FTA

FEDERAL TRANSIT ADMINISTRATION

REPORT SUMMARY

U.S. Department of Transportation
Federal Transit Administration

Evaluation of Regional Real-time Transit Communications and Data Information Sharing in the National Capital Region

Background

The Metropolitan Area Transportation Operations Coordination (MATOC) program received congressionally-designated funds to facilitate better coordination among the transportation and transit systems of the National Capital Region (NCR). MATOC, along with the University of Maryland (UMD) Center for Advanced Transportation Technology (CATT), proposed using these funds to add additional transit functionality to the Regional Integrated Transportation Information System (RITIS) by creating a RITIS Chat tool and documenting its value in enhancing regional transit communications. This report documents the effectiveness of the RITIS upgrades.

RITIS is an automated data sharing, dissemination, and archiving system that includes many performance measure, dashboard, and visual analytics tools that help transportation and public-safety agencies gain situational awareness, measure performance, and communicate information among agencies and the public.

Objective

The primary objectives of this research project were to (1) develop an instant-messaging (IM) capability within the RITIS platform that will allow real-time instant communications between regional transit agencies and MATOC partners, (2) integrate additional real-time regional transit system (bus and rail) data into RITIS, and (3) evaluate the use and benefits of real-time communication and sharing transit system status information among MATOC partners and other NCR agencies.

Findings and Conclusions

RITIS enhancements can improve interagency communication, decrease incident notification times, and improve operator satisfaction by providing better direct communications capability and situational awareness.

The project included the development and evaluation of an IM user interface along with a graphical user interface that allows MATOC operators and other real-time operations personnel to view live transit data, check system status, and coordinate and resolve issues from within RITIS.

The chatroom feature and transit enhancements were successfully built into RITIS by the CATT Lab. As shown by a simulated event (as well as the additional anecdotal incident examples provided in the report), RITIS can improve interagency communication, decrease incident notification times to agency operations staff, and improve operator satisfaction. The transit layers have the capability to give both transit and MATOC operators a better grasp of the current status of the NCR's transit systems, allowing the operators to better respond to service disruptions. Better responses to service disruptions can improve rider experience with more reliable transit journeys as exemplified in the example where PRTC re-routed a bus to avoid incident related delays. The greater availability of transit data through RITIS will allow transit operators to better coordinate services. Coordinating services will allow transit agencies to maximize resource utilization and improve transit services for riders. The improved transit experience brought about from the above outcomes has the potential to increase transit ridership.

The evaluation revealed that the RITIS Chat tool can facilitate inter-agency communication and collaboration during incidents. This tool allows transit agencies to seamlessly communicate to MATOC operators who directly receive information from other transportation and public-safety agencies. All transit agency employees who volunteered in the evaluation exercise believed that the RITIS-Chat tool improved their ability to communicate among one another and with MATOC, and also increased their situational awareness.

Benefits

The implemented transit communication and data enhancements to RITIS will significantly improve the overall situational awareness of the NCR's multimodal transportation system, allowing for enhanced coordination and regional collaboration among all of the transportation and public safety agencies involved. As a result of this collaboration, the public ultimately will experience an increase in mobility during both normal operating conditions and during special situations such as planned events, emergencies, or evacuations. This will improve the NCR's ability to respond to irregular conditions by coordinating transit and local DOT response plans and resources in real-time and by providing information to the public and the media. During normal operating conditions, these enhancements will facilitate increased coordination of transit services through better transit data availability. Benefits expected include time savings in terms of reduced person hours of delay and improved transit/traffic system performance with associated reduction in environmental impacts.

Project Information

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This report was written by Reuben M. Juster, Thomas H. Jacobs, and Taran Hutchinson of the University of Maryland Center for Advanced Transportation Technology (CATT). For more information, contact FTA Project Manager William Wiggins at (202) 366-3651, William.Wiggins@dot.gov. All research reports can be found at **www.fta.dot.gov/research**.