

Automated Stop Announcement Systems

RTM
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Photo: Courtesy of Natalie Villwock-Witte, WTI

Description: Automated stop announcement systems provide visual and audible announcements of the next bus or train stop location while the bus is en-route. These stop announcements may be displayed on an electronic message sign and announced over speakers or a public address (PA) system. An automated system helps to ensure that stop announcements are made consistently without the need for the driver to make the announcement. These systems help not only new passengers who may be unfamiliar with the route, but also those with visual or hearing impairments to recognize their stop. These automated systems may use the vehicle odometer or automatic vehicle location (AVL) (see #RTM3) to determine when to display the announcement.

Rural Transportation Critical Needs

- Crash Countermeasures
- Emergency Services
- Operations & Maintenance
- Rural Transit & Mobility
- Surface Transportation & Weather
- Tourism & Travel Information
- Traffic Management

Issues Addressed

- Rural Transit Service Response Time
- Rural Transit Wait Time
- Rural Transit Traveler Information
- Rural Transit Availability
- Resource Mapping & Monitoring
- Fleet Management

Strategies Achieved

- Road User
- Road
- Vehicle
- Safety Culture
- Engineering
- Emergency Response
- Enforcement
- Education

Applicability

•Automated stop announcement systems are relatively low cost solutions to create consistent stop announcements for transit passengers. These systems help ensure that passengers do not miss their upcoming stop; it particularly benefits the visually and hearing impaired, passengers unfamiliar with the route, and distracted passengers. Not only do these systems create a more accessible bus system for passengers, they also reduce the number of tasks that a bus driver needs to complete while operating the bus.

Partnerships

•Automated stop announcements benefit from collaboration among numerous agencies, which may include:

- State and local departments of transportation
- Transit agencies
- Federal land management agencies

Key Components

- Transit service
- Electronic display
- Speakers/public address system
- Automatic vehicle location (AVL)
- Training for transit operators – operators must be trained to make announcements should the automated equipment malfunction

Examples of Implementation

- **Island Explorer Shuttle**

The [Island Explorer shuttle service](#) in Acadia National Park worked to improve shuttle bus operations. As a part of this project, automated stop announcement systems were installed on the shuttles. A visitor survey was conducted from July to September 2002 to gain insight on visitor experience with ITS technology in the park. More than 80% of visitors who were surveyed stated that real-time bus departure signs and automated stop announcements made it easier to get around the park.

- **Halifax Transit**

[Halifax Transit](#) has installed automated stop announcement systems on all its bus routes to improve rider experience. Announcements are given through an audio system and displayed on digital signs inside the bus.

- **Metro Transit**

[Metro Transit in Minneapolis](#) deployed automated audio and digital announcements. When the driver opens the bus door a recording announces the route number, the direction of travel, and destination to riders waiting on the curb. Inside the bus, a recording announces the stop and any key transfer information to riders. While the recording plays, a digital message scrolls on a screen at the front of the bus.

Rural Intelligent Transportation Systems (ITS) Toolkit

Implementation Considerations (General)

- The 1990 Americans with Disabilities Act (ADA) requires that fixed-route transit services have stop announcements in vehicles over 22 feet. Though the announcements are required by the ADA, transit agencies are left to determine how to comply with this policy. The frequency and type of announcement may depend on the service area and size. When deploying an automated stop announcement system, a transit agency needs to consider the following: when announcements should be made (how far in advance of the stop) and whether to include additional audio or visual content (safety announcements, fares, etc.).

Implementation Considerations (Pro)

- The system provides consistent stop announcements.
- The announcements ensure that those passengers with visual or hearing impairments can recognize their stop.
- The service alleviates the need for the driver to make voice announcements, thereby reducing the number of tasks that the driver is responsible for while operating a vehicle.
- The announcements make it easier for all passengers to use transit. Passengers are better informed and able to prepare to get off the bus.

Implementation Considerations (Con)

- The system could break down or malfunction; the driver would need to be ready to make stop announcements if the equipment fails.
- Changes in route stops will require an update to the automated stop announcement system.

Opportunities for Future Expansion

- With the use of AVL and traffic data, an automated stop announcement system could also predict when a bus will arrive at the next stop location.
- An automated stop announcement system could communicate with a connected vehicle using vehicle to vehicle (V2V) technology to warn a driver of an upcoming bus stop and that a nearby bus may be slowing down or stopping soon.

Additional Resources

- *Effective Approaches for Increasing Stop Announcements and Route Identification by Transit Operators*, found here: <http://www.nadtc.org/wp-content/uploads/Resource-Guide-to-Effective-Stop-Announcements-PDF.pdf>
- *Topic Guidelines on ADA Transportation: Stop Announcements*, found here: <https://dredf.org/ADAtg/stop.shtml>
- *Americans with Disabilities Act (ADA)*, found here: <https://www.ada.gov/>

Useful Tip

Automated stop announcement systems that use Global Positioning Systems (GPS) to determine vehicle location could also display arrival times or bus delays on the system's on-board electronic display.

Cost Range

(Cost/financial information, where noted, is based on 2016 dollars (unless otherwise specified). Cost/financial information is estimated, and will vary based on size and scope of project, number of units, etc. In general, capital costs include initial purchase costs of hardware, software, and other required equipment. Maintenance and operations costs include staff time to operate, monitor and maintain systems; data collection; system upgrades; evaluation; etc.)



Capital Costs: The total capital cost for this tool is low (less than \$50,000). For example, the Transport of Rockland, NY bus system installed electronic message signs at the front of three buses that automatically announce the location of the next stop. The buses use GPS to track their location to determine when to display the stop announcement. This project cost \$9,800 per bus¹.

UNKNOWN

Operations Costs: The operations and maintenance costs for this tool are unknown.

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