

# Data Drives Pedestrian Safety Improvements in Oregon

Oregon Department of Transportation

## KEY ELEMENTS:



Dedicated bike/ped funding



Hot spot and systemic analyses

The All Roads Transportation Safety (ARTS) Program is the Oregon Department of Transportation's (ODOT) two-pronged data-driven approach to identify locations most appropriate for countermeasure implementation, including improvements at uncontrolled pedestrian crossings.

## PROGRAM STRUCTURE AND METHODOLOGIES

The program uses traffic safety data, roadway characteristics, economic analysis, and other factors to recommend roadway and pedestrian safety improvements. ARTS reserves approximately 7 percent of funding for bicycle and pedestrian projects.

The ARTS program incorporates two data-driven methodologies for identifying improvement projects: systemic and hot spot analyses. The objective of both approaches is for each region to identify safety projects and create project lists that represent 300 percent of available ARTS funding.

The systemic approach uses crash history and roadway characteristics to prioritize locations for countermeasure implementation. ODOT first identifies

corridors that present systemic safety risks based on factors such as curves, speeds, number of lanes, and access to transit. The State's five regions then use that list to create applications for improvements under three categories: roadway departures, intersections, and bicycle and pedestrian projects. ODOT regions work with local public agencies to conduct economic analyses of the proposed improvement projects (either a benefit-cost ratio or a cost-effectiveness ratio) using ODOT-approved countermeasures.

The hot spot methodology is informed by 5 years of crash history. ODOT geocodes crash locations and weights the severity of crashes, ranging from 1 point (for property damage only incidents) to 100 points (fatal crashes). Regions, counties, and local governments create project ARTS applications from these concentrated crash locations and prepare submissions. Like the systemic approach, the hot spot methodology requires a benefit-cost analysis of ODOT-approved countermeasures.



Figure 1. ODOT regions.<sup>1</sup>

## Case Study: Data Drives Pedestrian Safety Improvements in Oregon

EDC-4 STEP: [https://www.fhwa.dot.gov/innovation/everydaycounts/edc\\_4/step.cfm](https://www.fhwa.dot.gov/innovation/everydaycounts/edc_4/step.cfm)

“The ARTS process is about using a data driven process to get the best return for the investment. The public doesn’t care if they are on a state highway, city street or county road, they just want safe roads to drive and walk on.”

–Douglas Bish, ODOT Traffic-Roadway Section Engineer

### PRIORITIZATION PROCESS FOR IMPROVEMENTS

After each region identifies and submits a list of systemic and hot spot projects, ODOT works with local agencies to prioritize project applications that, when combined, require 1.5 times the available funding. The review is an iterative process; transportation and safety experts conduct multi-disciplinary assessments of anticipated safety benefits and project costs of each project application. Projects are then reprioritized and the top ranked projects within funding constraints are selected.

Project funding is determined by a combination of factors, including federal requirements and ARTS programmatic decisions. Local agencies with approved ARTS projects must provide a 7.78 percent financial match to qualify for federal HSIP funding. The State assigns funding for each region based on the region's proportion of fatal and serious injury crashes. ODOT’s available funding for the 2017-2021 program cycle was \$163 million.<sup>2</sup> The State divides funds equally between systemic and hot spot projects. Systemic project funding is further divided into roadway departure (50 percent), intersection (36 percent), and Bicycle and Pedestrian (14 percent).<sup>3</sup>

### IMPORTANCE OF LOCAL COORDINATION

Local agency coordination and cooperation are essential to the success of ARTS. First, local and county governments must submit ARTS applications and respond to ODOT information requests. Second, the local agency is expected to provide a financial match (typically 7.78 percent) for selected improvement projects. If these conditions are not met, it is unlikely that a community will benefit from the ARTS program.



Figure 2. Pedestrian refuge island funded by ARTS Program.<sup>4</sup>

### References

1. Oregon Department of Transportation. <http://www.oregon.gov/ODOT/Regions/Pages/index.aspx>
2. Oregon Department of Transportation, “ARTS Program FAQs”, (2015) [http://www.oregon.gov/ODOT/Engineering/TRSDocs/ARTS\\_FAQ.pdf](http://www.oregon.gov/ODOT/Engineering/TRSDocs/ARTS_FAQ.pdf)
3. Oregon Department of Transportation, “ODOT ARTS Program - Hot Spot,” (2015) [http://www.oregon.gov/ODOT/Engineering/TRSDocs/ARTS\\_Hot%20Spot\\_FinalReport\\_Final.pdf](http://www.oregon.gov/ODOT/Engineering/TRSDocs/ARTS_Hot%20Spot_FinalReport_Final.pdf)
4. Bish, Doug. Interview, Oregon Department of Transportation, 16 Oct. 2017