraries integrated with ArcPY has 2 main modules:

- 1) Tool available in ArcPro – Open ArcPro and run the tool by double clicking on the model. Enter the filter parameter for the map and the PDF report will be generated on to the official letter head
- 2) Widget available to be integrated for ArcGIS online web application – The widget is published on the ArcGIS portal and can be used to integrate in any web application, including the Vision Zero map. Once integrated on the web application as a geoprocessing tool, it can be accessed through the web page on the browser. The dynamic PDF file will be generated on the fly on the browser.

The report not only presents the data attributes input by the public in a nice layout, but it also contains a picture submitted by the reporting public. Furthermore, the hot spots identified by the tool should receive higher priority for repair and/or alteration.

THE COST OF THE PROGRAM

The program makes use of DTS-GIS’ existing ArcGIS Online subscription. For entities without existing ArcGIS Online subscriptions, a minimum set of 5 subscriptions will cost \$2,500 per year. REPORTLAB add-on is a free utility available on the Web. A web app developer spent a total of 40 hours to accomplish the Phase I development for \$2,500. A web content designer spent 30 hours (\$2,000) in web content and some graphics design. The total cost is thus about \$7,000.

THE RESULTS/SUCCESS OF THE PROGRAM

Residents have used the map to report hazardous conditions on County sidewalks, roadways and intersections. DOT uses the managers’ modules to view, report and plan for remedial actions. Senior County managers can now better grasp the County’s Vision Zero efforts in a consolidated web map environment. Thus, program effectiveness can be more accurately gauged and monitored. The PDF reports generated from the REPORTLAB tool can be easily emailed out and/or sent for review and support for authorizing remedial actions for the subject roadway, sidewalk, or intersection.

WORTHINESS OF AWARD

Montgomery County, Maryland

The DTS-GIS team developed this web app with Esri's application template as a model and starting point. Significant research of other jurisdictions' implementations has been conducted. No other reporting tool is available to point to an ArcGIS online map and download the data in attribute format along with thumbnail images allowing image download from the Vision Zero map. The combination of attribute data along with the image download directly from the published map makes our implementation unique in the country. The flexibility and ease of adding this report tool into our web map as a widget adds the value to the tool. REPORTLAB can be reused and configured for any web map.

These efforts result in much improved resident reporting capabilities, and a DOT managers' tool for reviewing reports and designing remedial actions. Most noteworthy is the adoption of the REPORTLAB report generation utility for automatically generating incident reports containing data attributes as well as the residents' submitted photos (or documents) related to hazardous spots on County roadways, sidewalks and intersections.

The County is willing to share the improved map design as well as the implementation of REPORTLAB with other jurisdictions in the country.

SUPPLEMENTAL MATERIALS (ATTACHED)