

Recommendation Report

Wednesday, November 03, 2004

CITY:GAITHERSBURG STATE:MD ADDRESSEE:WASHINGTON METROPOLITAN AREA
TRANSIT AUTHORITY

8/18/1997 NTSB (RESPONSE FOR BOTH LETTERS 4/3/97 & 4/7/97) THE BOARD UNDERSTANDS THAT WMATA HAS REINSTATED THE PRACTICE REQUIRING MANUAL OPERATION WEEKLY. AS A RESULT, THE BOARD HAS CLASSIFIED R-96-35 "CLOSED--ACCEPTABLE ACTION."

Recommendation # R-96-036 Overall Status Priority
CAA

THE NTSB RECOMMENDS THAT THE WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY: CONDUCT A DETAILED INVESTIGATION & ANALYSIS TO DETERMINE THE CAUSE OF THE APPROXIMATELY 400 STATION OR PLATFORM OVERRUNS EXPERIENCED ACROSS THE METRORAIL SYSTEM EACH YEAR, & TAKE THE MEASURES NECESSARY TO IMPROVE TRAIN STOPPING ACCURACY & TO ELIMINATE STATION OVERRUNS.

WASHINGTON METROPOLITAN AREA Closed - Acceptable Action 2/4/2002

4/3/1997 Addressee ON 3/20/97, RICHARD A WHITE, GENERAL MANAGER RESPONDED THAT MULTI-STEP ACTION IS UNDERWAY. THREE STEPS ARE NECESSARY. A REVIEW & ANALYSIS HAS BEEN COMPLETED. ANOTHER STEP WAS THE EVALUATION OF HARDWARE & SOFTWARE MODIFICATION TO IDENTIFY OTHER METHODS FOR REDUCING OVER-RUNS. ANOTHER STEP WAS TO IDENTIFY STATIONS FOR INSTALLATION OF REDUCED ENTRY SPEED TRANSMITTERS & INITIATE PROCUREMENT WHICH HAS BEEN COMPLETED.

8/18/1997 NTSB (RESPONSE FOR BOTH LETTERS 4/3/97 & 4/7/97) R-96-36 ASKED WMATA TO CONDUCT A DETAILED INVESTIGATION & ANALYSIS TO DETERMINE THE CAUSE OF THE APPROXIMATELY 400 STATION OF PLATFORM OVERRUNS EXPERIENCE ACROSS THE METRORAIL EACH YEAR & TO TAKE THE MEASURES NECESSARY TO IMPROVE TRAIN STOPPING ACCURACY & TO ELIMINATE STATION OVERRUNS. WE UNDERSTAND THAT THE RECOMMENDED ANALYSIS OF STATION OVERRUN INCIDENTS HAS BEEN COMPLETED & THAT PROCUREMENT OF REDUCE ENTRY SPEED TRANSMITTERS FOR INSTALLATION AT IDENTIFIED STATIONS HAS BEGUN. WE ALSO NOTE THAT HARDWARE & SOFTWARE MODIFICATIONS ARE ALSO BEING EVALUATED TO IDENTIFY OTHER WAYS TO REDUCE OVERRUNS. PENDING COMPLETION OF THE IDENTIFIED MEASURES, THE BOARD HAS CLASSIFIED R-96-36 "OPEN--ACCEPTABLE RESPONSE."

9/17/2001 Addressee Letter Mail Controlled 09/25/2001 8:50:14 AM MC# 2010757 All actions pertaining to this recommendation have been completed.

9/24/2001 NTSB Based on the WMATA's April 3, 1997, response, the status of each of these safety recommendations was classified "Open--Acceptable Response" in a Safety Board letter to WMATA dated August 18, 1997. The Safety Board would appreciate being informed of what action, if any, has been taken or planned to comply with these Safety Recommendations.

2/4/2002 NTSB The Safety Board noted in previous correspondence that the recommended analysis of station overrun incidents had been completed and that procurement of reduced entry speed transmitters had begun. We asked to be informed when these measures were completed. The Board understands that WMATA has now completed all actions pertaining to this recommendation. Accordingly, Safety Recommendation R-96-36 is classified "Closed--Acceptable Action."

Recommendation # R-96-037 Overall Status Priority
CAA

THE NTSB RECOMMENDS THAT THE WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY: UNDERTAKE, WITH THE ASSISTANCE OF QUALIFIED ENGINEERING SUPPORT, A COMPREHENSIVE EVALUATION OF THE

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8/18/1997 NTSB (RESPONSE FOR BOTH LETTERS 4/3/97 & 4/7/97) A-96-37 ASKED WMATA TO UNDERTAKE, WITH THE ASSISTANCE OF QUALIFIED ENGINEERING SUPPORT, A COMPREHENSIVE EVALUATION OF THE DESIGN & DESIGN SPECIFICATIONS OF ALL SERIES OF METRORAIL CARS WITH RESPECT TO RESISTING CAR BODY TELESCOPING & PROVIDING BETTER PASSENGER PROTECTION & TO MAKE THE NECESSARY MODIFICATIONS, SUCH AS INCORPORATING UNDERFRAME BRACING OR SIMILAR FEATURES, TO IMPROVE THE CRASHWORTHINESS OF CARS IN THE IN THE CURRENT &/OR FUTURE METRORAIL FLEET. WE WERE PLEASED TO LEARN THAT WMATA HAS ASKED ITS ENGINEERING CONTRACTOR TO EVALUATE CAR BODY TELESCOPING AS PART OF ITS CURRENT EFFORT TO STUDY CAR EFFORT TO STUDY CAR CRASHWORTHINESS OF WMATA RAIL VEHICLES. PLEASE KEEP US INFORMED OF THE RESULTS OF THAT STUDY. THE BOARD HAS CLASSIFIED R-96-37 "OPEN--ACCEPTABLE RESPONSE."

9/17/2001 Addressee Letter Mail Controlled 09/25/2001 8:50:14 AM MC# 2010757 The final report of the study conducted by Booz-Allen and Hamilton, Inc., entitled "WMATA Car Crashworthiness: Under-frame Bracing Retrofit Feasibility Study," recommended against strengthening the under-frame of the existing fleet because the cars would have to be completely disassembled and the structure would have to be reworked. The consultant stated that the associated costs would be prohibitive. Enhancement of the crashworthiness for new vehicles is included in new vehicle specifications.

9/24/2001 NTSB Based on the WMATA's April 3, 1997, response, the status of each of these safety recommendations was classified "Open--Acceptable Response" in a Safety Board letter to WMATA dated August 18, 1997. The Safety Board would appreciate being informed of what action, if any, has been taken or planned to comply with these Safety Recommendations.

2/4/2002 NTSB The Safety Board stated in its report that the design of Metrorail cars may make them susceptible to telescoping in collisions that involve a failure of the attachments securing the end underframe to the side sills. In the accident, car 3252 telescoped approximately 21 feet over the body of car 3191, severely compromising the available space in the car. Had this happened during a weekday rush hour, many passengers could have been fatally injured and many more throughout the train could have been seriously injured. The Board notes that WMATA hired a consultant, Booz Allen Hamilton, Inc., who evaluated the current and future Metrorail fleet in a report entitled "WMATA Car Crashworthiness: Under-frame Bracing Retrofit Feasibility Study." WMATA states that the study recommended against strengthening the underframe of the existing fleet because the cars would have to be completely disassembled, the structure would have to be reworked, and the associated costs would be prohibitive. WMATA further states, however, that enhancement of crashworthiness is included in new vehicle specifications. The Board is pleased that WMATA has enhanced crashworthiness in its new vehicle specifications and would be interested in knowing what changes in car specifications were made. The Board is concerned, however, that the existing Metrorail car fleet will be in service for a long time without the level of enhanced crashworthiness of the new cars that will be introduced into the fleet. The Board suggests that the modification could be accomplished during the midlife rehabilitation of the cars and requests that WMATA reconsider its position on this issue. Pending consideration of the Board's comments, Safety Recommendation R-96-37 is classified "Open--Unacceptable Response."

3/22/2002 Addressee Letter Mail Controlled 04/03/2002 8:41:24 PM MC# 2020369 Excerpts from new rail car specifications are enclosed [Please see Appendix # 1]. After careful reconsideration, and based on the previously referenced final report, dated April 1997, of an extensive study performed by Booz-Allen Hamilton Inc., WMATA is maintaining its position regarding enhancing the

Crash-worthiness of the existing Metrorail Series 1000, 2000, 3000, and 4000 cars. The following excerpts are from the April 1997 report from Booz-Allen & Hamilton, Inc., entitled, "WMATA Car Crash-worthiness: Under-frame Bracing Retrofit Feasibility Study." We have concluded that adding under-frame reinforcement - specifically, strengthening the bolster/side sill connections that failed in the January 1996 accident - is neither desirable or practical. In fact, we reason that such a modification may lead to passengers experiencing higher longitudinal accelerations and possibly more severe injuries. Regarding the study's alternative to strengthening the structures, i.e., weakening the rigid end under-frame structure to improve the crashworthiness properties of the cars, the report states: "Unfortunately, these ideal modifications are impossible to incorporate without total strip down of the cars and extensive rework of the structure. Such extensive rework is certainly impractical either now or when the cars are refurbished. Since the mid-life overhaul of the Rohr cars has just been completed, it is impractical to perform such modifications on the Rohr cars before they are scrapped. Moreover, the cost and downtime that would be involved in modifying the balance of the fleet when the Breda cars are refurbished, is