

Crowdsourcing for Operations Case Study

Utah Department of Transportation

Citizen Reporter Program



U.S. Department of Transportation
Federal Highway Administration



The Role of Road Weather Management

In an average year, weather plays a role in 15 percent of fatal crashes, 19 percent of injury crashes, and 22 percent of property damage crashes. Like traffic incidents, weather is a chief cause of nonrecurring congestion, with snow, ice, and fog accounting for 23 percent of nonrecurrent delays.¹

For the Utah Department of Transportation (UDOT), road weather management is essential to promoting roadway safety. Six of the world's top 20 ski resorts by snowfall amount are in the State, evidence of the significant snowfall in Utah.

To better understand weather and its impact on roadway safety, the agency launched a smartphone mobile app to enlist the road users to get the most timely, accurate, and geographically diverse road and weather information possible.

Launched in 2012, the Citizen Reporter mobile app supplements the multiple social media accounts UDOT used to monitor traffic and weather information. UDOT's Citizen Reporting Program enlists and trains volunteers to use the app to report weather- and pavement-condition-related issues along mountainous and rural terrain. UDOT integrates incoming data from the app with road weather information system, meteorological, and other data to provide information for travelers.

Program Goals

Adding Citizen Reporters to UDOT's weather operations road reporting supplements current condition reporting on segments where drivers are already traveling.

Source: Adapted by Federal Highway Administration (FHWA) from Pixabay and Unsplash.

The Citizen Reporter Program provides the traveling public with a conduit to report their observations directly to UDOT, saving the agency time and money. UDOT employees also use the Citizen Reporting app to submit their reports.

Between November and April each year, trained Citizen Reporters provide valuable information about roads and weather so that UDOT can provide information through the UDOT traffic website, 511 traffic hotline, traffic app, and the media.



Figure 1. Advertisement. Utah Citizen Reporter promotion. (Source: UDOT.)

The Training Program

Once a Citizen Reporter completes the online training program, they can report on roadway observations and incidents Statewide. The training emphasizes the importance of driving safety, and it informs users to use the app only when they are stopped at a safe location—not while driving!

¹ FHWA. "How Do Weather Events Impact Roads?" Accessed February 1, 2020. https://ops.fhwa.dot.gov/weather/q1_roadimpact.htm.

A timestamp feature in the app promotes safe driving by allowing individuals to record events after they have safely stopped. Online training topics include safety, program goals, types of road users, road and weather conditions definitions, and how to input data into the app.

Program Growth²

The Citizen Reporter Pilot Program launched in the winter of 2012–2013 with 100 UDOT employee reporters, and added public reporters in the winter of 2013–2014, with the following outcomes:

- A total of 475 reporters.
- Over 1,800 reports submitted.
- 135 of 145 routes covered by at least one reporter.
- UDOT determined only 0.03 percent of citizen reports were inaccurate.

The program continues to be successful and gain reporters, as shown in the outcomes from the winter of 2018–2019:

- Over 1,000 reporters.
- Over 5,200 reports submitted.
- 143 of 145 routes covered by at least one reporter.
- UDOT determined only 0.05 percent of citizen reports were inaccurate.

Benefits

The Citizen Reporter Program helped UDOT advance operations by providing granular, timely data that improves efficient storm forecasting. As a result, UDOT saves about \$250,000 a year from the reduced need for road weather instrumentation.

Another important benefit of the program is the expanded geographic coverage, particularly in rural areas where there is no instrumentation. Improved coverage allows UDOT to quickly and accurately detect weather events and their roadway impacts, provide accurate and timely traveler information to motorists, and apply more proactive road weather treatments and control strategies; these factor into UDOT’s goal of improving safety and mobility for motorists.

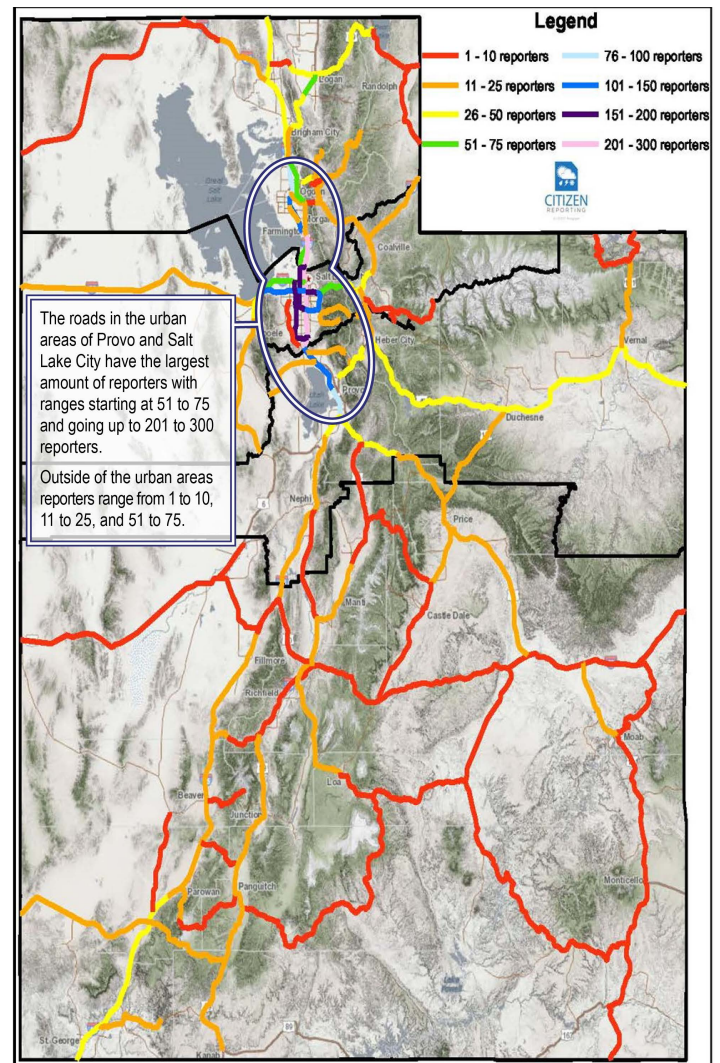


Figure 2. Map. 2019 Citizen Reporters by segment. (Source: UDOT.)

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² Miller, Lisa. 2019. “Utah Citizen Reporter Program.” Presented December 2019 at the EDC5 Crowdsourcing Peer Exchange, Nashville, TN.



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