

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

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Forwarded to:
Administrator
Urban Mass Transportation Administration
400 Seventh Street, S. W.
Washington, D.C. 20590

SAFETY RECOMMENDATION(S)
R-81-3 through -20

On July 29, 1980, the National Transportation Safety Board concluded a 2-day national hearing on rail rapid transit safety. The hearing was prompted by an increasing concern over safety oversight responsibility for rail rapid transit systems, particularly fire safety issues and emergency evacuation of rail rapid transit passengers from underground or underwater tunnel locations. Twenty-five witnesses from transit industry management and labor, local fire departments, national fire safety organizations, and State and Federal agencies testified at the hearing. 1/

The safety problems identified as a result of this hearing and other Safety Board investigatory work warrant the most serious consideration of the Urban Mass Transportation Administration (UMTA). During peak hours, a single rail rapid transit train can carry a "crushload" of 1,500 to 2,000 passengers. Under such conditions, the loss of life in an accident, fire, or other emergency could well be catastrophic. That an accident involving enormous risk to passengers, fire and emergency service personnel, and transit employees can occur has been amply demonstrated by the train fire in the Transbay Tube of the Bay Area Rapid Transit District on January 17, 1979; 2/ the train fire in a tunnel and station of the Southeastern Pennsylvania Transportation Authority on September 6, 1979; and the three separate train fires in the tunnels of the New York City Transit Authority on June 25, 1980, and December 10 and 11, 1980.

UMTA is the accountable agency for insuring that effective safety oversight of rail rapid transit systems is accomplished. As early as June 1971, 3/ the Safety Board recommended that UMTA use its authority to require specific formal safety plans as a condition of Federal financial assistance. UMTA encourages the development of system assurance and reliability plans; however, specific safety plan requirements have not been formalized. On March 6, 1978, as the result of a serious accident on the Greater Cleveland Regional Transit Authority, 4/ the Safety Board recommended that the

1/ For more detailed information, read "Safety Effectiveness Evaluation of Rail Rapid Transit Safety" (NTSB-SEE-81-1).
2/ For more detailed information, read "Railroad Accident Report--Bay Area Rapid Transit District Fire on Train No. 117 and Evacuation of Passengers While in the Transbay Tube, San Francisco, California, January 17, 1979" (NTSB-RAR-79-5).
3/ For more detailed information, read "Special Study of Rail Rapid Transit Safety" (NTSB-RSS-71-1).
4/ For more detailed information, read "Railroad Accident Report--Head-on Collision of Two Greater Cleveland Regional Transit Authority Trains, Cleveland, Ohio, July 8, 1977" (NTSB-RAR-78-8).

Department of Transportation (DOT) insure that the safety of rail rapid transit systems is regulated and enforced by a responsible State or Federal agency. Two years after the recommendation was directed to DOT, the Safety Board received testimony from local fire officials, national fire safety organizations, and labor management that there continues to be a need for Federal regulations to provide for objective minimum safety performance levels for rail rapid transit systems.

Specifically, the Safety Board's evaluation indicates the need for a determination by UMTA that rail rapid transit systems have the capability to evacuate passengers under various operational and passenger load conditions.

In addition, the relatively low position of the safety function within UMTA has not provided an effective Federal safety oversight policy. The findings concerning UMTA's ability to develop Federal safety guidelines for car and tunnel designs, safety equipment requirements, training programs (including emergency response), and elimination or minimization of combustible and toxic gas and smoke-generating materials are impacted by the lack of safety funding to staff UMTA's perceived safety mission and organizational structure. The Safety Board also received much testimony in the recent hearing and consultation with safety interests outside of rail rapid transit management and the American Public Transit Association was available to UMTA to address fire safety concerns and emergency evacuation procedures and/or guidelines but was never seriously called upon.

The Safety Board believes that UMTA should improve its commitment to insure the public's safety by the development and release for public comment of a comprehensive 5-year safety program plan for increased safety oversight and for rail rapid transit safety research and development. Such program planning, for example, is already utilized by the Federal Highway Administration and the National Highway Traffic Safety Administration and is available for public comment. The Safety Board's evaluation indicated that materials used in the construction of rail rapid transit cars should be tested to assess combustibility and toxic gas and smoke generation characteristics. The Safety Board believes that certification or identification of specific products and materials used in rail rapid transit cars that meet minimum safety requirements would assist rail rapid transit systems. A further safety concern addressed in the evaluation is the need for improved training programs so that fire service personnel and rail rapid transit employees are better prepared to carry out their duties and responsibilities in the event of a fire or other emergency. In this vein, the Safety Board believes the UMTA should work with the United States Fire Administration, fire and emergency medical services, and other interested safety-related organizations in the development of training programs.

Therefore, the National Transportation Safety Board recommends that the United States Mass Transportation Administration:

In cooperation with rail rapid transit authorities and local fire officials, immediately survey the facilities, communication systems, fire safety and other emergency equipment, and emergency plans of existing rail rapid transit systems to determine their capability for evacuation of passengers under various operational and passenger load conditions.
(Class I, Urgent Action) (R-81-3)

Establish procedures to consult organizations, such as the United States Fire Administration, the International Association of Fire Chiefs, the International Association of Fire Fighters, the National Fire Protection Association, and employee unions, as appropriate, in addition to the American Public Transit Association and individual transit properties, in developing Federal guidelines for car and tunnel designs, safety equipment requirements, training programs (including emergency response) and other appropriate safety areas. (Class II, Priority Action) (R-81-4)

Make appropriate organizational changes to provide for more direct consideration of safety issues in the formulation of the Administration's rail rapid transit policies and priorities. (Class II, Priority Action) (R-81-5)

Establish, on a priority basis, Federal guidelines for the elimination or minimization of combustible and toxic gas and smoke-generating materials in existing rail rapid transit cars. Wherever possible, adherence to these guidelines should be made mandatory as a condition of Federal financial assistance. (Class I, Urgent Action) (R-81-6)

In cooperation with rail rapid transit authorities and local fire officials, assess the need for modification or retrofit of existing rail rapid transit cars to reduce the potential for the exposure of combustible or toxic materials to fire. (Class II, Priority Action) (R-81-7)

Include in Federal financial assistance to rail rapid transit systems an ability to provide funding for acquisition of emergency equipment and for periodic inspection, maintenance, and testing of such equipment after it is installed. (Class II, Priority Action) (R-81-8)

Develop and publish for public comment a comprehensive, 5-year safety program plan for increased safety oversight of new rail rapid transit systems as they are developed and for improving the safety of existing systems. (Class II, Priority Action) (R-81-9)

Develop and publish for public comment a comprehensive, 5-year plan for rail rapid transit safety research and development. (Class II, Priority Action) (R-81-10)

Establish a process, based upon testing and evaluation in accordance with such criteria as the Administration shall establish, for the certification or identification of specific products and materials used in the construction of rail rapid transit cars as meeting minimum safety standards or guidelines, and provide this information to rail rapid transit authorities on a regular basis. (Class II, Priority Action) (R-81-11)

Develop and publish for public comment a formal plan for the review, evaluation, and certification of rail rapid transit system safety plans. (Class II, Priority Action) (R-81-12)

Establish a fire safety research and testing program to assess the combustibility and toxic gas and smoke generation of materials used in the construction of rail rapid transit cars and to evaluate the fire safety of rail rapid transit cars through full-scale testing. (Class II, Priority Action) (R-81-13)

Offer to assist and cooperate with the United States Fire Administration in its development of a national training curriculum for fire service personnel involved in the administration of fire protection on rail rapid transit systems. (Class II, Priority Action) (R-81-14)

Develop Federal guidelines for training programs for rail rapid transit employees, to include actual performance, under simulated conditions, of the duties they may be required to perform in the event of a fire or other emergency. (Class II, Priority Action) (R-81-15)

Conduct research to determine the most effective means of informing rail rapid transit passengers of the actions to be taken in the event of an emergency, the location of emergency equipment, and the means of operating vehicle exit doors, and promulgate Federal guidelines. (Class II, Priority Action) (R-81-16)

Study and evaluate the need for fire suppression systems on new rail rapid transit vehicles and conduct research and development, and develop and promulgate Federal guidelines if so indicated. (Class II, Priority Action) (R-81-17)

Require rail rapid transit authorities to have a formal, continuing process for including local fire and emergency medical service officials in reviews of fire and life safety considerations during system planning, design, construction, and operation. (Class II, Priority Action) (R-81-18)

Include local fire and emergency response services in onsite reviews performed by the Administration of new and existing rail rapid transit systems. (Class II, Priority Action) (R-81-19)

Until such time as comprehensive, formal safety standards have been established for rail rapid transit, publish an annual report assessing the degree of conformance or nonconformance of rail rapid transit systems with each Federal safety guideline established by the Administration. (Class II, Priority Action) (R-81-20)

KING, Chairman, DRIVER, Vice Chairman, McADAMS, GOLDMAN, and BURSL Members, concurred in these recommendations.

By:  James B. King
Chairman