An Approach for Actions to Prevent Suicides on Commuter and Metro Rail Systems in the United States

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> *Rail authorities should focus their efforts to prevent people from committing suicides on the rail property itself and leave the broader prevention of suicides to community-based programs.*

Suicides on rail systems not only impact the families and friends of the victims, but also the rail system operators and the community when trains are stopped and traffic delays occur. To that end, the primary goals of this report are to discuss measures to prevent suicides on commuter and metro rail systems, and to outline an approach for implementing the prevention measures.

Study Methods

The primary intent of this data analysis was to determine suicide patterns along the Metrolink Rail System in Southern California to supplement the information from past studies. Raw data provided by Metrolink consisted of 49 data points and included details such as date, day, time, line, cab/location, and county. The locations where, and times when, rail suicides occurred were based on a review of existing literature related to suicides on rail systems and an analysis of data obtained from Metrolink.

Data on suicide prevention measures were obtained from existing literature. The principles of accident prevention and mitigation on road systems, together with the principles of benefit-cost analysis were applied to develop an approach to the prevention of suicides on rail systems.

Findings

The number of suicides committed on rail systems in the U.S. is relatively low compared to the total number of suicides committed in the U.S., in general. There were 180 suicides from 2003 to 2008 (approximately 30 suicides per year) on 48 commuter, heavy and light rail systems. By comparison, in 2010 alone, there were 38,364 suicides in the U.S. as a whole. While overall suicide prevention should be the responsibility of the community at large, rail authorities should focus their limited resources on preventing and possibly mitigating suicides on the rail property itself and on individuals attempting to access the rail property to commit suicide.

Most suicides occur near station platforms and near access points to the track. Suicides occurred most frequently when relatively more trains were in operation and in areas of high population density. The suicide prevention measures range from relatively inexpensive signs posting call-for-help suicide hotline information to costly platform barriers that physically prevent people from jumping onto tracks in front of trains. Other prevention measures fall within this range, such as surveillance systems that can report possible suicide attempts and provide the opportunity for intervention tactics.

Prevention measures should be evaluated and prioritized using benefit-cost analysis, where the benefits are the reductions in the costs of suicides and the costs are those of the prevention measures. Low-cost measures such as signs with hotline phone numbers would not require benefit-cost analysis, but more costly systems that include surveillance, identification, and response, should undergo benefit-cost analysis. "Piggybacking" on surveillance and response

systems that are used for other purposes on the rail systems should be considered to help make such projects economically feasible.
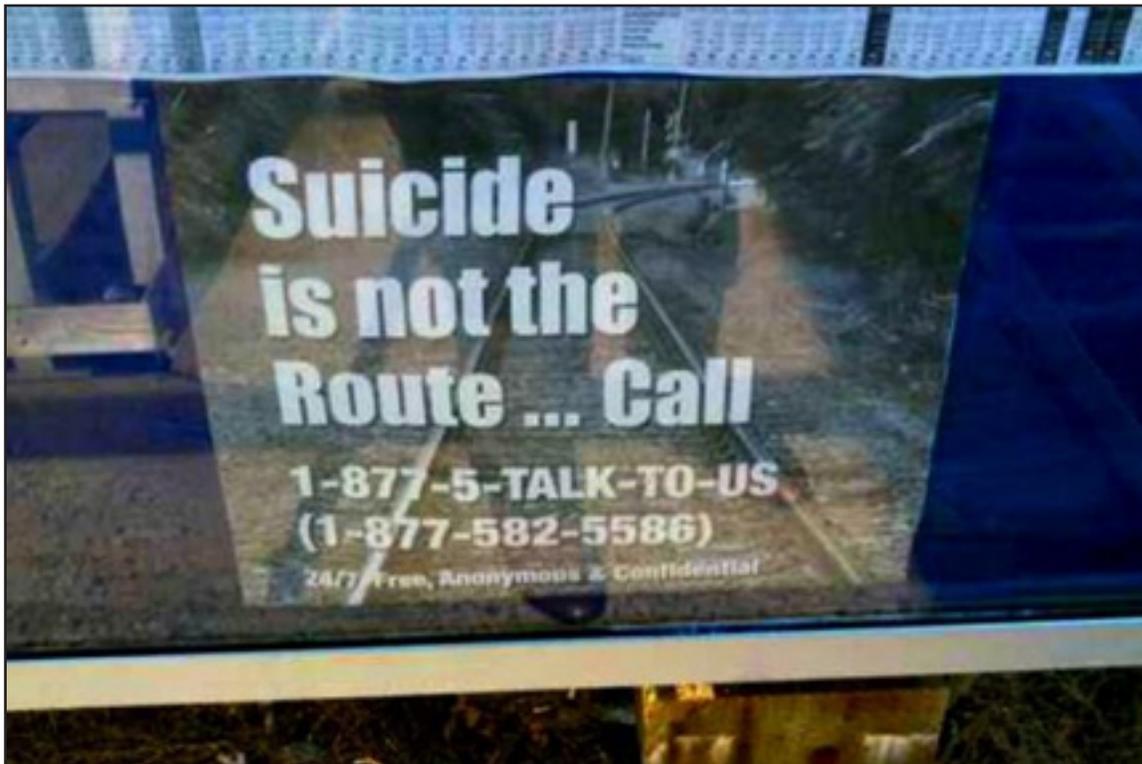

Photo credit: Long Island Railroad

Policy Recommendations

It is recommended that records be maintained regarding the frequency and the characteristics of suicides on rail systems as well as the costs and effectiveness of countermeasures to aid in the cost estimation for similar future projects. It is recommended that an organization such as the Federal Transit Administration (FTA) assume responsibility for coordinating and maintaining a depository for relevant cost data from other rail authorities. In addition, the FTA could undertake the lead role for disseminating relevant information and data. It should be noted that neither the availability of funding nor the legal feasibility for having the FTA undertake these tasks has been researched as part of this project, nor was it discussed with the FTA. The FTA could initiate further research on this topic or take action as desired. The Federal Railroad Administration (FRA) could also become involved because some rail lines are shared with freight rail systems and long-distance passenger trains.

About the Authors

Jan Botha, Ph.D. is a Professor of Civil and Environmental Engineering at San Jose State University, Marissa Neighbour and Satnam Kaur were civil engineering students in the Department of Civil and environmental engineering at San Jose State University at the time of the study. Marissa Neighbour is currently a graduate student in the Department of Civil and Environmental Engineering at the University of California, Davis.

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For more details about the study, download the full report at *transweb.sjsu.edu/project/1129-2.html*