

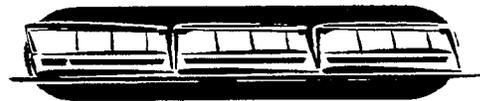
FLORIDA TRANSIT SAFETY RESOURCE GUIDE



PB99-120834



*BUS TRANSIT SYSTEMS
AND
FIXED GUIDEWAY
TRANSPORTATION
SYSTEMS*



The Florida
Department of
Transportation



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Purpose of Resource Guide

This document is intended to serve as a resource guide for Florida's Public Transportation systems, Community Transportation Coordinators, and covered contractors. Some of the information contained herein, in addition to other safety information, may be acquired on the internet at the addresses listed in this guide. The Florida Department of Transportation requires all transit systems that receive state funds to develop, adopt, and implement a System Safety Program Plan (SSPP). This document contains information and guidance for development of a SSPP and provides regulatory information and resources to facilitate a transit safety program.

FDOT Contacts

For additional information on the development of a SSPP for a specific transit property please contact:

FDOT Central Office

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FDOT District 7

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Tampa, FL 33612
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Fax: 813-975-6443
E-mail: harry.reed@dot.state.fl.us

Other Safety Contacts

Information

**Federal Transit Administration (FTA)
Office of Safety and Security**
400 7th St. SW
Washington, DC 20590
Contact: Judy Meade
Ph: 202-366-2896
www.fta.dot.gov

**John A. Volpe
National Transportation Systems Center**
55 Broadway
Cambridge, MA 02142
Contact: Bill Hathaway
Ph: 617-494-2081
www.volpe.dot.gov

National Safety Council
Mass Transit Section
1121 Spring Lake Drive
Itasca, IL 60143-3201
Contact: Les Sokolowski
Ph: 800-621-7619
www.nsc.org

System Safety Society
P.O. Box 70
Unionville, VA 22567-0070
Ph: 800-747-5744
www.system-safety.org

Transportation Safety Institute
Transit Division
P.O. Box 25082
Oklahoma City, OK 73125-5050
Ph: 405-954-3682
Fax: 405-954-0367
www.tsi.dot.gov/DT180/DEFAULT.HTM

Reports

**National Technical Information Service
(NTIS)**
5285 Port Royal Road
Springfield, Virginia 22161
(703) 487-4650
www.ntis.gov

Transit Cooperative Research Program
National Academy of Sciences
Stephen Andrie, Manager
Ph: 202-334-3502
Fax: 202-334-2006
e-mail: sandrie@nas.edu
www2.nas.edu/trbcrp/23ba.html

Section One

SSPP Checklists

- 1-1 Bus Transit System SSPP Checklist**
- 1-2 Fixed Guideway Transportation System SSPP Checklist**

Section 1-1
Bus Transit System SSPP Checklist

Section 1-1: Bus Transit System SSPP Checklist

Area of Study	Requirements
<p><u>(1) General Information</u></p>	<p>1.1 Number of Drivers 1.2 Number of Operational Buses 1.3 Buses Operated 1.4 Maintenance Performed In-House 1.5 Maintenance Contractor(s) 1.6 Contracted Passenger Service</p>
<p><u>(2) System Safety Program Plan</u></p> <p><i>Based on FDOT Rule Chapter 14-90 Sections: 004(1)(a) 1-9 through (g); 004(2)(a)(b) and 004(3)(h)</i></p>	<p>2.1 Current System Safety Program Plan 2.2 Management 2.3 Vehicles & Equipment 2.4 Operational Functions 2.5 Driving Requirements 2.6 Maintenance 2.7 Training 2.8 Safety Regulations 2.9 Wheelchair Operations, Training, Maintenance 2.10 SSPP Amendments, Updates 2.11 Contract Providers' Safety Standards 2.12 Contract Providers Monitoring/Inspections 2.13 Ensure Contractor Provider Adopted & Implements a SSPP 2.14 Verify Compliance with "Drug Free Workplace Policy"</p> <p><i>Annual Certification by 2/15/98 including Contractor Provider Compliance Inspection</i></p>
<p><u>(3) Records of Driver's Licenses</u></p> <p><i>Based on FDOT Rule Chapter 14-90 Section(s): .004(3)(b)</i></p>	<p>3.0 Valid Driver's Licenses 3.1 Legible Photographic Record</p>
<p><u>(4) Driver Training</u></p> <p><i>Based on FDOT Rule Chapter 14-90 Section(s): .004(3)(c),(d), (f)</i></p>	<p>4.0 Operational & Safety Procedures Training Defensive Driving Equipment Inspection Emergency 4.1 Road Test by Competent Transit System's or Designee's Personnel 4.2 Special Equipment 4.3 Record of Different Equipment, Driver is Qualified to Operate</p>
<p><u>(5) Operational / Safety Procedures</u></p> <p><i>Based on FDOT Rule Chapter 14-90 Section(s): .004(3)(e) Compliance Review</i></p>	<p>5.0 Provide Written Operational & Safety Procedures to Drivers</p>

Area of Study	Requirements
<p><u>(6) Driver Hours and Work Periods</u></p> <p>Based on FDOT Rule Chapter 14-90 Section(s): .004(3)(g) and .006(3)(a),(b)</p>	<p>6.1 Maintain a Record of Each Driver's Work Period, including</p> <p>6.2 On-Duty Hours - < 16/24</p> <p>6.3 Driving Hours - <12/24</p> <p>6.4 Maximum Hours - <70/7 Consecutive Days</p> <p>6.5 Driver with 12 Driving Hours or 16 On-duty Hours Shall Have 8 Consecutive Hours Off-Duty within any 24-Hour Period</p> <p>6.6 Time Reporting & Off Duty (Daily)</p>
<p><u>(7) Pre-employment Physical</u></p> <p>Based on FDOT Rule Chapter 14-90 Section(s): .0041(1),(2)</p>	<p>7.1 Pre-employment Physical</p> <p>7.2 Use of DOT Form 775-830-01 (or equal)</p>
<p><u>(8) Biennial Physical</u></p> <p>Based on FDOT Rule Chapter 14-90 Section(s): .0041(1)</p>	<p>8.1 Biennial Physical</p> <p>8.2 Use of Form 775-030-01 (or equal)</p>
<p><u>(9) - Bus Safety Inspections</u></p> <p>Based on FDOT Rule Chapter 14-90 Section(s): .009(1),(3)(a through g)</p>	<p>9.1 Annual Safety Inspections Files, Including</p> <p>9.2 Horn</p> <p>9.3 Windshield Wipers</p> <p>9.4 Wiring / Battery(ies)</p> <p>9.5 Service & Parking Brakes</p> <p>9.6 Warning Devices</p> <p>9.7 Directional Signals</p> <p>9.8 Hazard Warning Signals</p> <p>9.9 Lighting Systems & Signaling Devices</p> <p>9.10 Handrails- Stanchions</p> <p>9.11 Standee Line & Warning</p> <p>9.12 Doors & Interlocks</p> <p>9.13 Stepwells & Flooring</p> <p>9.14 Emergency Exits</p> <p>9.15 Tires & Wheels</p> <p>9.16 Suspension System</p> <p>9.17 Steering System</p> <p>9.18 Exhaust System</p> <p>9.19 Seat Belts</p> <p>9.20 Safety Equipment (See Item 13)</p> <p>9.21 Equipment for Transporting Wheelchairs</p> <p>9.22 Results of Inspection - Identify Defective Equipment / Corrective Action</p> <p>9.23 Records</p> <p style="padding-left: 40px;">Identify Inspector</p> <p style="padding-left: 40px;">Identify Date, Bus</p> <p style="padding-left: 40px;">Maintain Four (4) Years</p>

Area of Study	Requirements
<p><u>(10) Maintenance Records</u></p> <p><i>Based on FDOT Rule Chapter 14-90 Section(s): .004(4), (d)</i></p>	<p>10.1 Type(s) of Maintenance Records</p> <p>10.2 Records Identify Bus Date, Mileage, Type of Inspection Date, Mileage, Description of Maintenance Identify Entity Providing Non-owned Bus</p> <p>10.3 Contracted Maintenance - Name, Address</p>
<p><u>(11) Accident Records</u></p> <p><i>Based on FDOT Rule Chapter 14-90 Section(s): 005(1),(2), (a), (b), (c)</i></p>	<p>11.1 Reporting, Evaluation, Record Maintenance System</p> <p>11.2 Notify FDOT By Close of Business of Working Day Following Fatal Accident</p> <p>11.3 Notify FDOT in 24 Hours if Fatality within 30 Days Following Fatal Accident</p> <p>11.4 Reports Sent to FDOT if Fatality within 30 days</p>
<p><u>(12) Driver - Daily Bus Inspection</u></p> <p><i>Based on FDOT Rule Chapter 14-90 Section(s): .006(7),(a),(b)</i></p>	<p>12.1 Inspect / Test Service Brakes Parking Brakes Tires & Wheels Steering Horn Lighting Devices Windshield Wipers Rear Vision Mirrors Passenger Doors Exhaust System Wheelchair Equipment Safety & Emergency Equipment (See Item 13)</p> <p>12.2 Retain Records for Two Weeks</p>
<p><u>(13) Emergency & Safety Equipment</u></p> <p><i>Based on FDOT Rule Chapter 14-90 Section(s): 007(14),(15),(18),(23),(24),(a),(b); and .008 (1)(e)</i></p>	<p>13.1 Standee Line & Warning</p> <p>13.2 Emergency Exits & Signs</p> <p>13.3 Driver Seat Belt</p> <p>13.4 Fire Extinguisher (IA:BC)</p> <p>13.5 Fire Extinguisher Accessibility</p> <p>13.6 Portable Red Reflectors (Type 1)</p> <p>13.7 Wheelchair Manufacturer Name, Address Year of Manufacture Meets "Florida Requirements" Certificate</p>

Section 1-2
Fixed-Guideway Transportation System
SSPP Checklist

Section 1-2: Fixed-Guideway Transportation System SSPP Checklist

Item	Requirement	Procedure/Description Required Yes/No
1	<p>Policy Statement and Authority for System Safety Program Plan (SSPP)</p> <ul style="list-style-type: none"> a. Approval and Adoption of SSPP by Director (CEO). b. SSPP developed and maintained by designated person/department. 	No
2	<p>Description of purpose for SSPP</p> <ul style="list-style-type: none"> a. Explanation of Purpose. b. Definition of "System Safety" and related terms. c. Description of shared responsibilities for safety by Operations, Maintenance and Engineering Departments. 	Yes
3	<p>Clear Goals stated for SSPP Requirements</p> <ul style="list-style-type: none"> a. List system-specific safety Goals that are long term, meaningful, and realizable. 	No
4	<p>Objectives Identified and Attainable</p> <ul style="list-style-type: none"> a. Stated Objectives that are quantifiable, and achievable by implementing policies and procedures. b. Statement that safety policy(ies) are established by top management. 	No
5	<p>System Description and Organizational Structure</p> <ul style="list-style-type: none"> a. System description b. Organizational Structure - lines of authority and responsibility for operations, maintenance and engineering as they relate to System Security. c. Description of lines of communication between the Agency/Authority and FDOT. 	Yes
6	<p>SSPP Control and Update Procedure</p> <ul style="list-style-type: none"> a. Stated maximum time limit between documented SSPP review to determine the need to revise based on changed conditions and/or requirements. b. Description of method for updating, correcting and modifying the SSPP. c. Identify the person(s) responsible for initiating, developing and approving changes to the SSPP. d. FDOT notification of changes to Plan. 	Yes
7	<p>Identification of Hazardous Conditions and Resolution Process</p> <ul style="list-style-type: none"> a. Methodology for identifying and documenting hazards for operations, maintenance, and engineering. b. Immediate implementation of Corrective Action; or prior to continuation of affected passenger service (Unacceptable Hazard). c. Procedure to categorize, analyze, and resolve operations, maintenance and engineering hazards, including severity and probability per APTA or MIL STD 882C. 	Yes

Item	Requirement	Procedure/Description Required Yes/No
8	<p>Accident/Unacceptable Hazardous Condition - Reporting and Investigating</p> <ul style="list-style-type: none"> a. Criteria for determining what accidents/hazardous conditions require investigation, and who is responsible to conduct specific investigations. b. Procedures for conducting investigations of reportable accidents and identified Unacceptable Hazardous Conditions (Rule 14.55.0013(4)). <ul style="list-style-type: none"> -Identify, collect and preserve evidence, facts and information. -Determine cause(s), report findings, conclusions, corrective actions -Verify corrective action implementation. c. Chapter 14-55 requirements for accident and unacceptable hazardous condition, including reporting. d. Notify FDOT of unacceptable hazardous conditions and reportable accidents within 24 hours or end of next regular working day (Rule 14.0013(1)(a)). e. Submit accident and Unacceptable Hazardous Conditions Reports to FDOT for review and approval. Reports must include most probable cause, contributing cause(s), corrective action plans with implementation schedule and be submitted to FDOT within 30 days after the last day of the month in which the accident occurred of the Unacceptable Hazardous Condition was identified. 	Yes

Item	Requirement	Procedure/Description Required Yes/No
9	<p>Internal Safety Audit Process</p> <ul style="list-style-type: none"> a. Planned/scheduled internal safety audits. b. Written checklists c. Auditors qualified and independent from first line supervision activity being audited. d. Conducted internal safety audits at some time during a three year period each of the following System Safety Program Tasks: <ul style="list-style-type: none"> -Facilities inspections -Maintenance Audits/Inspections -Rules/Procedures Review -Training Certification Review/Audit -Emergency Response Planning, Coordination, Training -System Modification Review and Approval Process -Safety Data Acquisition/Analysis -Interdepartmental/Interagency Coordination -Configuration Management -Employee Safety Program -Hazardous Materials Programs -Contractor Safety Coordination -Procurement e. Documented audit findings in written reports, including evaluation of the adequacy and effectiveness of the SSPP. f. Issue annual report prior to February 15 summarizing the results of the previous year's audits, including a summary of corrective actions and provisions for follow-up and timely implementation; submit to FDOT for review (Rule 14-55.0013(9)(c)). 	
10	<p>Facility, equipment and rolling stock inspection</p> <ul style="list-style-type: none"> a. List of safety-related facilities, equipment and rolling stock subject to regular inspection. b. Criteria for including safety-related facilities, equipment and rolling stock in regular maintenance and testing programs. c. Procedure to include identified hazards in the hazard resolution process. 	Yes
11	<p>Maintenance Audits/Inspections of all Systems and Facilities</p> <ul style="list-style-type: none"> a. Description of maintenance process, including controls for equipment manuals shop/site specific procedures, maintenance records, tracking/resolving problems identified during inspections - including lack of required maintenance. 	Yes
12	<p>Rules/Procedures Review</p> <ul style="list-style-type: none"> a. Develop, maintain and effectively use Operating Rules and Procedures, Maintenance Procedures, Training Procedures. 	Yes

Item	Requirement	Procedure/Description Required Yes/No
13	<p>Training and Certification Review/Audit</p> <ul style="list-style-type: none"> a. List of categories of safety-related work requiring training and certification. b. Description of training and certification program for employees in safety-related positions, including frequency. c. Maintain permanent file of training records. 	Yes
14	<p>Emergency Response; Planning, Coordination, Training</p> <ul style="list-style-type: none"> a. Prepare and use of emergency response procedures. b. Liaison with outside emergency response agencies and holding regularly scheduled emergency drills. 	Yes
15	<p>System Modification Review/Approval Process</p> <ul style="list-style-type: none"> a. Identify unit responsible for ensuring that hazards associated with system expansions or modifications are included in the hazard resolution process. b. Include operating and safety department personnel in the design review process for new equipment and system expansion. c. Sign-off and certification process for verification of operational readiness of new equipment and system expansions prior to revenue service. d. Assignment of responsibility and authority for approval of modification exceptions to established design criteria for new equipment and system expansions. 	Yes
16	<p>Safety Data Acquisition/analysis</p> <ul style="list-style-type: none"> a. Collect, maintain, distribute safety data relative to system operation. 	Yes
17	<p>Interdepartmental/Interagency Coordination</p> <ul style="list-style-type: none"> a. Description of interdepartmental coordination for the exchange of safety-related information. b. Coordination of communication with FDOT to keep them informed of significant safety issues on a timely basis. c. Submit annual Report to FDOT (Rule 14-55.0013(9)(3)) prior to February 15 of each year summarizing safety activities; internal safety audits, corrective actions and provision for follow-up and timely implementation; common probable causes and contributory causes of accidents and Unacceptable Hazardous Conditions. d. Submit annual Certification of Compliance with the SSPP prior to February 15 (Rule 14-55.0013(9)(d)). 	Yes
18	<p>Configuration Management</p> <ul style="list-style-type: none"> a. Description of Configuration Management control procedure, including authority to make configuration changes and assurance necessary for all involved departments to be formally notified. 	Yes

Item	Requirement	Procedure/Description Required Yes/No
19	Employee Safety Program a. Employee Safety Program incorporates applicable state and federal OSHA requirements.	No
20	Hazardous Materials Program a. Hazardous Materials Program incorporates applicable local, state and federal requirements.	No
21	Drug and Alcohol Abuse Program a. Drug and Alcohol Abuse Program incorporates the federal DOT requirements.	No
22	Contractor Safety Coordination a. Safety requirements imposed on contractor personnel when working on, or in close proximity to, the transit property.	No
23	Procurement a. Safety measures/controls for procurement of hazardous materials. b. Receiving inspection of procured materials and equipment to prevent the inadvertent installation of defective items.	Yes

Section Two

Suggested Content of a SSPP

- 2-1 Suggested Content of a Bus Transit System SSPP**
- 2-2 23 Elements for a Fixed Guideway Transportation System SSPP**
- 2-3 Sample Forms**

Section 2-1
Suggested Content of a Bus Transit
System SSPP

Section 2-1: Suggested Content of a Bus Transit System SSPP

This suggested content for a bus transit system SSPP was taken from *Safety Program Development: Developing a Transit Agency Safety Plan* by William Hathaway at U.S. DOT Transportation Systems Center. The full report is contained in Section 3-2.1 of this resource guide.

- 1. Introduction**
 - 1.1 System Safety Definition
 - 1.2 Management Statement of Policy
- 2. System Description**
- 3. System Safety Management**
 - 3.1 Safety Department Responsibility and Organization
 - 3.2 Safety Director Manager
 - 3.3 Safety Responsibility of Other Departments
- 4. System Safety Program Methodology and Tasks**
 - 4.1 Hazard Assessment Policy
 - 1) Identification of system considerations
 - 2) Hazard identification
 - 3) Hazard assessment
 - 4) Hazard resolution
 - 5) Accident/Incident Prevention and Remedy
 - 4.2 Safety Program Tasks (specified examples)
 - 1) Collect and maintain safety data
 - 2) Perform hazard identification and analysis
 - 3) Develop hazard resolutions and controls
 - 4) Conduct accident and incident investigations
 - 5) Develop and perform safety training and incentive programs (include outside training)
 - 6) Conduct safety tests and inspections
 - 7) Define safety requirements
 - 8) Maintain safety interface and coordination
- 5. System Safety Program Implementation and Maintenance**
 - 5.1 Program Schedule
 - 5.2 Requirements and Process Plan Update
 - 5.3 Program Review (audit)
 - 1) Internal (management)
 - 2) External (peer group, other organization)
 - 5.4 Management Review of System Safety Program

5.5 System Safety Plan Annual Report

6. Appendices

Appendices provide detailed reference data that need not be in the body of the plan.

- 6.1 Bibliography
- 6.2 Glossary of Terms
- 6.3 Schedule for Program Plan Implementation
- 6.4 Table of Safety Trends
- 6.5 Detailed System Description (if appropriate)
- 6.6 System Maps
- 6.7 List of operating rules, documents, etc.
- 6.8 List of emergency procedures documents
- 6.9 Chart of safety information flow
- 6.10 List of system safety tasks and responsibilities
- 6.11 Expansion/Improvement Programs
- 6.12 List of participation in safety boards, committees, panels, etc. (internal and external)
- 6.13 List of safety forms and logs
- 6.14 Table of system safety data requirements
- 6.15 Summary of safety tests and inspections
- 6.16 Regulatory agency reviews or audits
- 6.17 Internal review procedures

Section 2-2
23 Elements of a Fixed-Guideway
Transportation System SSPP

Section 2-2: 23 Elements of a Fixed-Guideway Transportation System SSPP

The following are the 23 elements that are required for a fixed-guideway SSPP as stated in Florida Administrative Rule 14-55.

*Sample "Safety
Policy Statements"
contained in
Section 2-3.1.*

1. Policy Statement and Authority for System Safety Program Plan (SSPP)

- *Approval and Adoption of SSPP by Director (CEO) or Board of Directors.*

This should be in the form of a policy statement signed by the Director (CEO).

- *Reference to designated person/department who is responsible for preparing and maintaining the SSPP.*

2. Description of Purpose of SSPP

- *An explanation of the purpose of the SSPP.*
- *Definitions of the terms "System Safety" and related terms.*
- *Description of the shared responsibilities for safety by the operations, maintenance and engineering departments.*
- *Assignment of authority for plan implementation by operations, maintenance, and engineering departments.*

3. Clear Goals Stated for SSPP Requirements

- *A List of system-specific safety goals that are long term, meaningful, and realizable.*

4. Identifiable and Attainable Objectives

- *Objectives that are quantifiable, and achievable through the implementation of policies and procedures.*
- *A statement that safety policy(ies) are established by top management.*

5. System Description and Organizational Structure

- A System description.
- Organizational Charts showing the lines of authority and responsibility for operations, maintenance and engineering as they relate to system safety.
- A description or diagram showing the lines of communication between the transit agency/authority and FDOT.

6. SSPP Control and Update Procedures

- An established maximum time limit between documented SSPP review to determine the need to revise based on changed conditions and/or requirements.
- A description of the method for updating, correcting and modifying the SSPP.
- Identification of the person(s) responsible for initiating, developing and approving changes to the SSPP.
- A statement that FDOT will be notified of changes to the SSPP.

7. Identification of Hazardous Conditions and Resolution Process

- A description of the methodology used to identify and document hazards for operations, maintenance, and engineering.
- A description of the process by which identified hazards are categorized, analyzed, and resolved for operations, maintenance, and engineering, including severity and probability per APTA or MIL STD 882C.

Both APTA and Military Standard 882C presents a Hazard Resolution Process composed of three primary components:

Hazard Identification
Hazard Categorization
Hazard Resolution

- Immediate implementation of Corrective Action prior to continuation of affected passenger service (Unacceptable Hazard).

Copy of APTA standards contained in Section 3-2.2.

Sample of "Hazard Analysis" Form contained in Section 2-3.3.

*Samples of
"Accident
Reporting Forms"
contained in
Section 2-3.5.*

8. Accident/Unacceptable Hazardous Condition - Reporting and Investigating

- *Criteria for determining which accidents/hazardous conditions require investigation, and who is responsible for conducting specific investigations.*
- *Procedures for conducting investigations of reportable accidents and identified unacceptable hazardous conditions (Rule 14.55.0013(4)).*
 - Identify, collect and preserve evidence, facts, and information.
 - Determine cause(s), report findings, conclusions, and corrective actions.
 - Verify corrective action implementation.
- *FDOT accident and unacceptable hazardous conditions reporting and investigation requirements as provided in Rule Chapter 14-55.*
- *Notification of FDOT of unacceptable hazardous conditions and reportable accidents within 24 hours or end of next regular working day (Rule 14.0013(1)(a)).*
- *Submit accident and Unacceptable Hazardous Conditions Reports to FDOT for review and approval. Reports must include most probable cause, contributing cause(s), corrective action plans with implementation schedule and be submitted to FDOT within 30 days after the last day of the month in which the accident occurred of the Unacceptable Hazardous Condition was identified.*

9. Internal Safety Audit Process

- *Planned/scheduled internal safety audits.*
- *Written checklists.*
- *Auditors qualified and independent from first line supervision activity being audited.*
- *Conducted internal safety audits at some time during a three year period each of the following System Safety Program Tasks:*
 - Facilities inspections
 - Maintenance Audits/Inspections
 - Rules/Procedures Review
 - Training Certification Review/Audit
 - Emergency Response Planning, Coordination, Training
 - System Modification Review and Approval Process
 - Safety Data Acquisition/Analysis
 - Interdepartmental/Interagency Coordination

- Configuration Management
- Employee Safety Program
- Hazardous Materials Programs
- Contractor Safety Coordination
- Procurement

- *Documented audit findings in written reports, including evaluation of the adequacy and effectiveness of the SSPP.*
- *Issue annual report prior to February 15 summarizing the results of the previous year's audits, including a summary of corrective actions and provisions for follow-up and timely implementation; submit to FDOT for review (Rule 14-55.0013(9)(c)).*

10. Facility, Equipment, and Rolling Stock Inspection

- *List of safety-related facilities, equipment and rolling stock subject to regular inspection and testing.*
- *A description of how safety-related facilities, equipment and rolling stock are included in a regular maintenance inspection and testing program.*
- *Procedure to include identified hazards in the hazard resolution process.*

11. Maintenance Audits/Inspections of all Systems and Facilities

- *A description of the maintenance process, including controls for equipment manuals shop/site specific procedures, maintenance records, and tracking/resolving problems identified during inspections - including the lack of required maintenance.*

12. Rules/Procedures Review

- *Develop, maintain and effectively use operating rules and procedures, maintenance procedures, and training procedures.*

13. Training and Certification Review/Audit

- *List of categories of safety-related work requiring training and certification.*

Safety Training Opportunities contained in Section 4.

Reference Florida Statute 335.70 for additional information on certification.

- *Description of the training and certification program (including frequency) for employees in safety-related positions.*
- *Citation of where permanent file of training records are kept.*

"Emergency Preparedness" Resources Contained in Section 3-1.3

14. Emergency Response; Planning, Coordination, Training

- *Preparation and use of emergency response procedures.*
- *Liaison with outside emergency response agencies and holding regularly scheduled emergency drills.*

Resources contained in Section 3-1.4: USDOT, Recommended Fire Safety Practices for Rural and Specialized Transit Bus Materials Selection

15. System Modification Review/Approval Process

- *Identify unit responsible for ensuring that hazards associated with system expansions or modifications are included in the hazard resolution process.*
- *Include operating and safety department personnel in the design review process for new equipment and system expansion.*
- *Sign-off and certification process for verification of operational readiness of new equipment and system expansions prior to revenue service.*
- *Assignment of responsibility and authority for approval of modification exceptions to established design criteria for new equipment and system expansions.*

Resources contained in Section 3-1.5: USDOT, Safety Management Information Statistics (SAMIS), Annual Report

16. Safety Data Acquisition/Analysis

- *Collect, maintain, and distribute safety data relative to system operation.*

17. Interdepartmental/Interagency Coordination

- *Description of interdepartmental coordination for the exchange of safety-related information.*
- *Coordination of communication with FDOT to keep them informed of*

significant safety issues on a timely basis.

- *Submit annual Report to FDOT (Rule 14-55.0013(9)(3)) prior to February 15 of each year summarizing safety activities; internal safety audits, corrective actions and provision for follow-up and timely implementation; common probable causes and contributory causes of accidents and Unacceptable Hazardous Conditions.*
- *Submit annual Certification of Compliance with the SSPP prior to February 15 (Rule 14-55.0013(9)(d)).*

18. Configuration Management

- *A description of the configuration management control procedure, including the authority to make configuration changes and assurance necessary for all involved departments to be formally notified.*

19. Employee Safety Program

- *An employee safety program incorporating the applicable state and federal OSHA requirements.*

20. Hazardous Materials Program

- *A hazardous materials program incorporating the applicable local, state and federal requirements.*

21. Drug and Alcohol Abuse Program

- *A drug and alcohol abuse program incorporating the federal DOT requirements.*

22. Contractor Safety Coordination

- *Safety requirements imposed on contractor personnel when working on, or in close proximity to, the transit property.*

23. Procurement

- *Safety measures/controls for procurement of hazardous materials.*
- *Procedures for inspection of procured materials and equipment to prevent the inadvertent installation of defective items.*

*Resources
contained in
Section 3-1.6:
FDOT,
Environmental
Awareness
Program, Training
Manual*

Section 2-3

Sample Forms

- 2-3.1 Safety Policy Statements**
- 2-3.2 Certification of Compliance**
- 2-3.3 Hazard Analysis Form**
- 2-3.4 Corrective Action Identification and Tracking Form**
- 2-3.5 Incident/Accident Reports**
- 2-3.6 Preventive Maintenance Inspections**
- 2-3.7 Form # 775-090-01 (Medical Examination Form referenced in 14-90)**
- 2-3.8 Summary Checklist for Review of Security Program Plans**

Section 2-3.1
Safety Policy Statements

**HILLSBOROUGH AREA REGIONAL TRANSIT
SYSTEM SAFETY PROGRAM PLAN**

DRAFT

TO: ALL HARTLINE EMPLOYEES

The Hillsborough Area Regional Transit Authority was organized to provide safe, courteous, clean, reliable, and effective on-time service to residents of our operating area.

The safety portion of HART's task is of paramount concern. As a result, all HART personnel and appropriate contractors are charged with the responsibility of insuring the safety of employees, property, passengers, and those who come in contact with the system.

Further, each department is directed and empowered to devise, implement, and administer a comprehensive Safety Program with a specific safety plan and activities to prevent, control, and resolve unsafe conditions. This program shall be coordinated with the Operations Training /Safety and Security Specialist under the direction of the General Manager of Operations whose authority includes the right to stop any operation which he determines is not safe.

It is the duty of each HART employee to cooperate with the department director, Operations Training/ Safety and Security Specialist and or the Risk & Environmental Safety Manager, to provide requested information to help in any investigation or inspection undertaken.



Sharon Dent, Executive Director

DRAFT

METRO-DADE TRANSIT AGENCY
POLICY STATEMENT

DIRECTOR'S POLICY STATEMENT ON SYSTEM
SAFETY PROGRAM PLAN

The Metro-Dade Transit Agency (MDTA) was organized and chartered to provide safe, reliable and effective service to all users. Safety is a primary concern that affects all levels of MDTA activities, including planning, design, construction, testing, and operations and maintenance of all MDTA transportation systems. Therefore, all MDTA personnel and appropriate contractors are charged with the responsibility of insuring the safety of passengers, employees, property and the general public which come in contact with the MDTA system.

MDTA Transit Safety and Assurance is empowered and authorized to develop, implement and administer a comprehensive, integrated and coordinated system safety program, including a specific plan to identify, prevent, control and resolve unsafe conditions during design, construction, testing, and operations and maintenance of MDTA transportation systems.

Accordingly, the Chief, Transit Safety and Assurance is empowered to order the cessation of unsafe activities or operations which are evaluated as presenting an immediate and serious hazard within the system and to conduct unannounced inspections aimed at identifying and eliminating unsafe practices, operations and/or conditions not corrected by immediate management/ supervision.



Chester E. Colby
Director
July 10, 1989

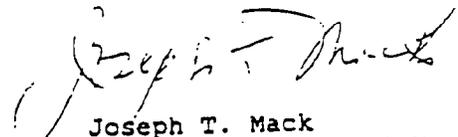
DRAFT

GENERAL MANAGER'S SAFETY POLICY STATEMENT

It is SEPTA's mission to excel in the reliable delivery of safe, attractive and effective transportation by skilled and dedicated employees who are responsive to the public we serve. Our goal is to provide excellent service in vehicles which are operated safely, are clean and are on time. In supplying transportation services we must be equally concerned to maintain a safe and healthy environment, for SEPTA employees, patrons and the general public.

The implementation of SEPTA safety objectives can be accomplished by...

1. Performing a safety analysis of all SEPTA operations and formulating and enforcing safe work practices for these operations.
2. Observing all applicable federal, state and local safety, health and environmental standards and regulations.
3. Providing safety training programs for all employees to make them aware of safe work practices.
4. Performing periodic safety and health audits of all SEPTA equipment and facilities and promptly correcting deficiencies found.
5. Performing timely investigation, analysis and reporting of accidents in order to make recommendations to avoid likelihood of recurrence.
6. Providing regular work location and departmental safety meetings.
7. Providing suitable recognition of outstanding safety achievement.
8. Developing and promoting public awareness of transportation safety on the SEPTA system.
9. The recognition by each employee that safety is an important responsibility of all employees.



Joseph T. Mack
Chief Operations Officer/General Manager
Southeastern Pennsylvania Transportation Authority

DRAFT

SAFETY STATEMENT

The efficiency of SCAT operations is directly related to the well-being of our employees, the maintenance of system coaches, facilities and property and the management of all of our activities. It is with this concern in mind that the following policy is issued by Peter G. Drake, General Manager, as a statement of the direction that this transit system is to take in the control and reduction of our accidental losses.

It is SCAT's policy that no function of this transit system is so critical as to require a compromise of safety. In this regard:

The planning and accomplishment of any job/task/project must include full recognition of the risks involved and the best methods for coping with them.

The responsibility of all department heads and supervisors is to implement loss control programs that will benefit this transit system and its employees. All levels of supervision will be held accountable for their accident prevention activities. Supervision will be evaluated on its performance. A loss occurrence will be viewed as a mark of ineffectiveness and a breakdown of management.

All levels of employees will be expected to comply with the provisions of the system's preventive safety program. Any attempt to short-cut safety procedures will be dealt with directly by supervisors and, where required, higher levels of management. Our transit system's loss control program will be implemented by everyone, and each and every employee will have the opportunity to participate in its various component activities.

As General Manager of SCAT, I accept my responsibility to manage this transit system in such a way as to reduce our losses to the irreducible minimum. My management actions affect your health and well-being, as well as the general public, and actions reflect upon me. I will do my best, and I expect that you will do your best, in our joint efforts to control losses at SCAT.

Peter G. Drake
General Manager

City of Monroe, Louisiana

MAYOR-COUNCIL GOVERNMENT

MONROE TRANSIT SYSTEM

DEPARTMENT

DRAFT

JUNE 19, 1984

MEMORANDUM

TO: ALL EMPLOYEES

FROM: Lynn Purnell 
General Manager, MTS

SUBJECT: MTS Safety Policy

The Monroe Transit System (MTS) was created to provide safe, courteous, clean, reliable, and effective on-time service to residents of Monroe.

The safety aspect of our task is of utmost concern. As a result, all MTS personnel are charged with the responsibility of insuring the safety of employees, property, passengers, and those who come in contact with the system.

The MTS Safety Director, Joseph Danna, is directed to devise, implement, and administer a comprehensive and coordinated System Safety Program including activities to prevent, control, and resolve unsafe conditions which may occur. This authority includes the right to stop any operation which he feels is not safe.

It is the responsibility of each MTS employee to cooperate with Mr. Danna and provide him with any requested information to assist in any investigation or inspection that he may undertake.

LP/med

KETRON, INC

Section 2-3.2
Certification of Compliance

STATE OF FLORIDA DEPARTMENT OF TRANSPORTATION
CERTIFICATION OF COMPLIANCE
for a
BUS OR RAIL TRANSIT SYSTEM
(Certifying compliance with Section 341.061, FS. and Chapters 14-90 and 14-55, FAC.)
To
Florida Department of Transportation

Draft

Date: _____

Bus or Rail Transit System Information:

AGENCY NAME: _____
ADDRESS: _____
PHONE: _____

FDOT District Office Information:

NAME: _____
ADDRESS: _____
PHONE: _____

I, _____, _____
(Name) (Title)

hereby certify compliance with the below indicated requirements as applicable to bus and fixed

guideway systems subject to Chapter 14-90 and 14-55, Florida Administrative Code:

Note: Please initial next to applicable certification requirement.

Bus Transit System

_____ Adoption and implementation of a System Safety Program Plan pursuant to safety standards set forth in Rule Chapter 14-90, Florida Administrative Code.

_____ Performance of safety inspections on all operational buses pursuant to Rule 14-90.009, Florida Administrative Code.

Rail Transit System (Established)

_____ Implementation of a System Safety Program Plan pursuant to Rule Chapter 14-55, Florida Administrative Code.

Rail Transit System (New)

_____ Adoption of a System Safety Program Plan pursuant to Rule Chapter 14-55, Florida Administrative Code.

_____ Prior to beginning passenger service operations, certification that the system is safe for passenger service.

Draft

Signature

**BUS TRANSIT SYSTEM
ANNUAL SAFETY CERTIFICATION**

DRAFT

DATE: _____

NAME: _____

ADDRESS: _____

IN ACCORDANCE WITH FLORIDA STATUTE 341.061, THE BUS TRANSIT SYSTEM NAMED ABOVE HEREBY CERTIFIES TO THE FOLLOWING:

1. The adoption of a System Safety Program Plan (SSPP) pursuant to Florida Department of Transportation safety standards set forth in Rule Chapter 14-90, Florida Administrative Code.
2. Compliance with adopted safety standards in the SSPP.
3. Performance of annual safety inspections on all operational buses in accordance with Rule 14-90.009.

Signature: _____

Name: _____

(Type or Print)

Title: _____

Name and Address of entity(ies) which has (have) performed safety inspections:

Name: _____

Address: _____

DRAFT

Section 2-3.3
Hazard Analysis Form

HAZARD ANALYSIS

Transit Agency: _____
 System: _____
 Subsystem: _____

Hazard Analysis I.D./File No.: _____
 Page _____ of _____
 Prepared By: _____ Date: _____
 Signature _____

Hazard Risk Index **Criteria**

- 1A, 1B, 1C, 2A, 2B, 3A UNACCEPTABLE
- 1D, 2C, 2D, 3B, 3C UNDESIRABLE (*Director Decision required)
- 1E, 2E, 3D, 3E, 4A, 4B ACCEPTABLE (With Review by *Director)
- 4C, 4D, 4E ACCEPTABLE (Without *Director Review)

*Transit System Executive Director or General Manager
 (See the APTA Guidelines or Mil.Std. 882C for the Hazard Resolution Matrix)

Approved By: _____ Date: _____
 Signature _____
 Typed or Printed Name & Title _____
 Accepted By: _____ Date: _____
 Signature _____
 Typed or Printed Name & Title _____

Implementation of Corrective Action(s) Results in a Residual Risk Index of _____.

General Description		Hazard Cause/Effect		Corrective Action
Item No.	Operations/Item	Cause	Effect	**Hazard Category
	Hazard Description			Redesign/Control Action

**Note: Must include Severity and Probability

Attach Additional Information as Required

Section 2-3.4
Corrective Action Identification and Tracking Form

CORRECTIVE ACTION IDENTIFICATION AND TRACKING

Transit Agency: _____
 System: _____
 Subsystem: _____

Corrective Action I.D./File No.: _____
 Page _____ of _____
 Prepared By: _____ Date: _____

Corrective Action(s) must be identified and implemented when a hazardous condition or non-compliance with a safety item is identified. When the hazardous condition is determined to be "Unacceptable", "Undesirable", or "Acceptable" with review by the system Director, the Corrective Action(s) must be formally tracked as an "Open Item" until the Corrective Action is implemented. If the non-compliant item is related to a federal, state, or local safety related requirement, the Corrective Action(s) must be similarly formally tracked as an "Open Item" until implemented.

Signature _____
 Typed or Printed Name & Title _____
 Approved By: _____ Date: _____
 Signature _____
 Typed or Printed Name & Title _____

Implementation of Corrective Action(s) Results in a Residual Risk Index of _____.

General Description		Implementation and Tracking				
Open Item No./Year	Corrective Action Description/Identification	Source	Date Identified	Responsibility for Implementation (Individual and Section or Division)	Scheduled Date for Implementation	Actual Date of Implementation

Attach Additional Information as Required

Section 2-3.5
Incident/Accident Reports

**FIXED GUIDEWAY TRANSPORTATION SYSTEM
ACCIDENT AND UNACCEPTABLE HAZARDOUS CONDITION REPORT**

ACCIDENT UNACCEPTABLE HAZARDOUS CONDITION

TRANSIT AGENCY: _____

REPORT DATE: _____ PREPARED BY: _____ PHONE # _____

ACCIDENT DATA

FATALITIES: _____ INJURIES: _____ EST. DAMAGE: \$ _____

DATE OF ACCIDENT: _____ TIME: _____ GRADE CROSSING: _____
Yes No

TYPE OF ACCIDENT: _____

LOCATION OF ACCIDENT: _____

UNACCEPTABLE HAZARDOUS CONDITION DATA

TYPE OF HAZARDOUS CONDITION: _____

DATE IDENTIFIED: _____ HOW IDENTIFIED: _____

WHO IDENTIFIED: _____ LOCATION: _____

SEVERITY: _____ PROBABILITY: _____

DESCRIPTION OF THE ACCIDENT OR UNACCEPTABLE HAZARDOUS CONDITION:

ILLUSTRATIVE SKETCH OF THE ACCIDENT OR UNACCEPTABLE HAZARDOUS CONDITION

MOST PROBABLE CAUSE: _____

ADDITIONAL CONTRIBUTING CAUSES: _____

CORRECTIVE ACTION PLAN AND SCHEDULE

SCHEDULED
COMPL. DATE

ACTIVITY

SUPPORTING DOCUMENTS(Listing of Attached): _____

SIGNATURE (Approved)

TITLE

DATE

This report shall be completed and submitted to the Florida Department of Transportation District Office for each reportable accident and unacceptable hazardous condition that was identified. These reports shall be submitted no later than 30 days after the last day of the month in which the accident occurred or the unacceptable hazardous condition was identified.

**FIXED GUIDEWAY TRANSPORTATION SYSTEM
TELEPHONE / FAX REPORT OF:**

ACCIDENT UNACCEPTABLE HAZARDOUS CONDITION

TRANSIT AGENCY: _____

DATE REPORTED: _____ TIME REPORTED: _____

REPORTED BY: _____ PHONE # _____ REPORTED TO: _____

PERSON ASSIGNED TO OVERSEE INVESTIGATION: _____

ACCIDENT

TYPE OF ACCIDENT: _____

FATALITIES: _____ INJURIES: _____ EST. DAMAGE: \$ _____

DATE OF ACCIDENT: _____ TIME: _____ GRADE CROSSING: _____
Yes No

LOCATION OF ACCIDENT: _____

UNACCEPTABLE HAZARDOUS CONDITION

TYPE OF HAZARDOUS CONDITION: _____

SEVERITY: _____ PROBABILITY: _____

DATE IDENTIFIED: _____ HOW IDENTIFIED: _____

WHO IDENTIFIED: _____ LOCATION: _____

DESCRIPTION OF THE ACCIDENT OR UNACCEPTABLE HAZARDOUS CONDITION:

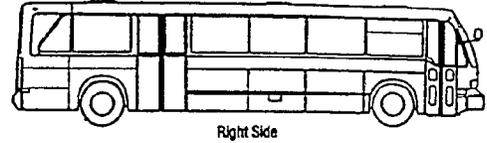
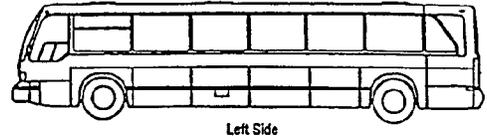
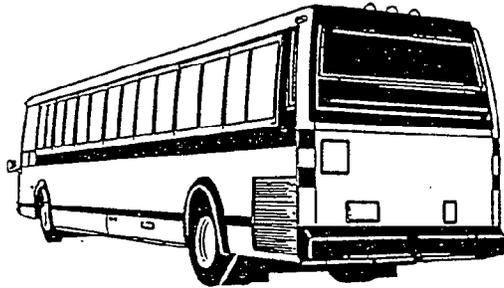
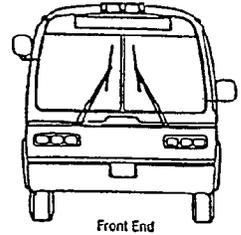
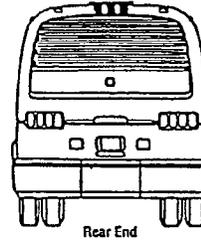
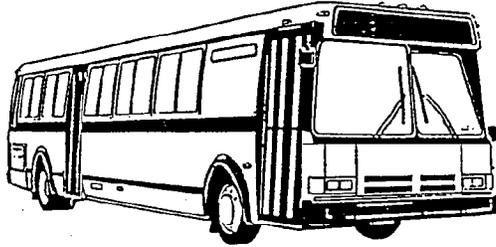


Hillsborough Area Regional Transit

Supervisor Report of Accident		File No.		
Hartline Vehicle				
Date / /	AM PM	Location & Direction of Travel		
Operator Name:	PR #	Unit #	Route #	
Run #	Block #	Operator Injured ? Yes /No	# Passengers	Courtesy Cards
Speed of bus at time danger of collision first became apparent to operator ?.....		M.P.H.		
Speed of bus when first contact with other vehicle occurred ?.....		M.P.H.		
How far was operator from point of accident at the time he applied brakes ?.....		Feet		
At this time, how far was the other vehicle from the point of accident ?.....		Feet		
Other Vehicle				
Driver's Name:		SS #		
DL #		D.O.B. / /		
Address:		City: State: Zip:		
Phone/Home: ()		Work: () Mobile: ()		
Owner's Name:		Phone: ()		
Address:		City: State: Zip:		
Vehicle Make:		Model: Year: Color:		
Tag #	County:	State:	Vin #	
Insurance Co.		Policy #		
Agent Name:		Phone: ()		
Injuries ? Yes / No	Names of Injured:----->	1.)		
2.)		3.)		
Direction of Travel:				
Speed of vehicle at time danger of collision first became apparent to driver?.....		M.P.H.		
Speed of vehicle when first contact with bus occurred?.....		M.P.H.		

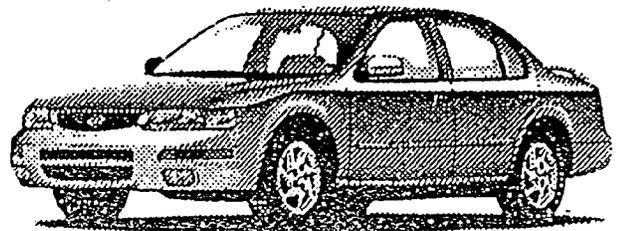
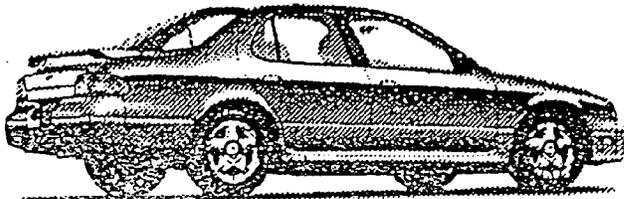
SIGNATURE OF SUPERVISOR: _____ Date: _____

MARK "X" FOR AREAS OF DAMAGE OR NO VISIBLE DAMAGE



Police Report #		TPD _____ HCSO _____ FHP _____ Other _____
Officer/Badge #		Officer/ Badge #
Who Was Cited:		Charge:
Emergency Unit:		Name:
Emergency Unit:		Name:
List Names, Addresses, Phone #'s of Witnesses Other Than Vehicle's		
1.)		
2.)		
3.)		
List Unit #'s, Names of Other HARTLINE Personnel Present At Scene		
Unit #/Name:		Unit #/Name:
Unit #/Name:		Unit #/Name:
Unit #/Name:		Unit #/Name:

MARK "X" FOR AREAS OF DAMAGE OR NO VISIBLE DAMAGE



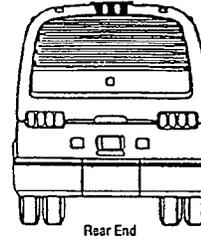
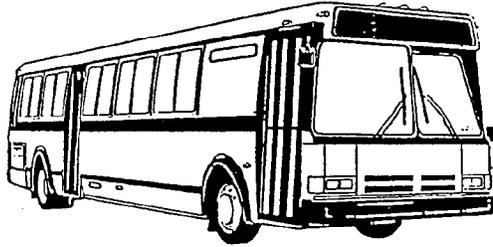


Hillsborough Area Regional Transit

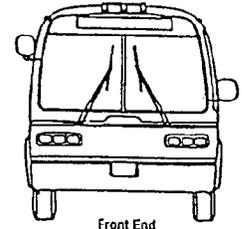
Supervisor Report of Accident		File No.		
Hartline Vehicle				
Date / /	AM PM	Location & Direction of Travel		
Operator Name:	PR #	Unit #	Route #	
Run #	Block #	Operator Injured ? Yes /No	# Passengers	Courtesy Cards
Speed of bus at time danger of collision first became apparent to operator ?.....		M.P.H.		
Speed of bus when first contact with other vehicle occurred ?.....		M.P.H.		
How far was operator from point of accident at the time he applied brakes ?.....		Feet		
At this time, how far was the other vehicle from the point of accident ?.....		Feet		
Other Vehicle				
Driver's Name:		SS #		
DL #		D.O.B. / /		
Address:		City: State: Zip:		
Phone/Home: ()		Work: () Mobile: ()		
Owner's Name:		Phone: ()		
Address:		City: State: Zip:		
Vehicle Make:		Model: Year: Color:		
Tag #	County:	State:	Vin #	
Insurance Co.		Policy #		
Agent Name:		Phone: ()		
Injuries ? Yes / No	Names of Injured:----->	1.)		
2.)		3.)		
Direction of Travel:				
Speed of vehicle at time danger of collision first became apparent to driver?.....		M.P.H.		
Speed of vehicle when first contact with bus occurred?.....		M.P.H.		

SIGNATURE OF SUPERVISOR: _____ Date: _____

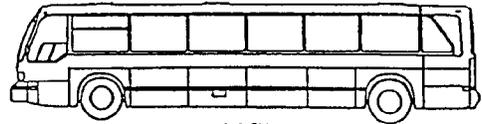
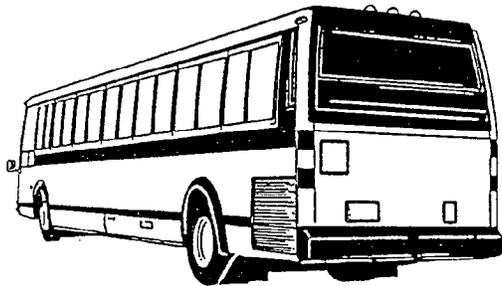
MARK "X" FOR AREAS OF DAMAGE OR NO VISIBLE DAMAGE



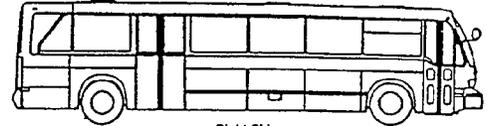
Rear End



Front End



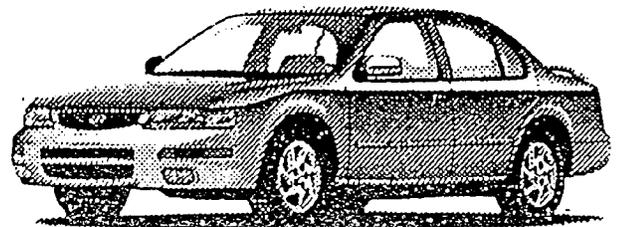
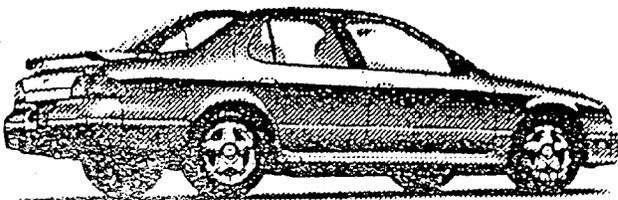
Left Side



Right Side

Police Report #		TPD _____	HCSO _____	FHP _____	Other _____
Officer/Badge #			Officer/ Badge #		
Who Was Cited:			Charge:		
Emergency Unit:			Name:		
Emergency Unit:			Name:		
List Names, Addresses, Phone #'s of Witnesses Other Than Vehicle's					
1.)					
2.)					
3.)					
List Unit #'s, Names of Other HARTLINE Personnel Present At Scene					
Unit #/Name:			Unit #/Name:		
Unit #/Name:			Unit #/Name:		
Unit #/Name:			Unit #/Name:		

MARK "X" FOR AREAS OF DAMAGE OR NO VISIBLE DAMAGE



CHECK ONE: TPD COUNTY FHP OTHER OFFICER NAME OR BADGE NUMBER _____

INJURIES
CHECK APPROPRIATE BLOCK(S)

Bus Passenger	Other Vehicle	Pedestrian	Injured's Name	Address	Ambulance (without transport)	Hospital (by ambulance)	Hospital Name

COLLISION ACCIDENTS

Other Vehicle Driver: Name	Address
Other Vehicle Owner: Name	Address
Other Vehicle License Plate No.	Make/Model/Year/Color
No. Of Persons In Vehicle	Direction Of Other Vehicle
Insurance Company	Policy Number
Where Vehicles Moved Prior To The Investigation?	

PASSENGER ACCIDENTS
CHECK APPROPRIATE BLOCK(S)

WAS PASSENGER: BOARDING ALIGHTING ON BOARD AT FRONT DOOR REAR DOOR

STRUCK BY: FRONT DOOR REAR DOOR

FALLS: AISLE ALIGHTING- FRONT DOOR REAR DOOR

FALLS OUTSIDE BUS: BOARDING- FRONT DOOR REAR DOOR FEET FROM BUS

DID PERSON CONTACT VEHICLE IN FALLING?

AT TIME OF ACCIDENT THE BUS WAS: TURNING STOPPING STARTING RUNNING STRAIGHT STOPPED

DO NOT WRITE BELOW THIS LINE REPORT RECEIVED BY:

--	--	--	--

PD-PI-OR TYPE BOARD CLASSIFICATION SUB CLASSIFICATION

--	--	--	--	--

AF-NAF ACTION TAKEN POLICE REPT. SUBROGATE COPIES TO INS.

HARTLINE
Maintenance Department
Work Order

REPAIRS NEEDED _____

REPAIRS MADE _____

COMPONENTS CHANGED _____

FLUIDS ADDED _____

ROAD CALL [] Continued in service [] Bus exchange with # _____
Returned to garage []
Road Supv./Service Truck Mech. Signature _____

FOLLOW-UP REPAIRS

Mechanic's Signature _____

Supervisor's Signature _____ Date _____

WORK ORDER # _____



**METRO DADE TRANSIT AGENCY
METRORAIL/METROMOVER
FIXED GUIDEWAY TRANSPORTATION SYSTEM
ACCIDENT AND UNACCEPTABLE HAZARDOUS CONDITION REPORT**

ACCIDENT

UNACCEPTABLE HAZARDOUS CONDITION

AGENCY MODE: _____

REPORT DATE: _____ PREPARED BY: _____ PHONE# _____

ACCIDENT DATA

FATALITIES: _____ INJURIES: _____ EST. DAMAGE: \$ _____

DATE OF ACCIDENT: _____ TIME: _____ GRADE CROSSING: _____

TYPE OF ACCIDENT: _____

LOCATION OF ACCIDENT: _____

UNACCEPTABLE HAZARDOUS CONDITION DATA

TYPE OF HAZARDOUS CONDITION: _____

DATE IDENTIFIED: _____ HOW IDENTIFIED: _____

WHO IDENTIFIED: _____ LOCATION: _____

SEVERITY: _____ PROBABILITY: _____

DESCRIPTION OF THE ACCIDENT OR UNACCEPTABLE HAZARDOUS CONDITION:

ILLUSTRATIVE SKETCH OF THE ACCIDENT OR UNACCEPTABLE HAZARDOUS CONDITION

MOST PROBABLE CAUSE: _____

ADDITIONAL CONTRIBUTING CAUSES: _____

CORRECTIVE ACTION PLAN AND SCHEDULE

SCHEDULED COMPL. DATE	ACTIVITY

SUPPORTING DOCUMENTS (Listing of Attached): _____

SIGNATURE (Approved) _____ TITLE _____ DATE _____

This report shall be completed and submitted to the Florida Department of Transportation District Office for each reportable accident and unacceptable hazardous condition that was identified. These reports shall be submitted no later than 30 days after the last day of the month in which the accident occurred or the unacceptable hazardous condition was identified.



MASS TRANSIT ADMINISTRATION

SUPERVISOR'S ACCIDENT INVESTIGATION REPORT

MTA BUS

THIS REPORT CALLED
IN AT _____
NAME OF PERSON
WHO RECEIVED CALL

DIVISION		DATE	TIME	A. M. P. M.	LOCATION ON	AT/BET.	
BUS NO.	LINE	DIRECTION	1 2 3 4 N E S W	OPERATOR'S NAME		BADGE	SERVICE YRS. MOS.
DRIVER'S LIC. NO.		HOME ADDRESS			NO. OF PASSENGERS ON BUS WHEN SUPV. ARRIVED AT THE SCENE		
NO. OF WITNESSES OBTAINED BY SUPV.		TOTAL NO. WITNESSES	DID YOU WITNESS ACCIDENT?		DAMAGE TO MTA BUS		

TYPE	<input type="checkbox"/> HEAD ON	<input type="checkbox"/> REAR END (You hit You were hit)	<input type="checkbox"/> NON COLLISION (Describe)
	<input type="checkbox"/> SIDESWIPE	<input type="checkbox"/> OTHER (Describe) _____	_____
	<input type="checkbox"/> RIGHT ANGLE	_____	

OTHER VEHICLE

VEHICLE MAKE & MODEL	YEAR	SERIAL NO.	TAG NO.	YEAR	STATE	TITLE NO.
DRIVER'S NAME		DATE OF BIRTH	SEX	DRIVER'S LIC. NO.		EXPIRES STATE
DRIVER'S ADDRESS		CITY	STATE	ZIP CODE	PHONE NO.	
NAME OF EMPLOYER		ADDRESS OF EMPLOYER		CITY	STATE	ZIP CODE
OWNER'S NAME		OWNER'S ADDRESS		CITY	STATE	ZIP CODE
INSURANCE CO.		POLICY NO.	EFF. DATE	ADDRESS OF INSURANCE CO.		
CITY	STATE	INSURANCE INFORMATION MUST BE COMPLETED.				
INSURANCE AGENT		ADDRESS OF AGENT		CITY	STATE	ZIP CODE

DAMAGE TO OTHER VEHICLE

WAS POLICE PRESENT?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	NAME	BADGE NO.	COMPLAINT NO.
WAS AMBULANCE SENT?	YES <input type="checkbox"/>	NO <input type="checkbox"/>	AMBULANCE NO.	REQUESTED BY	NAME OF HOSPITAL

LIST INJURED	PASSENGER	PEDESTRIAN	OTHER VEHICLE	APPROXIMATE AGE	RACE

USE ADDITIONAL SHEET IF NECESSARY

PASSENGER ACCIDENT	STANDING <input type="checkbox"/>	ON BOARD <input type="checkbox"/>	DISTANCE FROM BUS _____
BUS MOVING <input type="checkbox"/>	IF FALL- ALIGHTING <input type="checkbox"/>	IF OUTSIDE- _____	DISTANCE FROM CURB _____

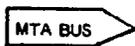
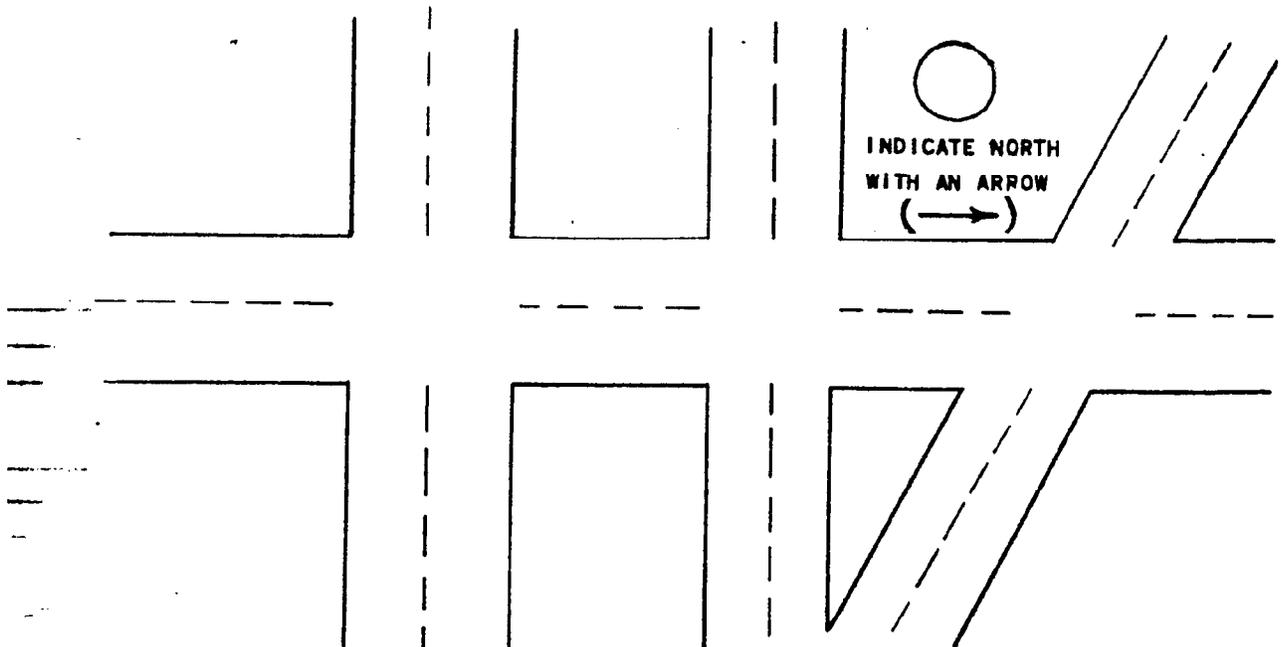
LIST ALL PASSENGERS OF OTHER VEHICLE

NAME	ADDRESS	CITY	STATE	ZIP	PHONE NO.

DESCRIPTION

SUPERVISOR'S SIGNATURE _____

DISTRICT _____



OTHER VEHICLE



● PEDESTRIAN



300 West Lexington Street
Baltimore, Maryland 21201-3415

TRANSPORTATION ACCIDENT/INCIDENT REPORT
(Prepared in Anticipation of Litigation)

REPORT NO. _____

BUS NO.		LINE	DIRECTION N E S W		WEATHER	CONDITION OF ROADWAY	
BUS/ON TIME _____ /MIN. LATE _____		NO. OF PASSENGERS _____		NO. OF WITNESSES _____			
OPERATOR'S NAME			BADGE NUMBER		DRIVER'S LICENSE NUMBER		
OPERATOR'S ADDRESS AND ZIP					OPERATOR'S TELEPHONE		

DESCRIBE ACCIDENT IN DETAIL

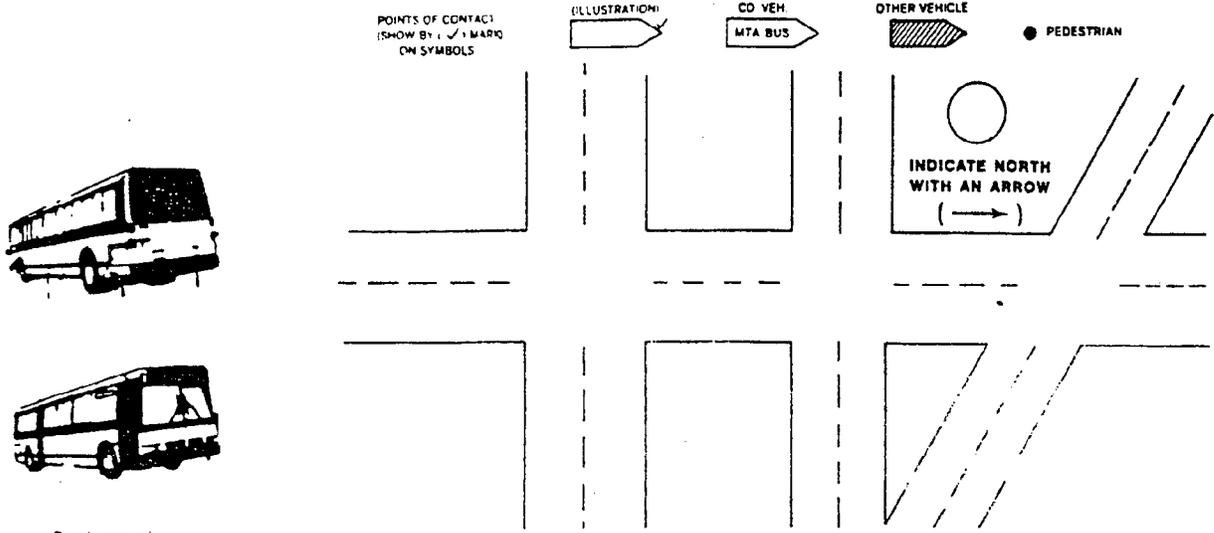
OTHER VEH. MAKE & MODEL		YEAR	SERIAL NO.		TAG NO.	YEAR	STATE	TITLE NO.
DRIVER'S NAME			DATE OF BIRTH	SEX	DRIVER'S LIC. NO.		EXPIRES	STATE
DRIVER'S ADDRESS			CITY	STATE	ZIP CODE	TELEPHONE NUMBER		
NAME OF EMPLOYER			ADDRESS OF EMPLOYER			CITY	STATE	ZIP CODE
OWNER'S NAME			OWNER'S ADDRESS			CITY	STATE	ZIP CODE
INSURANCE COMPANY			ADDRESS OF INS. CO			POLICY NUMBER		EFF. DATE
CITY	STATE	ZIP CODE	DESCRIBE DAMAGE:					

Speed of bus at time damage of collision first became apparent: _____ m.p.h.
 Speed of bus when first contact with vehicle occurred? _____ m.p.h.
 Speed of vehicle when first contact with bus occurred? _____ m.p.h.
 How far were you from point of accident at the time you applied brakes? _____ feet.
 How far did your vehicle move after collision? _____ feet.

PASSENGER ACCIDENT

AT TIME OF ACCIDENT: (CHECK PROPER ITEMS) WAS PERSON: Boarding _____ Alighting _____ On Board _____
 At Front Door _____ At Rear Door _____ Struck By Doors _____
 TYPE OF DOOR CONTROL: Manual _____ Treadle _____ Push Out _____ Other _____
 MOTION OF M.T.A. VEHICLE: Standing _____ Starting _____ Stopping _____ Running (Straight _____ Curve _____)
 Going _____ M.P.H.
 IF A FALL, GIVE LOCATION: Front Steps _____ Front Platform _____ Aisle _____ Rear of Center Platform _____
 Rear of Center Steps _____
 DID PERSON CONTACT M.T.A. VEHICLE IN FALLING? Yes _____ No _____; IF OUTSIDE, DISTANCE FROM VEHICLE _____ FEET.
 DISTANCE OF DOOR INVOLVED FROM CURB _____ FEET.

TRAFFIC DIAGRAM: IMPORTANT (DRAW COMPLETE DIAGRAM OF WHERE, AND HOW, ACCIDENT HAPPENED USING SYMBOLS BELOW, SHOWING STREET NAMES AND INDICATING DIRECTION OF TRAVEL BY LINE OF ARROWS OF VEHICLES INVOLVED).



Circle point of contact

DAMAGE TO M.T.A. COACH _____

PEDESTRIAN. AT TIME OF COLLISION AT CROSSWALK _____ LOADING ZONE _____ NEAR CURB _____
 JAY WALKING _____ OTHER _____

WAS POLICE PRESENT? YES <input type="checkbox"/> NO <input type="checkbox"/>	NAME _____	BADGE NO. _____	COMPLAINT NO. _____
WAS AMBULANCE SENT? YES <input type="checkbox"/> NO <input type="checkbox"/>	AMBULANCE NO. _____	REQUESTED BY _____	NAME OF HOSPITAL _____

LIST INJURED	PASSENGER	PEDESTRIAN	OTHER VEHICLE	APPROXIMATE AGE	RACE

MISCELLANEOUS INCIDENT

(DISTURBANCES, ARRESTS, EJECTMENTS, FITS, SICKNESS, FALLS NOT ON M.T.A. VEHICLE, OTHER COLLISIONS, ETC.)

DID INCIDENT OCCUR ON CO VEHICLE? Yes _____ No _____ ; IF NOT, GIVE DISTANCE FROM M.T.A. VEHICLE _____ FEET.

WAS PERSON A PASSENGER PRIOR TO INCIDENT? Yes _____ No _____ ; WAS M.T.A. VEHICLE INVOLVED? Yes _____ No _____

CONDITION EQUIPMENT

DID YOU NOTICE ANY EQUIPMENT DEFECTS (STEPS, FLOORS, DOORS, SEATS, BRAKES, ETC.)? Yes _____ No _____

LIST DEFECTS _____

WHOM DID YOU NOTIFY OF DEFECTS? _____ WHEN? _____

ACC. TYPE	OPR. RESP	REPORT CHECKED BY
-----------	-----------	-------------------

DATE OF REPORT _____

EMPLOYEE'S SIGNATURE (INDICATE CLASSIFICATION)
 OPERATOR STUDENT OTHER

**CITY OF DETROIT
DEPARTMENT OF TRANSPORTATION
VEHICLE ACCIDENT REPORT**

VEHICLE CODE NO. _____ Submit **THREE COPIES** to AUDITOR'S OFFICE _____ ACCIDENT NO. _____
Administration Building

NOTE: Answer all questions completely. Report must be signed by operator of DOT vehicle as being true to the best of his knowledge. Report to be made out the same day of accident and forwarded immediately to Auditing.

DIVISION _____

ACCIDENT	Location _____ Date _____ Time _____	A.M. P.M.
D.O.T. OWNED VEHICLE (Veh. No. 1)	Name _____ Date of Birth _____	
	State Operator's No. _____ Pension No. _____	
	Home Address _____ Zip Code _____	
	Vehicle License No. _____ Make _____ Type _____	
	Describe damages _____	
OTHER VEHICLE OR PROPERTY (Veh. No. 2)	Name Driver _____ State Operator's No. _____	
	Address _____ City _____ Zip Code _____ Tel. No. _____	
	Name Owner _____ Address _____ Tel. No. _____	
	Make of Vehicle _____ Type _____ Year _____ License No. _____	
	Other Property _____ Describe damages _____	
WITNESSES	Name _____ Address _____ Tel. No. _____	
	Name _____ Address _____ Tel. No. _____	
	Name _____ Address _____ Tel. No. _____	
PASSENGERS IN VEHICLES (Give No.)	Name _____ Address _____ Veh. No. _____	
	Name _____ Address _____ Veh. No. _____	
	Name _____ Address _____ Veh. No. _____	
INJURED PERSONS	CAR Name _____ Address _____ Age _____ Sex _____ NO. _____ Nature of Injury _____ Hospital taken to _____	
	CAR Name _____ Address _____ Age _____ Sex _____ NO. _____ Nature of Injury _____ Hospital taken to _____	
	NOTE: If minors give names and address of parents.	

Were Police Called _____ Officer's Badge No. _____ A.P.B. Case No. _____

DESCRIPTION OF ACCIDENT

Direction your vehicle was going _____ Street _____ Speed _____

Direction other vehicle was going _____ Street _____ Speed _____

Did you give warning signal _____ What kind _____ Were your lights on _____

Did other driver give signal _____ What kind _____ Were his lights on _____

- | | | |
|--|--|---|
| <p>Weather</p> <p><input type="checkbox"/> Clear
 <input type="checkbox"/> Cloudy
 <input type="checkbox"/> Raining
 <input type="checkbox"/> Snowing
 <input type="checkbox"/> Fog</p> | <p>Traffic Control</p> <p><input type="checkbox"/> Stop Sign
 <input type="checkbox"/> Signal Light
 <input type="checkbox"/> Open Intersection
 <input type="checkbox"/> Other _____</p> | <p>Light Conditions</p> <p><input type="checkbox"/> Daylight
 <input type="checkbox"/> Darkness with Artificial Lights
 <input type="checkbox"/> Other _____</p> |
|--|--|---|

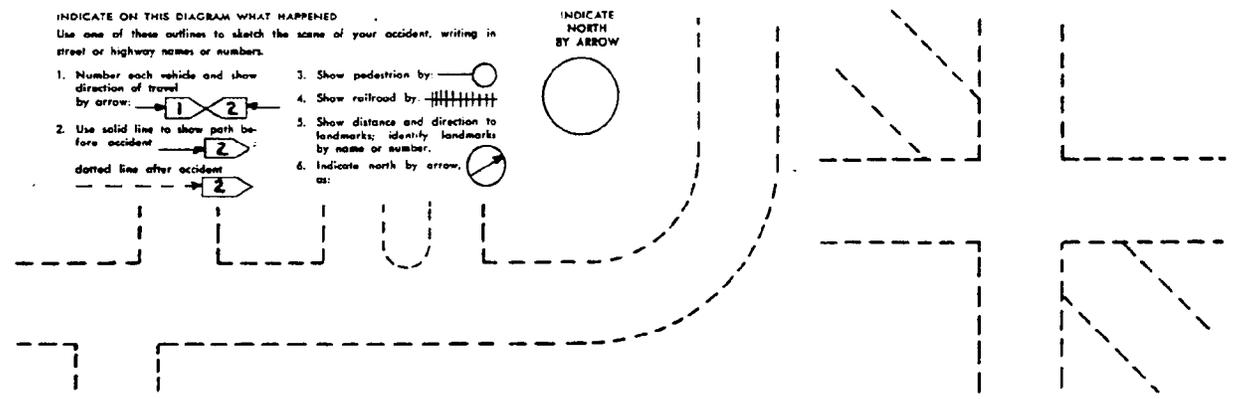
- Road Conditions**
- Paved
 Unpaved
 Soft shoulders
 Under repairs
 No defects
 Others _____

- Point of Impact**
 (Check one for each vehicle involved)
- | | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Vehicle | | | Vehicle | | |
| 1 | 2 | 3 | 1 | 2 | 3 |
| <input type="checkbox"/> |
| 1. Front | | | 5. Left side | | |
| 2. Right front | | | 6. Rear | | |
| 3. Left front | | | 7. Right rear | | |
| 4. Right side | | | 8. Left rear | | |

Driver's description of accident

Signature of Driver _____ Date _____

Signature of Supervisor _____ Date _____



DO NOT WRITE BELOW THIS LINE — OFFICIAL USE ONLY

Disposition

City Driver Contributed
 City Driver Did Not Contribute
 Mechanical Defect
 Unattended
 Other _____

Remarks: _____

Date _____ Chr. A.B.I. _____

Billing

Name _____

Address _____

Amount—Vehicle _____ Medical _____

Date Billed _____

Accounts Receivable No. _____

Approved Corp. Counsel _____ Date _____



**CITY OF DETROIT
DEPARTMENT OF TRANSPORTATION
TRANSPORTATION SERVICE INSPECTOR
Accident Report**



Operator Name				Badge	Sex <input type="checkbox"/> M <input type="checkbox"/> F	Terminal	Day	Date	Time <input type="checkbox"/> am <input type="checkbox"/> pm	
Coach	Run	Line	Location							
WEATHER		LIGHT CONDITIONS		ROAD SURFACE		TOTAL LANE\$	DIRECTION OF COACH		DIRECTION OF AUTO	
<input type="checkbox"/> Clear	<input type="checkbox"/> Day	<input type="checkbox"/> Dry	<input type="checkbox"/> North <input type="checkbox"/> East <input type="checkbox"/> South <input type="checkbox"/> West	<input type="checkbox"/> North <input type="checkbox"/> East <input type="checkbox"/> South <input type="checkbox"/> West	<input type="checkbox"/> Cloudy	<input type="checkbox"/> Night	<input type="checkbox"/> Wet	TYPE OF ACCIDENT	OPERATOR PULLED	
<input type="checkbox"/> Rain	<input type="checkbox"/> Dusk/Dawn	<input type="checkbox"/> Snow								<input type="checkbox"/> Boarding
<input type="checkbox"/> Snow	<input type="checkbox"/> Street Lights	<input type="checkbox"/> Icy			<input type="checkbox"/> Fog	<input type="checkbox"/> Other _____	<input type="checkbox"/> Other _____	<input type="checkbox"/> Alighting		
							<input type="checkbox"/> Collision		CLINIC <input type="checkbox"/> Yes <input type="checkbox"/> No	
Veh 1	Driver License		State	Date of Birth		Driver Name				
	Address					City or County	State	Zip	Phone ()	
	License Plate	Owner of Car			Address		City	State	Zip	
Veh 2	Driver License		State	Date of Birth		Driver Name				
	Address					City or County	State	Zip	Phone ()	
	License Plate	Owner of Car			Address		City	State	Zip	
Veh 3	Driver License		State	Date of Birth		Driver Name				
	Address					City or County	State	Zip	Phone ()	
	License Plate	Owner of Car			Address		City	State	Zip	
No. of Passengers in Auto			No. Passengers Injured in Auto			No. Passengers on Coach				
Sex	M	F	Age		No. of Passengers Injured on Coach			No. of Pictures Taken		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Total No. Injured Auto/Coach			Was Blue Card Signed <input type="checkbox"/> Yes <input type="checkbox"/> No		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Was Auto Insured <input type="checkbox"/> Yes <input type="checkbox"/> No		Company		Policy No.	
Police on Scene: Badge No.			Car No.		EMS No.		Hospital		Total Conveyed	
Witness Information (use back if necessary)			Number of Witnesses		Information Of Injured (use back if necessary)					
Name			Phone		Name			Address		
Address			Phone		Address			Phone		
Name			Phone		Alleged Injury					
Address			Phone		Name			Address		
Name			Phone		Address			Phone		
Address			Phone		Alleged Injury					
<input type="checkbox"/> by Radio <input type="checkbox"/> Yes <input type="checkbox"/> No Time Notified _____ m Time Arrived _____ m										
Superintendent Action:										
_____ Service Inspector Signature										

Section 2-3.6
Preventive Maintenance Inspections

State of Florida Department of Transportation
BUS FLEET PROGRAM

DATE: _____

SPECTOR: _____

VEHICLE NO: _____

WORK ORDER NO: _____

ODOMETER: _____

VANS, CARS, TRUCKS AND WAGONS PREVENTIVE MAINTENANCE AND INSPECTION			
Symbols	Remarks	Type of Inspection (Check One)	
✓ = OK		3000 Mile	
X = Repairs Required		6000 Mile	
R = Repaired or Adj.		9000 Mile	
O = Not Applicable			
INTERIOR INSPECTION			
NO	ITEM	MILEAGE	COMP.
1	All seats - belts - condition, secure mounting, operation	3000	
2	Door condition - hinges, latches, operation of doors & windows	3000	
3	Flooring, headliner, side panels, vent louvers, oper. & cond.	3000	
4	Mirror-inside, right & left side mirror, condition & operation	3000	
5	Lights-interior, hi-lo beam, turn signals, hazard flasher, parking	3000	
6	Lights-clearance, backup brakes, license, instrument panel	3000	
7	Warning system, switches, gauges, trouble lights, cond. & oper	3000	
8	Starter system - automatic choke - key operation	3000	
9	Windshield wipers, w/s washer, w/s wiper speed - cond. & oper	3000	
10	Glass - windshield, side glass - condition, horn - operation	3000	
11	Comfort sys. - heater, defroster, air conditioning, blower speed	3000	
12	Fire extinguisher - charged, first aid kit - complete	3000	
EXTERIOR INSPECTION			
NO	ITEM	MILAGE	COMP.
1	Paint, dents, rust, decals, bumpers - brackets, condition	3000	
2	Tires - tread wear, wheel lugs, hubcaps, valve cores, condition	3000	
3	Access doors, fuelport & cap, engine covers & latch condition	3000	
SERVICE & OPERATION INSPECTION			
NO	ITEM	MILEAGE	COMP.
1	Engine oil & filter - change & replace	3000	
2	Inspect & lubricate - ball joints and steering etc.	3000	
3	Battery - terminals, water level, battery box & holddown - cond.	3000	
4	Cooling system, hoses, fan, shroud, belts overflow tank, radiat	3000	
5	Air cleaner, crankcase air filter, PVC filters	3000	
6	Belts, hoses, wiring - condition	3000	
7	Brake operation check, brakes, pedal, parking brake	3000	
8	Brakes - rotors, pads, caliper, lining, drums	3000	
9	Hood, transmission fluid level, filter & line, cooler	3000	
10	Transmission shift through all ranges, backup lights	3000	
11	Acceleration, steering, tracking, wheel balance	3000	
12	Front wheel bearings, drive shaft - U joints.	3000	
13	Shocks, springs, lubricate linkages	3000	

SERVICE & OPERATION INSPECTION			
NO	ITEM	MILAGE	COMP.
14	Chassis - check for leaks, condition of bushings, rear axle, differential fluid level	3000	
15	Engine tune-up — plugs, wires, carburetion	3000	
ACCESSORIES			
NO	ITEM	MILAGE	COMP.
1	Two way radio — operational check	3000	
2	Wheelchair lift, tiedown, operation	3000	
3	Spare tire, jack, tire tools	3000	
4	License plate, vehicle registration, operators manual	3000	
5	Air conditioning, system check, freon level, drier	3000	

Mileage & Type PM Next Due
Mileage:
Type Insp:

NOTES: _____

PM INSPECTION

Bus _____ Date _____ Insp. Type _____ Vehicle Miles _____ J.O.# _____
 Inspector _____ Lubricator _____ Supervisor _____

#	(INTERIOR) Items to Inspect	Ok	List Defects	Done
1	DOORS, STEPS, FLOOR,			
2	SEATS, HANDRAILS			
3	MIRRORS, WINDOWS, HATCHES			
4	LIGHTS, P.A.SYSTEM, RADIO			
5	DASH, GAGES, CONTROLS, SWITCHES,			
6	W/C LIFT (OPERATE) , SEAT BELTS,			
7	HORN, REFLECTORS, FIRE-EXTING.			
8	DEST. SIGNS, FAREBOX,			
	(EXTERIOR) Items to Inspect			
9	MIRRORS, WIPERS, LIGHTS,			
10	DOORS, PANELS, WINDOWS,			
	(Engine) Items to Inspect			
11	HOSES, TUBES, WIRES, (SECURE)			
12	LEAKS- AIR, OIL, COOLANT,			
13	BELTS, PULLEYS, TENTIONERS			
14	AIR INTAKE SYS. SEALED			
	(CHASSIS) Items to Inspect			
15	BRAKES, TIRES, TANKS			
16	DRIVESHAFT,DIFFERENTIAL, U-BOLTS			
17	TRUNION, SHOCKS, AIRRIDE SYSTEM			
21	STEERING GEAR, SHAFT, HOSES,			
22	TIE ROD, DRAG LINK,			
23	AIR FILTER , (EVERY INSP)		BATTERY SERVICE (EVERY INSP.)	
24	FUEL FILTERS (12, 24, 36,48K)		TORQUE WHEELS (EVERY INSP.)	

#	Items to Lubricate	Lubricants	Done
1	ENGINE OIL & FILTERS - EVERY LUBE	DET50-15W40 / DET92-40W	
2	TRANS. OIL - EVERY 48K (FILTER - 24K & 48K)	ALLISON 15W40	
3	DIFF. OIL CK. EVERY LUBE (CHANGE- ON 36K)	G.O. 80W-90W	
4	SLACK ADJ., ANCHOR PINS, BRAKE CAMS - EVERY LUBE	BEARING LUBE GREASE	
5	TIE ROD ENDS, PROP. SHAFT U-JOINTS - EVERY LUBE	BEARING LUBE GREASE	
6	PASSENGER DOORS, BALL JOINTS BEARINGS-EVERY LUBE	BEARING LUBE GREASE	

DPM - INSPECTION
ROARING FORK TRANSIT

COACH _____

DATE _____

W.O.# _____

FOR EACH ITEM SHOW;

" " IF OK

"X" IF ADJUSTED

"O" IF REPAIRS ARE NECESSARY

For Each O Give An Explanation

STEAM CLEAN ENGINE AND RADIATOR CORES

RECORD HUBOMETER READING _____

DRIVE IN INSPECTION

1. ___ Inspect all Instrumentation for Operation
2. ___ Check Rear Door Interlock For Operation

UPPER VEHICLE INSPECTION

3. ___ INSPECT: Wiper blades and wiper operation (wet)
4. ___ Wiper time delay
5. ___ Windshield washer
6. ___ Horn, buzzer and chime
7. ___ Stop request sign
8. ___ Heat, vent and defroster motors
9. ___ Driver fresh air vent
10. ___ Driver seat adjustment and lube
11. ___ Fire extinguisher full and secure
12. ___ Driver emergency floor switch
13. ___ Seats, frames, for wear or damage
14. ___ Grab rails and stantions
15. ___ Floor coverings and step treads
16. ___ Farebox mounting and operation
17. ___ Windows for cracks and scratches
18. ___ Window emergency latches are free
19. ___ Sliding windows operational
20. ___ Interior service light switch
21. ___ Emergency roof hatch and ventilator operational
22. ___ Heater, defroster, lines and pump
23. ___ Defroster and heater cores
24. ___ Clean the interior heater and vent screens
25. ___ **OTHER DEFECTS FOUND**

AIR SYSTEMS

- 26. _____ Check pressure drop with service brakes applied
- 27. _____ Check low air buzzer/light
- 28. _____ Check compressor air build-up time
- 29. _____ Check air compressor governor cut-out pressure (120 PSI)
- 30. _____ Replace air drier desiccant

DOORS AND DOOR CONTROLS

- 31. _____ Check door engines (pull door header panels and observe door engine operation at entrance and exit doors)
- 32. _____ Check touchbar operation (cycle doors using touchbars)
- 33. _____ Door timing: FRONT-open _____ close _____
REAR-open _____ close _____ (in seconds)
- 34. _____ Check emergency door valve operation
- 35. _____ Front interior lights off with door closed

BODY

- 36. _____ INSPECT: Bumper bolts
- 37. _____ Wheels for cracks, lug nuts secured
- 38. _____ Decals, signs, numbers
- 39. _____ Body damage
- 40. _____ Destination signs for proper operation (Front Rear, Back)

AIR CONDITIONING (If so equipped)

- 41. _____ Check compressor oil level
- 42. _____ Clean or replace evaporator air filters
- 43. _____ Check evaporator condensate drains - make sure they are open
- 44. _____ Lube evaporator fan shaft bearings
- 45. _____ Inspect evaporator door seal for proper fit
- 46. _____ Inspect A/C blower mounts for cracks
- 47. _____ Inspect brushes on evaporator and air condenser blower motors
- 48. _____ INSPECT: Refrigerant supply - recharge after using a leak detector and correcting system leaks.
- 49. _____ Accumulator
- 50. _____ PTO seals
- 51. _____ Test refrigerant pressure and record:
SUCTION _____ DISCHARGE _____
- 52. _____ Check service valve caps for tightness

AIR CONDITIONING (Continued)

- 53. ___ INSPECT: Discharge and suction lines for chafing, routing and clamping compressor clutch and unloader and test
- 54. ___ A/C alternator for wiring, connectors and alignment
- 55. ___ Check A/C and alternator belts for wear and tension
- 56. ___ Inspect condenser and condenser fan - clean as required
- 57. ___ OTHER DEFECTS FOUND

ENGINE COMPARTMENT

INSPECT AND ADJUST:

- 58. ___ Valve clearance
- 59. ___ Injector timing
- 60. ___ Governor gap
- 61. ___ Rack setting
- 62. ___ Buffer screw
- 63. ___ Throttle delay
- 64. ___ Engine no-load IDLE RPM _____
- 65. ___ Engine no-load GOVERNED RPM _____
- 66. ___ OTHER DEFECTS FOUND

ELECTRICAL SYSTEMS

- 67. ___ INSPECT: Battery cables, terminals and carrier
- 68. ___ Electrical panel, wiring and connections
- 69. ___ Battery connections at terminal block
- 70. ___ Battery voltage using VOLT/AMP/TESTER
- 71. ___ Test charging system using VAT
- 72. ___ Starter voltage drop _____ (VAT)
- 73. ___ INSPECT: Voltage regulator
- 74. ___ Alternator and starter wiring and cables
- 75. ___ Warning buzzers, alarms and lights
- 76. ___ OTHER DEFECTS FOUND

ENGINE COMPARTMENT

- 77. ___ Check engine low idle (RPM)
- 78. ___ Check engine high idle (RPM)
- 79. ___ INSPECT: For air, coolant and fuel leaks and missing parts
- 80. ___ Engine governor and throttle linkage
- 81. ___ Fan blades, hub and dampener
- 82. ___ Pressure check cooling system and inspect hoses, surge tank cap gaskets, water pump, and water manifold

ENGINE COMPARTMENT (Continued)

- 83. _____ Check coolant inhibitor
- 84. _____ Inspect restriction indicator
- 85. _____ Inspect air intake hoses and connections
- 86. _____ Tighten all clamps including rubber boots at Turbocharger
- 87. _____ INSPECT: Fuel Lines and connections
- 88. _____ Engine and transmission mounts
- 89. _____ Ground strap for wear and secure
- 90. _____ Wiring harnesses for breaks and frays
- 91. _____ Exhaust manifold for leaks
- 92. _____ OTHER DEFECTS FOUND

ENGINE AND DRIVE LINE

- 93. _____ Inspect: Fuel lines and connections, air, coolant and fuel leaks
- 94. _____ Inspect: Driveline, U-joints, guards
- 95. _____ Check for transmission and differential leaks
- 96. _____ Check transmission shift mechanism

ELECTRICAL

- 97. _____ Inspect wiring harness for rubbing, chafing, all clamps secure
- 98. _____ Insure all electrical panels are tight and secure

BRAKES

- 99. _____ Inspect air lines, hoses, diaphragms for leaks, chafing
- 100. _____ Check and record slack adjuster travel
Left Front _____ Right Front _____
Left Rear _____ Right Rear _____
- 101. _____ Check slack adjuster anchor bolts for tightness
- 102. _____ Check slack adjusters for proper mounting alignment
- 103. _____ Adjust brakes, inspect cam action, check lining thickness (5/16" minimum)
- 104. _____ Drain and purge air tanks (all)
- 105. _____ Disassemble, clean and inspect check valve
- 106. _____ Check air dryer pump operation
- 107. _____ Inspect relay and quick release valves
- 108. _____ OTHER DEFECTS FOUND

CHASSIS

- 109. _____ Check steering gear box mounting for tightness
- 110. _____ INSPECT: Steering for play, all joints secured
- 111. _____ King pins, tie rod ends, draglink, Pitman arm
- 112. _____ Steering knuckle arms
- 113. _____ Tires, pressure, cuts, wear (4/32" min. front, 2/32" min. rear)
- 114. _____ Bellows, radius rods, bushings for wear.
- 115. _____ Leveling valves, check and adjust ride height
- 116. _____ Panhard/lateral radius rod
- 117. _____ Exhaust system, muffler, tailpipe
- 118. _____ Shock absorbers for leaks, bushings, bottoming out
- 119. _____ A-frame and engine cradle cracks
- 120. _____ Torque axle flange nuts (torque to mfg. specs.)
- 121. _____ Vehicle for damage and cracks
- 122. _____ Check U-bolts (torque to mfg. specs.)
- 123. _____ OTHER DEFECTS FOUND

SELF-CONTAINED HEAT ONLY UNIT

- 124. _____ INSPECT: Proper operation of controls
- 125. _____ Fan motor speeds rear unit
- 126. _____ Under seat fan motors
- 127. _____ Drivers unit fan motor
- 128. _____ Defroster unit motor
- 129. _____ Defroster air mix controls
- 130. _____ SERVICE: Air filters rear unit
- 131. _____ Air filters passenger units
- 132. _____ Air filter driver unit
- 133. _____ Air filter defroster unit
(Service or replace all air filters as needed)
- 134. _____ Heater coils, clean as needed at all heating units

SERVICE AND LUBRICATION INSTRUCTIONS

DRAIN:

- 135. _____ Engine oil (draw sample for analysis)
- 136. _____ Transmission oil (draw sample for analysis)
- 137. _____ Differential oil

LUBRICATE THE FOLLOWING:

LEFT FRONT SECTION OF COACH

- 138. _____ Steering tie rod end (two fittings)
- 139. _____ Brake shoe anchor pin (two fittings)
- 140. _____ Wheel bearing - remove, clean repack and torque to proper specifications
- 141. _____ Steering knuckles (two fittings)
- 142. _____ Brake camshaft (one fitting)
- 143. _____ Slack adjuster (one fitting - DO NOT OVERLUBRICATE)
- 144. _____ Steering drag link ends (two fittings)
- 145. _____ Power steering gear input and output shafts (two fittings)
- 146. _____ Steering shaft U-joint (two fittings)
- 147. _____ Steering shaft slip joint (one fitting)
- 148. _____ Steering transfer box - keep to lower fill plug level
- 149. _____ Steering transfer box input shaft (one fitting)
- 150. _____ Brake and accelerator treadle pivot pin and roller - CLEAN AND OIL LIGHTLY

RIGHT FRONT SECTION

- 151. _____ Entrance door lower ball sockets (two fittings - one each socket)
- 152. _____ Steering tie rod end (two fittings)
- 153. _____ Brake shoe anchor pin (two fittings)
- 154. _____ Wheel bearings - remove, clean, repack and torque to specifications
- 155. _____ Steering knuckles (two fittings)
- 156. _____ Brake camshaft (one fitting)
- 157. _____ Slack adjuster (one fitting - DO NOT OVERLUBRICATE)

LEFT REAR SECTION

- 158. _____ Brake shoe anchor pin (two fittings)
- 159. _____ Wheel bearings - remove, clean, repack and torque to specifications
- 160. _____ Brake camshaft (one fitting)
- 161. _____ Slack adjuster (one fitting - DO NOT OVERLUBRICATE)

RIGHT REAR SECTION

- 162. _____ Exit door shaft bearings (two fittings - one each socket)
- 163. _____ Brake shoe anchor pin (two fittings)
- 164. _____ Wheel bearings - remove, clean, repack and torque to specifications
- 165. _____ Brake camshaft (one fitting)
- 166. _____ Slack adjuster (one fitting - **DO NOT OVERLUBRICATE**)
- 167. _____ Drive shaft U-joints (two fittings - one each joint)
- 168. _____ Drive shaft slip joint (one fitting)
- 169. _____ Air throttle control cylinder (one fitting - rod end pivot)

REPLACE:

- 170. _____ Drain plug in engine
- 171. _____ Drain plug in transmission
- 172. _____ Drain plug in differential

CHANGE:

- 173. _____ Drier filters
- 174. _____ Water filter
- 175. _____ Air intake filter
- 176. _____ Fuel filters
- 177. _____ Power steering fluid filter
- 178. _____ Engine oil filters
- 179. _____ Transmission oil filter
- 180. _____ Heating system air filters

REFILL:

- 181. _____ Engine oil
- 182. _____ Transmission oil
- 183. _____ Differential oil
- 184. _____ Power steering fluid
- 185. _____ **CHECK ALL FLUID LEVELS**

DRIVE AWAY INSPECTION

- 186. _____ Test drive starting, power, noise, shifting brakes, steering and speedometer
- 187. _____ Pullaway test and parking brake
- 188. _____ Rear door interlock
- 189. _____ Along test route, pull over and cycle both front and rear doors
- 190. _____ After road test, check engine and transmission for leaks
- 191. _____ **DETAIL COACH**

Section 2-3.7
Form # 775-090-01 (Medical Examination)

Distribution:
1. Retain copy in Doctor's Files
2. Send original to Employer

Date of Examination: _____

Driver's Name: _____ Preemployment Examination Biennial Examination

Address: _____ City _____ State _____ Zip Code _____

Social Security Number: _____ Date of Birth: _____ Age _____

Health History: Yes No	Yes No	Yes No
<input type="checkbox"/> <input type="checkbox"/> Asthma	<input type="checkbox"/> <input type="checkbox"/> Nervous Stomach	<input type="checkbox"/> <input type="checkbox"/> Head or Spinal Injuries
<input type="checkbox"/> <input type="checkbox"/> Kidney	<input type="checkbox"/> <input type="checkbox"/> Rheumatic Fever	<input type="checkbox"/> <input type="checkbox"/> Seizures, Fits, Convulsions, or Fainting
<input type="checkbox"/> <input type="checkbox"/> Tuberculosis	<input type="checkbox"/> <input type="checkbox"/> Muscular Disease	<input type="checkbox"/> <input type="checkbox"/> Extensive Confinement by Illness or Injury
<input type="checkbox"/> <input type="checkbox"/> Syphilis	<input type="checkbox"/> <input type="checkbox"/> Psychiatric Disorder	<input type="checkbox"/> <input type="checkbox"/> Any Other Nervous Disorder
<input type="checkbox"/> <input type="checkbox"/> Gonorrhea	<input type="checkbox"/> <input type="checkbox"/> Cardiovascular Disease	<input type="checkbox"/> <input type="checkbox"/> Suffering From Any Other Illness
<input type="checkbox"/> <input type="checkbox"/> Diabetes	<input type="checkbox"/> <input type="checkbox"/> Gastrointestinal Ulcer	<input type="checkbox"/> <input type="checkbox"/> Permanent Defect From Illness, Disease or Injury

If answer to any one of the above questions is yes, explain _____

General Appearance and Development: Good Fair Poor

Vision: For Distance: Right 20/____ Left 20/____ Without Corrective Lenses _____ With Corrective Lenses, if worn _____
Evidence of Disease or Injury Right _____ Left _____
Color Test: _____ Horizontal Field of Vision: Right _____ Left _____

Audiometric Test: Decibel Loss at 500 Hz _____ 1,000 Hz _____ 2,000 Hz _____
Disease or Injury _____

Throat: _____

Thorax: Heart _____
If Organic Disease is present, is it fully compensated? _____
Blood Pressure: Systolic _____ Diastolic _____
Pulse: Before Exercise _____ Immediately After Exercise _____
Lungs: _____

Abdomen: Scars: _____ Abnormal Masses _____ Tenderness _____
Hernia: Yes No If yes, where? _____ Is Truss Worn? _____

Gastrointestinal: Ulceration or Other Diseases: Yes No

Genito-Urinary: Scars _____ Urethral Discharge _____

Reflexes: Romberg _____
Pupillary _____ Light: R _____ L _____
Accommodation: Right _____ Left _____
Knee Jerks: Right: Normal _____ Increased _____ Absent _____
Left: Normal _____ Increased _____ Absent _____
Remarks: _____

Extremities: Upper _____ Lower _____ Spine _____

Laboratory and Other Special Findings: Urine: Specific Gr. _____ Alb. _____ Sugar _____ Drug Screen _____
Other Laboratory Data (Serology, etc.) _____
Radiological Data _____ Electrocardiograph _____
 Controlled Substance Test Performed Controlled Substance Test **Not** Performed

General Comments: _____

Name of Examining Doctor (Print): _____ Signature: _____
Address of Examining Doctor: _____

MEDICAL EXAMINER'S CERTIFICATE

I certify that I have examined _____ (Print Applicant/Driver's Name) in accordance with instructions printed on the reverse side of this form, and (Florida Department of Transportation Rule 14-90.0041, FAC.).

This Examination is valid for twenty-four (24) months from the date performed unless a limited validation period is indicated: _____ months

A complete examination for this person is on file in my office at _____ (address)

(Date of Examination) _____ (Name of Examining Doctor)(Print) _____ (Signature of Examining Doctor) _____

(Signature of Driver/Applicant) _____ (Address of Driver/Applicant) _____ (Employer(if applicable)) _____

The following will be completed only when the visual test is conducted by a licensed ophthalmologist or optometrist.

(Date of Examination) _____ (Name of ophthalmologist or optometrist) _____

(Address of ophthalmologist or optometrist) _____ (Signature of Ophthalmologist or Optometrist) _____

Instructions to Physicians are Printed on Reverse Side.

INSTRUCTIONS FOR PERFORMING AND RECORDING PHYSICAL EXAMINATIONS

The examining physician should review these instructions before performing the physical examination. Answer each question yes or no where appropriate.

The examining physician should be aware of the rigorous physical demands and mental and emotional responsibilities placed on the driver of a public-sector bus. In the interest of public safety the examining physician is required to certify that the driver does not have any physical, mental, or organic defect of such a nature as to affect the driver's ability to operate safely a public-sector bus according to the requirements established by the bus transit system.

General Information. The purpose of this history and physical examination is to detect the presence of physical, mental, or organic defects of such a character and extent as to affect the applicant's ability to operate a public-sector bus safely according to the physical requirements established by the bus transit system. The examination should be made carefully and at least as complete as indicated by the attached form. History of certain defects may be cause for rejection or indicate the need for making certain laboratory tests or a further, and more stringent, examination. Defects may be recorded which do not, because of their character or degree, indicate that physical-qualification should be denied. However, these defects should be discussed with the driver/applicant and he should be advised to take the necessary steps to insure correction, particularly those of which, if neglected, might lead to a condition likely to affect his ability to drive safely.

General Appearance and Development. Note marked overweight. Note any posture defect, perceptible limp, tremor, or other defects that might be caused by alcoholism, thyroid intoxication, or other illnesses.

Head - Eyes. When other than the Snellen chart is used, the results of test must be expressed in values comparable to the standard Snellen test. If the applicant wears corrective lenses, these should be worn while applicant's visual acuity is being tested. In recording distance vision use 20 feet as normal. Report all vision as a fraction with 20 as numerator and the smallest type read at 20 feet as denominator. Note ptosis, discharge, visual fields, ocular muscle imbalance, color blindness, corneal scar, exophthalmos, or strabismus, uncorrected by corrective lenses. If the driver habitually wears contact lenses, or intends to do so while driving, there should be sufficient evidence to indicate that he has good tolerance and is well adapted to their use. The use of contact lenses should be noted on the record.

Ears. Note evidence of mastoid or middle ear disease, discharge, symptoms of aural vertigo, or Meniere's Syndrome. When recording hearing, record distance from patient from which a forced whispered voice can first be heard. If audiometer is used to test hearing, record decibel loss at 500 Hz, 1,000 Hz, and 2,000 Hz.

Throat. Note evidence of disease, irremediable deformities of the throat likely to interfere with eating or breathing, or any laryngeal condition which could interfere with the safe operation of a public-sector bus.

Thorax - Heart. Stethoscopic examination is required. Note murmurs and arrhythmias, and any past or present history of cardiovascular disease, of a variety known to be accompanied by syncope, dyspnea, collapse, enlarged heart or congestive heart failures. Electrocardiogram is required when findings so indicate.

Blood Pressure. Record with either spring or mercury column type sphygmomanometer.

Lungs. If any lung disease is detected, state whether active or arrested; if arrested, your opinion as to how long it has been quiescent.

Gastrointestinal System. Note any diseases of the gastrointestinal system.

Abdomen. Note wounds, injuries, scars, or weakness of muscles of abdominal walls sufficient to interfere with normal function. Any hernia should be noted if present. State how long and if adequately contained by truss.

Abnormal Masses. If present, note location, if tender, and whether or not applicant knows how long they have been present. If the diagnosis suggests that the condition might interfere with the control and safe operation of a public-sector bus more stringent tests are recommended.

Tenderness. When noted, state where most pronounced, and suspected cause. If the diagnosis suggests that the condition might interfere with the control and safe operation of a public-sector bus, more stringent tests are recommended.

Genito - Urinary. Urinalysis is required. Acute infections of the genito-urinary tract, as defined by local and State public health laws, indications from urinalysis of uncontrolled diabetes, symptomatic albumin-urea in the urine, or other findings that may indicate health conditions likely to interfere with the control and safe operation of a public-sector bus.

Neurological. If positive Romberg is reported, indicate degrees of impairment. Pupillary reflexes should be reported for both light and accommodation. Knee jerks are to be reported absent only when not obtainable upon reinforcement and as increased when the foot is actually lifted from the floor following a light blow on the patella, sensory vibratory and positional abnormalities should be noted.

Extremities. Carefully examine upper and lower extremities. Record the loss of impairment of a leg, foot, toe, arm, hand, or fingers. Note any and all deformities, the presence of atrophy, semiparalysis or paralysis, or varicose veins. If a hand or finger deformity exists, determine whether sufficient grasp is present to enable the driver to secure and maintain a grip on the steering wheel. If a leg deformity exists, determine whether sufficient mobility and strength exist to enable the driver to operate pedals properly. Particular attention should be give to and a record should be made of, any impairment or structural defect which may interfere with the driver's ability to operate a public-sector bus safely.

Spine. Note deformities, limitation of motion, or any history of pain, injuries or disease, past or presently experienced in the cervical or lumbar spine region. If findings so dictate, radiologic and other examinations should be used to diagnose congenital or acquired defects; or spondylolisthesis and scoliosis.

Recto - Genital Studies. Disease or conditions causing discomfort should be evaluated carefully to determine the extent to which the condition might be handicapping while lifting, pulling or during periods of prolonged driving that might be necessary as part of the driver's duties.

Laboratory and Other Special Findings. Urinalysis is required, as well as such other tests as the medical history or findings upon physical examination may dictate are necessary. A serological test is required if the applicant has a history of luetic infection or present physical findings indicate the possibility of latent syphilis. Other studies deemed advisable may be ordered by the examining physician.

Controlled Substances Testing. If a test for controlled substances is performed as part of the medical examination, the medical examiner is to check the box next to the statement, "Controlled substances test performed" on the medical examination form. If a test for controlled substances is not performed, the medical examiner is to check the box next to the statement, "Controlled substances test not performed".

The physician must date and sign his findings upon

Section 2-3.8
Summary Checklist for
Review of Security Program Plans

SUMMARY CHECKLIST
for
REVIEW OF SECURITY PROGRAM PLANS

Transit Agency: _____

Security Plan Title: _____

Revision No.: _____ Date: _____

No.	Item	Acceptable	Unacceptable
1	Introduction to System Security		
2	Transit System Description		
3	Management and Modification of the Security Program Plan		
4	System Security Roles and Responsibilities		
5	Threat and Risk Identification, Assessment and Resolution		
6	Implementation and Evaluation of the Security Program Plan		

The Security Program Plan is: _____ Acceptable

_____ Unacceptable, Revise and Resubmit

Reviewed by: _____ Date: _____
Printed Name

Signature: _____

Approved by: _____ Date: _____

Title: _____

Additional Comments: _____

Section Three

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- 3-1.1 Bus and Passenger Accident Prevention**
- 3-1.2 Bus Occupant Safety**
- 3-1.3 Recommended Emergency Preparedness Guidelines**
 - Rail Transit Systems**
 - Elderly and Disabled Rail Transit Passengers**
 - Urban, Rural, and Specialized Transit Systems**
- 3-1.4 Recommended Fire Safety Practices for Rural and Specialized Transit Bus Materials Selection**
- 3-1.5 Safety Management Information Statistics (SAMIS)**
- 3-1.6 Environmental Awareness Program: Training Manual**

Section 3-1.1
Bus and Passenger Accident Prevention

This report is available through:

*The National Technical Information Service
Springfield, VA 22161*

October 1998

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DOT-VNTSC-FTA-94-2

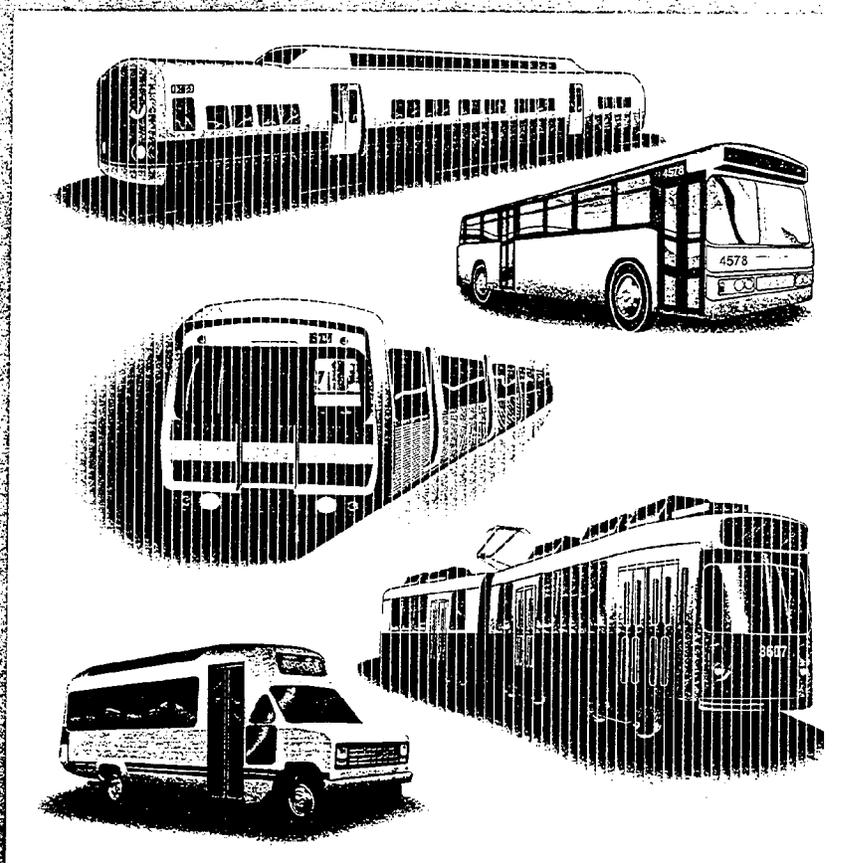


U. S. Department
of Transportation
**Federal Transit
Administration**

Bus and Passenger Accident Prevention

U.S. Department of Transportation
Research and Special Programs Administration
John A. Volpe National Transportation Systems Center
Cambridge MA 02142

June 1994
Final Report



FEDERAL TRANSIT ADMINISTRATION

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13. ABSTRACT (Maximum 200 words) While the safety record of transit bus operations, in general, has been very good, accidents do occur. The resulting injuries, fatalities and property damage often result in the expenditure of scarce resources. Costs associated with accidents consume funds that could be used to provide safe and efficient service to the system's patrons and employees. This document provides guidance on how to develop and implement an accident prevention program for urban, rural and specialized transit systems. It identifies issues that must be addressed in order to ensure the highest degree of safety and service to passengers, employees and the general public. Some of these issues include the development and implementation of an accident prevention program, evaluation of design options for new vehicles, promotion of patron safety/awareness, consideration of personnel and training issues, and discussion of policy and procedure development.			
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Section 3-1.2

Bus Occupant Safety

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TRANSIT COOPERATIVE RESEARCH PROGRAM

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TCRP Synthesis 18

Bus Occupant Safety

A Synthesis of Transit Practice

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TRANSIT COOPERATIVE RESEARCH PROGRAM

Synthesis of Transit Practice 18

Bus Occupant Safety

ROLLAND D. KING
Columbus, Ohio

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Section 3-1.3
Recommended Emergency Preparedness Guidelines

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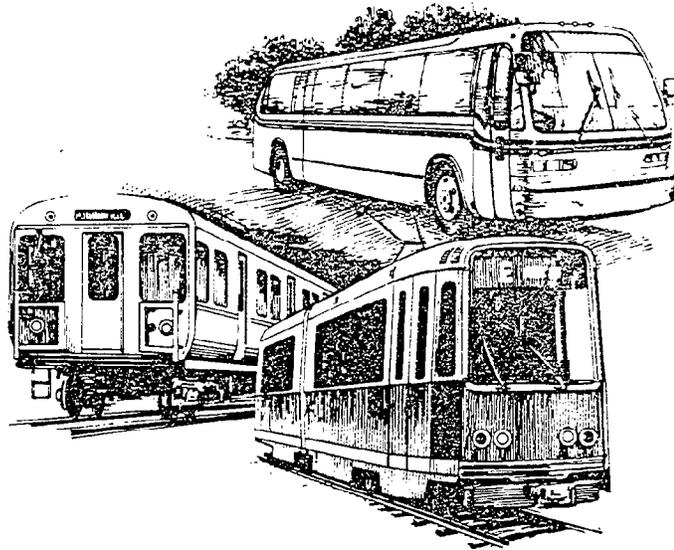
U.S. Department
of Transportation

Urban Mass
Transportation
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Recommended Emergency Preparedness Guidelines for Rail Transit Systems

Transportation Systems Center
Cambridge MA 02142

March 1985
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16. Abstract <p>The Recommended Emergency Preparedness Guidelines contained in this document are designed to help rail transit systems to assess, develop, document and improve their capability for responding to emergency situations, and to coordinate these efforts with emergency response organizations in a manner which best protects the traveling public and transit system facilities and equipment.</p> <p>Four major areas of emergency preparedness are addressed. The first section presents recommendations for Emergency Plan Development, including emergency response procedures, agreements with emergency organizations, and supporting documentation. The Training section outlines recommended training for both transit system and emergency response personnel, as well as programs to promote public awareness. The last two sections--Facilities and Equipment, and Vehicles--focus on performance requirements and emergency equipment recommendations to facilitate passenger evacuation and minimize transit property damage.</p> <p>These guidelines have been developed over the past several years, with input obtained from discussions and workshops with transit system and emergency response organization personnel, and from literature sources such as industry guidelines, codes and standards.</p>					
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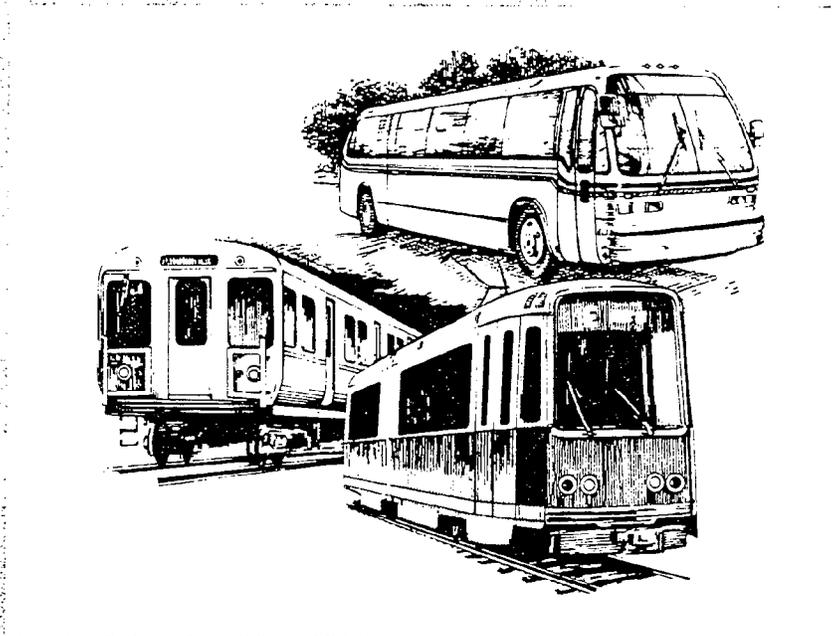


U.S. Department
of Transportation
**Urban Mass
Transportation
Administration**

Recommended Emergency Preparedness Guidelines for Elderly and Disabled Rail Transit Passengers

Transportation Systems Center
Cambridge MA 02142

August 1989
Final Report



UMTA Technical Assistance Program

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16. Abstract <p>Rail transit has become an important source of transportation for many elderly and disabled persons. The principal reasons for this increased use are improved accessibility, low cost, and expanded areas of service. For the purposes of this report, "elderly" is defined as any member of the population who is 60 years of age or older, and "disabled" is defined as any person who has some type of disability.</p> <p>The Urban Mass Transportation Administration (UMTA) has recognized the need to consider the unique characteristics of elderly and disabled passengers in rail transit emergency response planning. The needs of these passengers can be addressed through carefully planned emergency response procedures, proper training of transit and emergency response personnel, and effective use of equipment. The recommendations contained herein are therefore intended to assist rail transit and emergency response organization personnel in evaluating their emergency response plans in terms of the needs of elderly and disabled passengers and, if necessary, to modify or supplement those plans accordingly. Section 2 discusses types of emergencies, characteristics of elderly and disabled individuals, and the rail transit environment. Included in Sections 3 and 6 are minimum recommendations, procedures, and criteria which should be employed by all rail transit systems to enhance their particular emergency plans for addressing the needs of elderly and disabled passengers. Sections 4 and 5 present minimum recommendations which will assist in the evacuation of elderly and disabled passengers from rail transit vehicles and facilities. The guidelines in these two sections are intended to be used primarily for the planning of new systems, extensions to existing systems, and system rehabilitation.</p> <p>This report is intended to supplement the UMTA publication <u>Recommended Emergency Preparedness Guidelines for Rail Transit Systems</u>. That report contains general guidelines designed to assist rail transit systems in assessing, developing, documenting, and improving their capabilities for responding to emergencies and in coordinating those efforts with emergency response organizations.</p>					
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**Urban Mass
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Recommended Emergency Preparedness Guidelines for Urban, Rural, and Specialized Transit Systems

U.S. Department of Transportation
Research and Special Programs Administration
John A. Volpe
National Transportation Systems Center
Cambridge MA 02142

January 1991
Final Report
Reprint
August 1992



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16. Abstract Urban, rural and specialized transit services provide an important source of transportation for many persons in the United States. A number of concerns must be addressed to ensure the safety of passengers during transit emergencies. The needs of passengers can be addressed through carefully planned emergency response procedures, proper training of transit and emergency response personnel, and effective use of equipment. The recommendations contained herein are therefore intended to assist transit and emergency response organization personnel to evaluate their emergency response plans and, if necessary, modify or supplement those plans accordingly. This document contains recommendations for the use by urban, rural, and specialized transit systems which utilize motor vehicles to provide transportation service to the general public, elderly or disabled persons, clients of human service agencies, etc. Section 2 presents a brief review of emergency response considerations (including the transit environment, vehicle and passenger characteristics, typical emergency scenarios, and response personnel) which influence the type of response that may be necessary and which determine whether passengers should be evacuated. Sections 3 and 4 include minimum recommendations, procedures, and criteria which should be employed by transit systems to enhance their particular emergency plans, procedures, and training, as appropriate for their individual operations. Plans, procedures, and training for emergency response personnel (including volunteers) are also reviewed. Section 5 presents minimum recommendations for vehicle features which are intended to minimize the effects of an emergency on passengers, shorten emergency response time, and improve the effectiveness of passenger evacuation. The guidelines in that section are intended to be used primarily for the procurement of new vehicles and vehicle rehabilitation.					
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October 1998



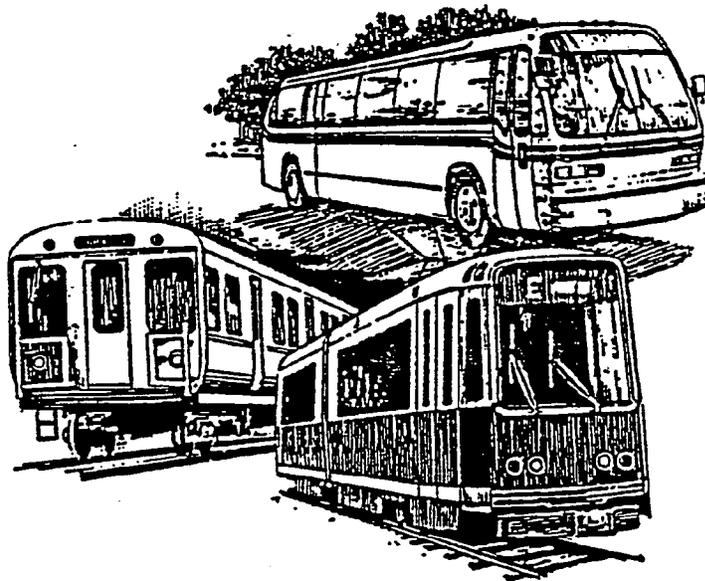
U.S. Department
of Transportation
Urban Mass
Transportation
Administration

RECOMMENDED FIRE SAFETY PRACTICES FOR RURAL AND SPECIALIZED TRANSIT BUS MATERIALS SELECTION

MARCH 1989

Prepared by
Research and Special Programs Administration
Transportation Systems Center
Safety and Security Systems Division
Cambridge, MA 02142

Urban Mass Transportation Administration
Office of Safety
Washington, DC 20590



UMTA OFFICE OF SAFETY

Section 3-1.5
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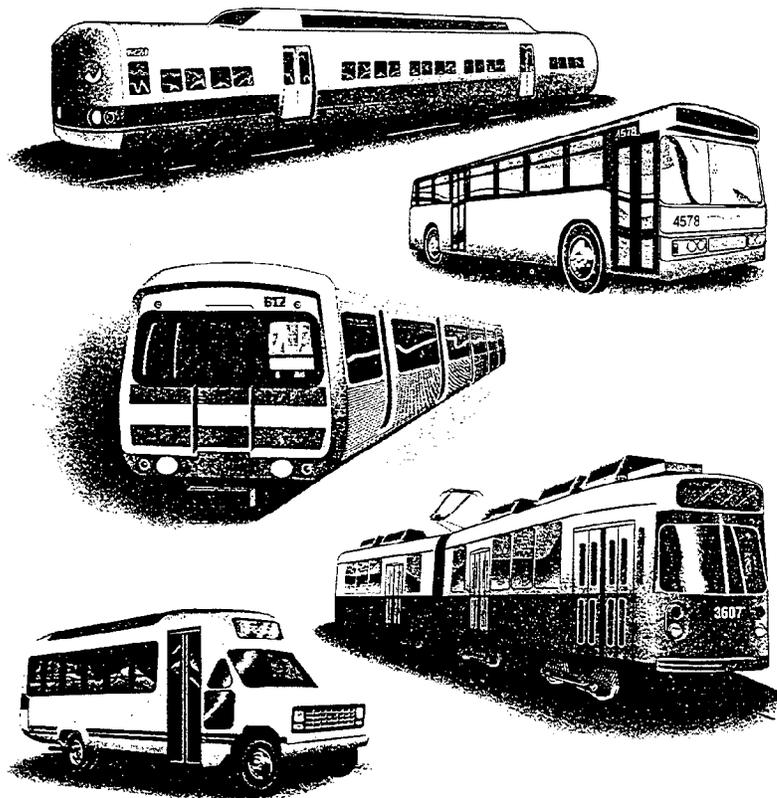


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Safety Management Information Statistics (SAMIS) 1991 Annual Report

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John A. Volpe
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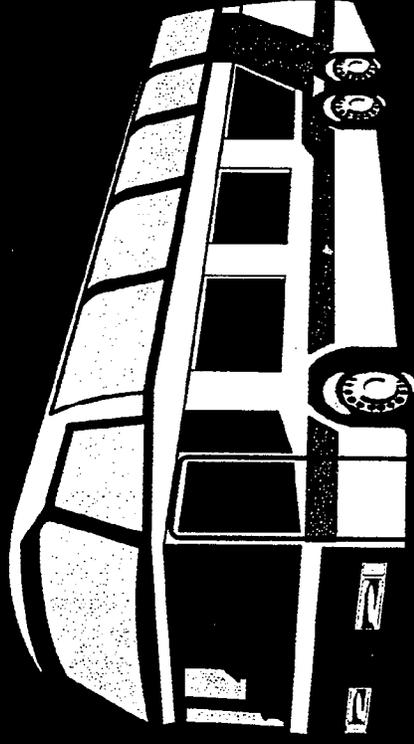
Section 3-1.6
Environmental Awareness Program: Training Manual

This Report and Training are available through:

*Environmental Resources Management
Florida Department of Transportation*

Environmental Awareness Program

Training Manual



7-31-01/cos/c61697

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MSDS Workshop
What is right or wrong with this photo?
Jim and the Paint Booth
Spring Cleaning Exercise

VIDEO LIST

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<i>"Motor Fleet Maintenance Safety"</i>	<i>16 min.</i>
<i>"Environment and Your Responsibilities"</i>	<i>10 min.</i>
<i>"Fleet Shop Maintenance"</i>	<i>18 min.</i>
<i>"Auto Shop Safety"</i>	<i>22 min.</i>
<i>Safety Bite Video - "Hazard Com - Fleet Operation"</i>	
<i>Safety Bite Video - "Fleet Shop Chemical Safety"</i>	

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- 3-2.2 Manual for the Development of Rail Transit System Safety Program Plans (APTA)**
- 3-2.3 MIL-STD-882C: Military Standard System Safety Program Requirements**

Section 3-2.1
**Safety Program Development: Developing a Transit
Agency Safety Plan**

SAFETY PROGRAM DEVELOPMENT

**Documented By The
System Safety Plan**

by

William T. Hathaway

U. S. DOT

Transportation Systems Center

Developing A Transit Agency Safety Plan

INTRODUCTION

The goal of any safety program should be to provide the highest level of safety practical. The key word in this statement is "practical." No safety program can provide for the absolute safety of a system. What a safety program can and should do is minimize the risk associated with the use or operation of a system. In mass transit, the goal is to try to minimize the risk to the traveling public, transit system employees, and to the emergency services personnel who may respond to a particular condition. This objective may be accomplished by structuring a safety program whose two main functions are: accident prevention and emergency response. The accident prevention function should be concerned with the identification and resolution of potential hazards in the system. This hazard identification and resolution process should include a thorough examination of the four system elements. These four system elements are the system equipment and facilities, procedures, personnel, and system operating environment operators. Such an identification and resolution process, when applied with the four system elements, is in essence the application of the system safety concept. The system safety concept should be utilized in both the acquisition phase and operational phases of a transit system to identify and resolve potential hazards thereby minimizing the threat and providing the "highest level of safety practical."

In the emergency response function, we are concerned with how effectively the transit system responds to an emergency situation. The success of this response will depend on how well prepared the transit system is to deal with the emergency situation. The key here is identifying the potential emergency situation and planning an appropriate response. Again, as in the prevention function, the system safety concept should be employed to assist in the identification of potential hazards which may arise in emergency situations. If we know what potential emergency situations may arise and are prepared to respond, we can control the magnitude of the emergency situation. Control of the situation will minimize the threat to patrons, employees, and emergency response personnel.

SYSTEM SAFETY PROGRAM DEVELOPMENT

The initial and most important step in the development and implementation of a system safety program is obtaining the commitment of management. Only if the management of a system has made a firm commitment to the system safety program can you expect to fully implement the program. Furthermore, this commitment should be presented in a policy statement outlining the goals and responsibilities of the transit system. In new or emerging transit systems, it is important that a system safety program be established early in the life of the system. Early adoption of the system safety concept will allow system planners and designers to identify and eliminate many of the potential safety hazards. This early hazard resolution will minimize the need to later have to control hazards or even accept the hazards identified. Obviously, it may not be the optimum approach to have to control or accept a hazard that could have been eliminated in the vehicle or facility design.

The system safety plan documents the system safety program. In doing this, it provides an insight into the transit system design and operation as well as the responsibilities of the transit system management and staff. The plan should be of a dynamic nature and change to reflect the changing needs of the system safety program. As a transit system evolves and operates, it must continue to monitor its system safety program to insure that it is providing the highest level of safety practical.

New safety issues must be identified and resolved. The system safety plan should provide the framework for this resolution process. The immediate resolution of new safety issues as they arise will enable a transit system to learn from its past experiences and thereby hopefully not have repeat safety issues or problems. A brief outline for a system safety plan is contained in the attachment.

SYSTEM SAFETY PLAN

1. Introduction
 - 1.1 System Safety Definition
 - 1.2 Management Statement of Policy
2. System Description
3. System Safety Management
 - 3.1 Safety Department Responsibility and Organization
 - 3.2 Safety Director/Manager
 - 3.3 Safety Responsibility of Other Departments
4. System Safety Program Methodology and Tasks
 - 4.1 Hazard Assessment Policy
 - 1) Identification of system considerations
 - 2) Hazard identification
 - 3) Hazard assessment
 - 4) Hazard resolution
 - 5) Accident/Incident Prevention and Remedy
 - 4.2 Safety Program Tasks (specified examples)
 - 1) Collect and maintain safety data
 - 2) Perform hazard identification and analysis
 - 3) Develop hazard resolutions and controls
 - 4) Conduct accident and incident investigations
 - 5) Develop and perform safety training and incentive programs (include outside training)
 - 6) Conduct safety tests and inspections
 - 7) Define safety requirements
 - 8) Maintain safety interface and coordination
5. System Safety Program Implementation and Maintenance
 - 5.1 Program Schedule
 - 5.2 Requirements and Process Plan Update

ATTACHMENT I (cont'd)

- 5.3 Program Review (audit)
 - 1) Internal (management)
 - 2) External (peer group, other organization)
 - 5.4 Management Review of System Safety Program
 - 5.5 System Safety Plan Annual Report
6. Appendices
- Appendices provide detailed reference data that need not be in the body of the plan.
- 6.1 Bibliography
 - 6.2 Glossary of Terms
 - 6.3 Schedule for Program Plan Implementation
 - 6.4 Table of Safety Trends
 - 6.5 Detailed System Description (if appropriate)
 - 6.6 System Maps
 - 6.7 List of operating rules, documents, etc.
 - 6.8 List of emergency procedures documents
 - 6.9 Chart of safety information flow.
 - 6.10 List of system safety tasks and responsibilities
 - 6.11 Expansion/Improvement Programs
 - 6.12 List of participation in safety boards, committees, panels, etc. (internal and external)
 - 6.13 List of safety forms and logs
 - 6.14 Table of system safety data requirements
 - 6.15 Summary of safety tests and inspections
 - 6.16 Regulatory agency reviews or audits
 - 6.17 Internal review procedures

SAFETY

PROGRAM GOAL

- TO ACHIEVE THE HIGHEST LEVEL OF SAFETY PRACTICAL

SAFETY

PROGRAM FUNCTIONS

- ACCIDENT AND INCIDENT PREVENTION
- EMERGENCY RESPONSE TO ACCIDENT OR INCIDENT OCCURRENCE

SAFETY

ACCIDENT PREVENTION FUNCTION

- IDENTIFY HAZARDS
 - DATA
 - ANALYSIS
- RESOLVE HAZARDS
 - ELIMINATE
 - CONTROL
- APPLY SYSTEM SAFETY CONCEPT

SAFETY

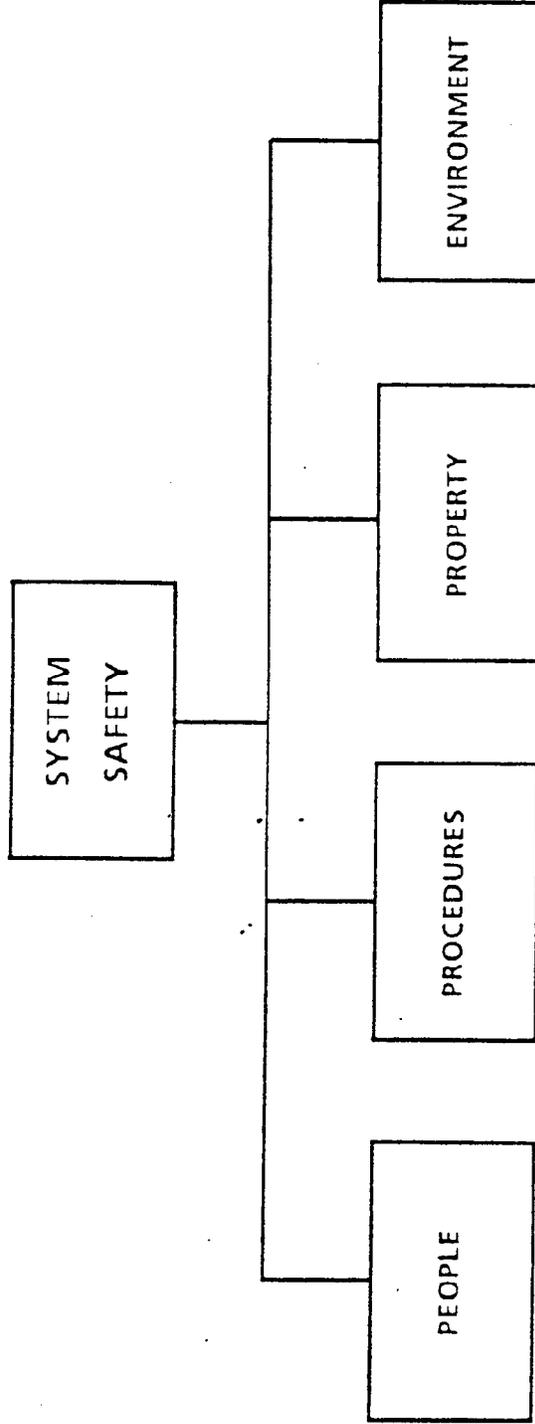
EMERGENCY RESPONSE FUNCTION

- EMERGENCY PREPAREDNESS
 - EMERGENCY PLANNING
 - PREPAREDNESS TRAINING
 - VEHICLE/FACILITIES PREPAREDNESS
- ACCIDENT RESPONSE
 - PLAN IMPLEMENTATION
- RECOVERY

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SYSTEM SAFETY

ELEMENTS OF THE SYSTEM



SAFETY PROGRAM ELEMENTS

	PEOPLE	PROCEDURES	PROPERTY	ENVIRONMENT
PREPARE				
PREVENT				
RESPOND				
RECOVER				

**SAFETY
PROGRAM
PHASES**

SMALL VEHICLE SAFETY

SMALL VEHICLE CHARACTERISTICS

- VEHICLE DESIGN
 - SMALL BUSES
 - VANS
 - BODY ON VAN OR TRUCK CHASSIS
 - SPECIALIZED EQUIPMENT
- VEHICLE SERVICE
 - DEMAND RESPONSIVE
 - FIXED ROUTE
 - SPECIAL SERVICE

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SMALL VEHICLE SAFETY

SMALL VEHICLE USER POPULATION

- DISABLED
- ELDERLY
- CHILDREN
- SPECIAL GROUPS

SMALL VEHICLE SAFETY

TYPES OF ACCIDENTS

- COLLISION
- FIRE
- ROLLOVER
- IMMERSION IN WATER

SMALL VEHICLE SAFETY

PHASES OF SAFETY INVOLVEMENT

- ACQUISITION
 - SPECIFICATION PREPARATION
 - VEHICLE DESIGN
- OPERATIONS
 - IN-SERVICE
 - MAINTENANCE
 - VEHICLE REHABILITATION



SMALL VEHICLE SAFETY

SAFETY CONSIDERATIONS IN ACQUISITION PHASE

- CRASHWORTHINESS
- FIRE SAFETY
- EVACUATION / EMERGENCY PREPAREDNESS
- OPERATIONAL SAFETY
 - LIFTS
 - MANEUVERABILITY

SMALL VEHICLE SAFETY

SAFETY CONSIDERATIONS IN OPERATIONS PHASE

- STANDARD OPERATING PROCEDURES
- EMERGENCY PROCEDURES
- TRAINING
- TESTING AND INSPECTION
- MAINTENANCE

SMALL VEHICLE SAFETY

SYSTEM SAFETY PLAN DEVELOPMENT

- INTRODUCTION
 - SYSTEM DESCRIPTION
 - SYSTEM SAFETY MANAGEMENT
 - PROGRAM METHODOLOGY AND TASKS
 - PROGRAM IMPLEMENTATION AND MAINTENANCE
 - APPENDICES
-
- SYSTEM DOCUMENTATION
 - GLOSSARY
 - BIBLIOGRAPHY

SAFETY PLAN

INTRODUCTION

- PURPOSE OF PLAN
- SYSTEM SAFETY DEFINITION
- STATEMENT OF MANAGEMENT POLICY
 - GOALS
 - OBJECTIVES
- AUTHORITY
- REGULATORY AGENCIES

SAFETY

CHIEF EXECUTIVE OFFICER'S SAFETY POLICY STATEMENT

- **EMPHASIZES IMPORTANCE OF SAFETY**
- **DESIGNATES RESPONSIBILITY**
- **SHOWS MANAGEMENT COMMITMENT OF RESOURCES AND PERSONNEL**
- **SHOULD BE WIDELY DISTRIBUTED**

SAFETY PLAN

SYSTEM DESCRIPTION

- **BACKGROUND**
- **SCOPE OF TRANSIT SERVICES**
- **ORGANIZATIONAL STRUCTURE AND MANAGEMENT**
- **OPERATIONS TYPE INCLUDING ENVIRONMENT, ROUTES, AND MAINTENANCE**
- **EQUIPMENT AND FACILITIES**
- **PERSONNEL**
- **EXISTING SAFETY CAPABILITIES AND PRACTICES**
 - **PREVENTIVE**
 - **EMERGENCY**

SAFETY PLAN

SYSTEM SAFETY MANAGEMENT

- **SYSTEM SAFETY DEPARTMENT RESPONSIBILITY**
- **SYSTEM SAFETY DIRECTOR / MANAGER OR RESPONSIBLE INDIVIDUAL**
- **SYSTEM SAFETY DEPARTMENT ORGANIZATION**
- **SAFETY RESPONSIBILITIES OF OTHER DEPARTMENTS**
- **SAFETY COMMITTEE OR REVIEW BOARD**

SAFETY

SUGGESTED SAFETY GROUP'S RESPONSIBILITIES

- FORMULATE AND IMPLEMENT SAFETY STANDARDS AND GUIDELINES
- ASSURE SAFETY INVOLVEMENT IN THE DEVELOPMENT OF NEW CONCEPTS
- ASSURE SAFETY INVOLVEMENT IN THE SYSTEM DESIGN AND DEVELOPMENT PHASE
- OVERSEE SAFETY IN ALL TRANSIT REVENUE OPERATIONS
- ASSURE THAT ALL SAFETY RELATED MAINTENANCE IS PERFORMED
- OVERSEE MAINTENANCE EMPLOYEE SAFETY PROGRAMS
- OVERSEE SAFETY TRAINING
- ADMINISTER SAFETY ASPECTS OF CLAIMS

SAFETY PLAN

SYSTEM SAFETY PROGRAM METHODOLOGY AND TASKS

- INTRODUCTION
- PROGRAM METHODOLOGY
 - HAZARD IDENTIFICATION
 - HAZARD ASSESSMENT
 - HAZARD RESOLUTION
 - ACCIDENT / INCIDENT PREVENTION OR REMEDY
- TASKS
 - COLLECT AND MAINTAIN SAFETY DATA
 - CONDUCT HAZARD IDENTIFICATION AND RESOLUTION PROCESS
 - CONDUCT ACCIDENT INVESTIGATIONS
 - DEFINE SAFETY REQUIREMENTS AND COORDINATE WITH OTHERS
 - CONDUCT SAFETY TESTS , INSPECTION AND TRAINING

SAFETY PLAN

SYSTEM SAFETY PLAN IMPLEMENTATION AND MAINTENANCE

- PROGRAM IMPLEMENTATION SCHEDULE
- REQUIREMENTS AND PROCESS FOR REVISION / UPDATE
- PROGRAM AUDIT
 - INTERNAL SYSTEM AUDIT
 - EXTERNAL PEER GROUP AUDIT
- MANAGEMENT REVIEW OF SYSTEM SAFETY PROGRAM
- SYSTEM SAFETY PLAN ANNUAL REPORT

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SAFETY PLAN

APPENDICES

- REFERENCES
- DECISION MAKING AIDS
- INTER-ORGANIZATIONAL AGREEMENTS
- STANDARD AND EMERGENCY OPERATING PROCEDURES
- SUPPORTING DOCUMENTATION

SAFETY

OTHER ORGANIZATIONS

- FIRE DEPARTMENT
- POLICE DEPARTMENT
- TRAFFIC CONTROL AUTHORITIES
- DEPARTMENT OF PUBLIC WORKS
- UTILITY COMPANIES
- EMERGENCY RESPONSE ORGANIZATIONS
- ARMY CORPS OF ENGINEERS
- MUNICIPAL GOVERNMENT - MAYORS OFFICE
- PROPERTY OWNERS

SAFETY

SYSTEM SAFETY PROGRAM IMPLEMENTATION PROCESS

- **OBTAIN TOP MANAGEMENT APPROVAL FOR THE CONCEPT**
- **DETERMINE APPROPRIATE STAFF AND SCHEDULE REQUIREMENTS**
- **COORDINATE AND SOLICIT COOPERATION FROM OTHER DEPARTMENTS**
- **DEVELOP AND DOCUMENT THE PROGRAM**
- **OBTAIN TOP MANAGEMENT APPROVAL FOR THE PLAN**
- **DISTRIBUTE THE SYSTEM SAFETY PROGRAM PLAN**
- **IMPLEMENT THE SYSTEM SAFETY PROGRAM**
- **ASSESS THE PROGRAM AND REVISE AS NECESSARY**

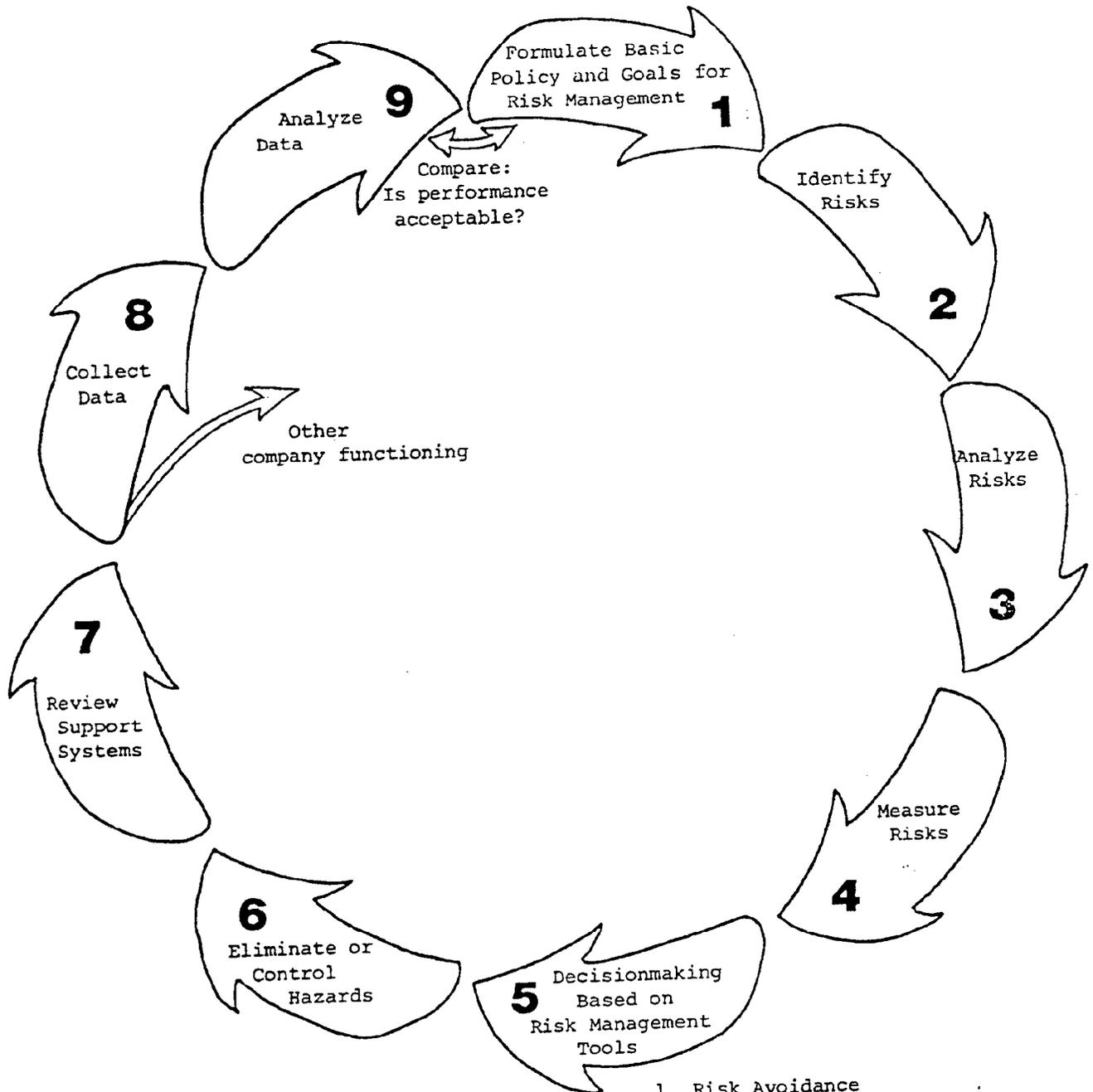
SMALL VEHICLE SAFETY

EMERGENCY PLAN DEVELOPMENT

- POLICY
- SCOPE
- INTER-ORGANIZATIONAL AGREEMENTS
- TRANSIT SYSTEM FUNCTIONS AND RESPONSIBILITIES
- EMERGENCY PROCEDURES
- GENERAL RESPONSE CAPABILITY CRITERIA
- EMERGENCY PLAN SUPPORTING DOCUMENTATION
 - DECISION - MAKING AIDS
 - STANDARD OPERATIONS DOCUMENTATION FOR EMERGENCIES
 - ACCIDENT INFORMATION FROM OTHER TRANSIT SYSTEMS

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The Risk Management Process



- 1. Risk Avoidance
- 2. Risk Reduction
- 3. Loss Control
- 4. Risk Assumption
- 5. Risk Transfer

HAZARD RESOLUTION PROCESS

DEFINE THE SYSTEM

- DEFINE THE PHYSICAL AND FUNCTIONAL CHARACTERISTICS AND UNDERSTAND AND EVALUATE THE PEOPLE, PROCEDURES, FACILITIES AND EQUIPMENT, AND THE ENVIRONMENT



IDENTIFY HAZARDS

- IDENTIFY HAZARDS AND UNDESIREED EVENTS
- DETERMINE THE CAUSES OF HAZARDS



ASSESS HAZARDS

- DETERMINE SEVERITY
- DETERMINE PROBABILITY
- DECIDE TO ACCEPT RISK OR ELIMINATE / CONTROL



RESOLVE HAZARDS

- ASSUME RISK OR
- IMPLEMENT CORRECTIVE ACTION
 - ELIMINATE
 - CONTROL



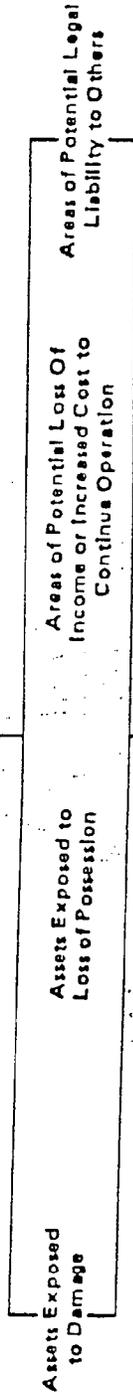
FOLLOW-UP

- MONITOR FOR EFFECTIVENESS
- MONITOR FOR UNEXPECTED HAZARDS



TREATMENT OF RISK

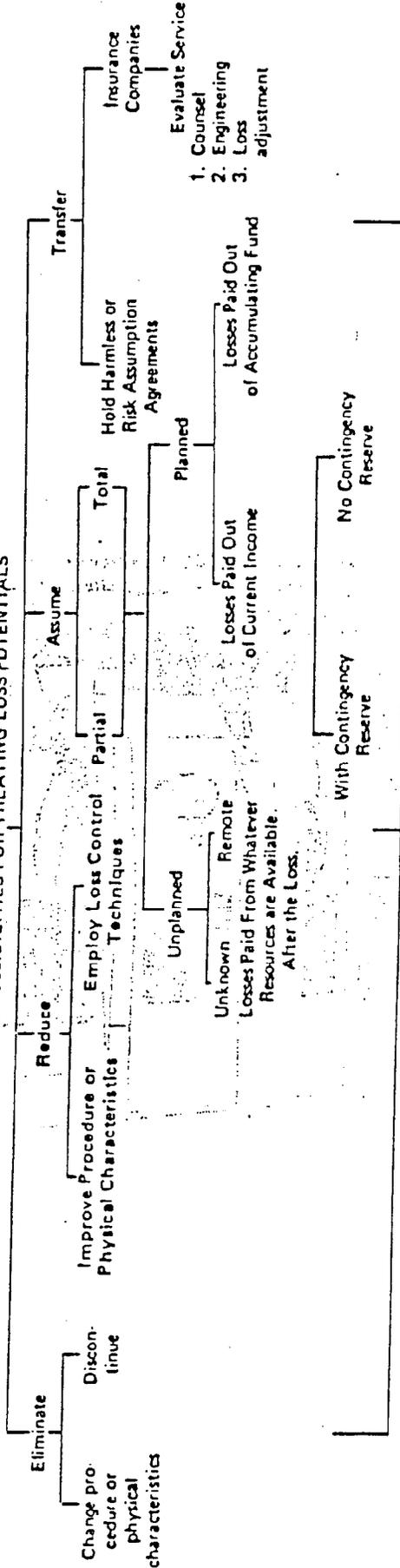
CLASSIFY LOSS EXPOSURES



IDENTIFY RISKS (Risk Discovery Check List)



CLASSIFY POSSIBILITIES FOR TREATING LOSS POTENTIALS



COMPARE ESTIMATED COST - VALUE OF ALTERNATIVES

CONSIDER COMBINATIONS OF RESOURCES AVAILABLE TO MEET POTENTIALS



FORMULATE AND PUT IN EFFECT MANAGEMENT PLAN IN ORDER TO PLACE PLAN INTO EFFECT

Section 3-2.2
Manual for the Development of Rail Transit System
Safety Program Plans

This report is available through:

*American Public Transit Association (APTA)
1201 New York Avenue, N.W.
Washington, DC 20005-3917
Ph#: 202-898-4083*

**MANUAL
FOR THE
DEVELOPMENT
OF
RAIL TRANSIT
SYSTEM SAFETY
PROGRAM PLANS**

**AMERICAN PUBLIC
TRANSIT ASSOCIATION**

* * *

RAIL SAFETY AUDIT PROGRAM



Section 3-2.3
MIL-STD-882C: Military Standard System Safety
Program Requirements

This report is available through:

*Naval Publications and Forms Center
5801 Tabor Avenue
Philadelphia, PA 19120
Attention Code: 1052
Ph#: 215-697-2000*

This report is also available on the Internet at:

<http://ax.laafb.af.mil/axz/882/882c.htm>

Headquarters Space and Missile Systems Center (SMC)
Directorate of Systems Acquisition
Acquisition Health and Safety Division



MIL-STD-882C

Military Standard System Safety Program Requirements

19 January 1993

Foreword

1. This military standard is approved for use by all Departments and Agencies of the Department of Defense.
2. Beneficial comments (recommendations, additions, deletions) and any pertinent data which may be of use in improving this document should be addressed to: HQ Air Force Materiel Command (SES), 4170 Hebble Creek Rd. Suite 1, Wright-Patterson AFB, OH 45433-5644, by using the self-addressed Standardization Document Improvement Proposal (DD Form 1426) appearing at the end of this document or by letter.
3. The principle objective of a system safety program within the Department of Defense (DOD) is to make sure safety, consistent with mission requirement, is included in technology development and designed into systems, subsystems, equipment, facilities, and their interfaces and operation.
4. DOD has approved this military standard for all DOD departments to use in developing system safety programs in accordance with DOD Instructions. Selective application and the tailoring of this military standard must be accomplished, as indicated herein to specify the extent of contractual and DOD inhouse compliance.
5. The degree of safety achieved in a system depends directly on management emphasis. Government agencies and contractors will apply management emphasis to safety during the system acquisition process and throughout the life cycle of each system, making sure mishap risk is understood and risk reduction is always considered in the management review process.
6. A formal safety program that stresses early hazard identification and elimination or reduction of associated risk to a level acceptable to the managing activity is the principal contribution of effective system safety. The success of the system safety effort depends on definitive statements of safety objectives and requirements.

System Safety Program Requirements

1. Scope

1.1 Scope. This standard applies to all DOD systems and facilities. It applies to every activity of the system life cycle; e.g., research, technology development, design, test and evaluation, production, construction, checkout/calibration, operation, maintenance and support, modification and disposal. The requirements will also be applied to DOD in-house programs.

Section Four

Safety Training Opportunities

4-1 Transportation Safety Institute

4-2 National Safety Council

Section 4-1
Transportation Safety Institute



 U.S. Department of Transportation

Transportation Safety Institute Transit Division

Background

The Transportation Safety Institute (TSI), founded in 1971 and located on the campus of the Mike Monroney Aeronautical Center in Oklahoma City, began conducting training in transit safety in 1976. Sponsored by the Federal Transit Administration, that training, which is tuition-free has now been extended to include a full range of training in bus and rail safety as well as a number of other courses dealing with security. Since it began in 1976, the transit program has trained over 60,000 students.

Staff and Associate Staff

The small instructional staff of the Transit Division are assigned certain courses based on their background and experience. However, the bulk of the training is conducted by an Associate Staff made up of government and industry subject matter experts who assist in both the development and conduct of courses.

Resident Training

A limited number of courses, for the most part those dealing with bus accident investigation, are conducted on-site at the Transportation Safety Institute. There are numerous hotels and restaurants in the immediate vicinity of TSI.

Non-Resident Training

Most safety and security courses and seminars are conducted regionally throughout the United States and are usually hosted by a transit system, state agency, or similar organization. Hosts are responsible for providing a room appropriate to accommodate the number of trainees and any audiovisual equipment necessary for conduct of the training. The Transit Division will furnish all required books and materials.

Training Costs and Enrollment

Preference for enrollment in courses offered by the Transit Division is given to transit system and state transportation employees. There is no cost for training or materials, but trainees or their employers are responsible for any travel expenses to and from the training site.

Certification

Certificates of successful completion are awarded to qualified participants in Transit Division courses or seminars. Continuing Education Units (CEU's) may also be earned for some training.

Courses and Schedule

Following are the schedules and locations for TSI Transit Division safety and security courses and seminars to be conducted during the next several months.

Click here to learn more about the Transit Division of the Transportation Safety Institute, or you may call 405, 954-3682, fax them at 405, 954-0367, or write them at the following address:

Transit Division, DTI-80
Transportation Safety Institute
P.O. Box 25082
Oklahoma City, Oklahoma 73125-5050



U. S. Department of Transportation
Research and Special Programs Administration

TSI Transportation Safety Institute

catalog of activities
1997-98

aviation &
environmental safety

hazardous materials
& motor carrier safety

highway traffic safety

USCG container
inspection training
& assistance

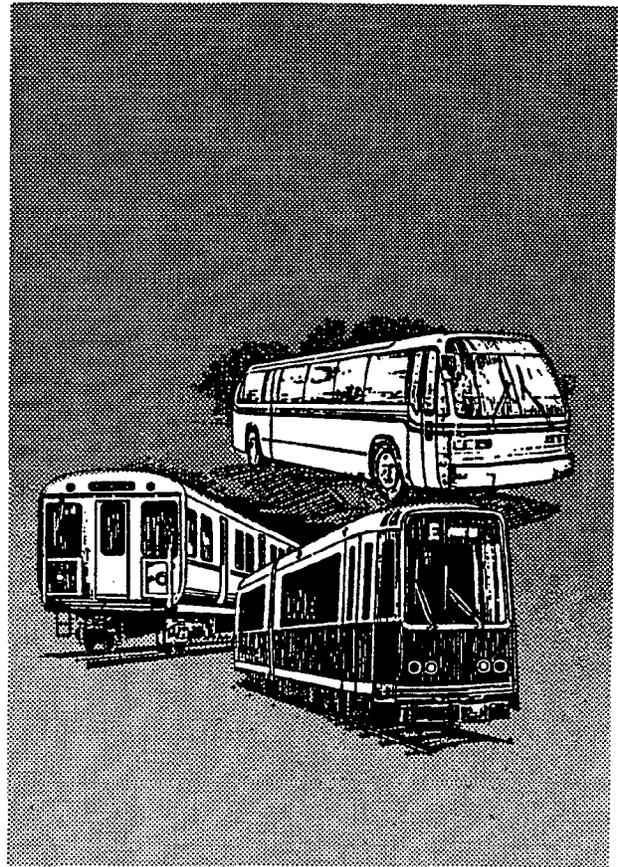
pipeline safety

intermodal training
& support

transit safety
& security

TRANSIT DIVISION

The Transportation Safety Institute (TSI) began conducting transit training in 1976. The training has evolved from rail oriented safety to a full range of bus, rail, and safety and security courses and seminars. Through the Institute, the Federal Transit Administration (FTA), Office of Safety and Security has introduced the concepts of system safety to the industry. As a result of the ongoing training programs, excellent strides have been made in the areas of accident prevention, accident reduction, and a more secure environment for the transit patrons. Additionally, rolling stock has achieved a longer and more economical life span and insurance companies have granted substantial reductions in insurance premiums as a result of the training provided to property personnel by TSI. While the ultimate benefactor of a safe and secure transit system is the transit patron or rider, the taxpayer also receives benefit from the fact that many systems were and are funded by FTA monies and a safer system always contributes to becoming a financially more stable system.



While the area of transit safety and security training is as old as mass transit itself, it is an ever-changing and increasingly more technical area of expertise. System safety programs and concepts are changing continually and accident investigation has become a science of applying sophisticated techniques in day-to-day situations. In accordance with guidelines initially set down in the UMTA Act of 1964, as amended, we strive to stay abreast of the most modern techniques available in the area of hazard identification, hazard resolution, accident prevention, and alternative fuels safety. By disseminating these techniques to the transit industry through training, we intend to continue to make mass transit one of the safest and most secure transportation industries in the world today.

**CHERYL A. OGREN, MANAGER
TRANSIT DIVISION**



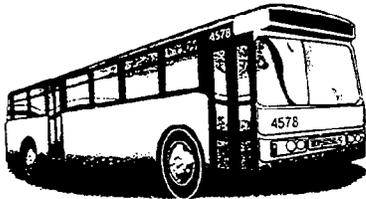
TRANSIT SAFETY AND SECURITY TRAINING

<i>COURSE NUMBER</i>	<i>COURSE TITLE</i>	<i>LENGTH</i>	<i>PAGE</i>
<i>TRANSIT BUS SAFETY PROGRAM</i>			
00434	System Safety Concepts and Management (Under development)	3-1/2 days	98
00435	Bus Accident Investigation	4-1/2 days	98
00436	Bus Accident Investigation Seminar	2 days	98
00440	Advanced Problems in Bus Accident Investigation	9-1/2 days	99
00449	Fire/Life Safety Training Seminar	1 day	99
00454	Instructor's Course in Alternative Fuels Safety	2-3 days	99
00455	Emergency Response and Access to Alternative Fueled Vehicles	1 day	100
00458	Instructor's Course in Bus Accident Investigation (Under development)	4-1/2 days	100
00459	Bus Accident Casualty Extrications	2 days	100
00460	Safety Evaluations of Alternative Fuels Facilities and Equipment	2-4 days	100
<i>TRANSIT RAIL SAFETY PROGRAM</i>			
00430	Transit Rail Accident Investigation	4-1/2 days	97
00439	Transit Rail System Safety	4-1/2 days	99
<i>TRANSIT SECURITY PROGRAM</i>			
00432	Transit System Security	4-1/2 days	98
00438	Transit Explosives Incident Management Seminar	1/2 day	98
<i>MULTI-MODAL SAFETY PROGRAM</i>			
00450	System Safety Planning Seminar	1 day	99
00456	Effectively Managing Transit Emergencies	4-1/2 days	100
00457	Transit Industrial Safety Management	4-1/2 days	100

TECHNICAL ASSISTANCE

The following is a list of areas of technical assistance available through the Division. If your agency/organization has requirements similar to these and you think TSI could be of assistance, please call.

1. Alternative Fuels
Assistance in the evaluation of accidents and/or safety issues related to the use of compressed natural gas (CNG) and liquefied natural gas (LNG).
2. Transit Accident Investigation
Guidance and assistance in the investigation of transit bus and/or train accidents, including but not limited to speed estimates, evaluation of damage and debris, operator performance, and witness evaluation.
3. Industrial Safety
Guidelines for evaluating various types of industrial safety incidents.
4. Security
Assistance and guidelines in special security situations such as bomb threats and explosive incidents, crimes against passengers, and special events.
5. Emergency Management Drills
Assistance in the planning and conduct of drills in the areas of fires, terrorist attacks, accidents, and related situations.



TRANSIT SAFETY AND SECURITY TRAINING

Adequate training is essential if transit agencies are to develop and maintain successful safety and security programs. Training provided through TSI is designed to meet the priority needs of the transit industry.

Courses and seminars provide an intensive training experience for transit safety and support personnel. The training is enhanced through the classroom participation by associate staff instructors from the transit industry.

For information regarding the training courses and seminars, contact:

Transit Division, DTI-80
Transportation Safety Institute
P. O. Box 25082
Oklahoma City, Oklahoma 73125-5050
Telephone: (405) 954-3682

DESCRIPTION OF COURSES AND SEMINARS

***00430
TRANSIT RAIL ACCIDENT
INVESTIGATION**

4½ Days: This course is conducted on a regional basis and is designed to provide students with: an understanding of the rail accident investigation process; a methodology for the collection of accident data; the ability to analyze investigation results and to develop conclusions and recommendations.

The course is designed for persons with a job related responsibility for or interest in the investigation of transit rail accidents, and includes outdoor hands-on training.



***00432**

TRANSIT SYSTEM SECURITY

4½ Days: The course is conducted regionally and is a comprehensive training experience in transit security. It introduces and demonstrates proactive management procedures as well as security and contingency planning for the protection of passengers, facilities, and rolling stock.

The course is designed for transit personnel who have a job related responsibility for or interest in the protection of transit patrons, employees, facilities, funds, and equipment.

***00434**

SYSTEM SAFETY CONCEPTS AND MANAGEMENT (under development)

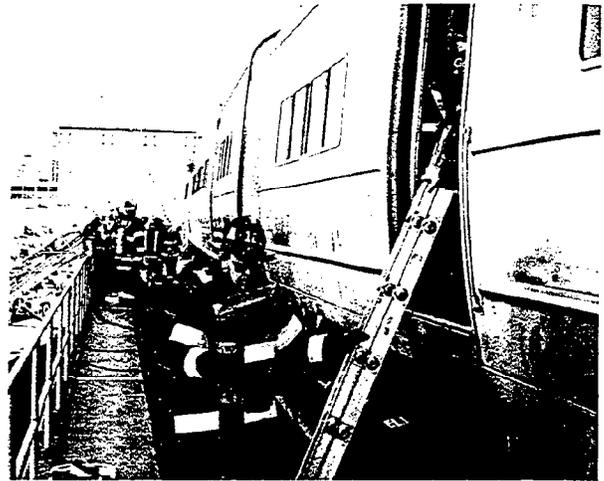
3½ Days: The training is designed to provide transit personnel with the knowledge and appreciation of the system safety concept and its value in accident prevention and reduction. The course is conducted regionally and is intended for all department head levels within a transit system.

***00435**

BUS ACCIDENT INVESTIGATION

4½ Days: This course covers the fundamentals of bus accident investigation which typically include notification procedures, damage, debris, and evidence evaluation, marks on the road and speed estimates, interview techniques, analysis techniques, lamp examination overview, accident photography overview, contributing factors, and safety improvement recommendations. It requires a working knowledge of basic mathematics.

The course is conducted on a regional basis and is designed for bus company personnel and other persons who have a job related responsibility for or a job related interest in transit bus accident investigations. It involves hands-on outdoor exercises.



***00436**

BUS ACCIDENT INVESTIGATION SEMINAR

2 Days: This seminar addresses the fundamentals of bus accident investigation. It typically discusses marks on the road, simple speed estimates, interview techniques, and contributing factors.

This training is conducted in the field on a regional basis and is designed for those transit providers having a job related responsibility for or interest in transit bus accident investigations.

***00438**

TRANSIT EXPLOSIVES INCIDENT MANAGEMENT SEMINAR

4 Hours: This seminar is designed for all levels of a transit system and emergency support services personnel who respond to explosives-type incidents affecting bus and rail systems. The training is aimed at the development of emergency preparedness plans to handle explosives-type incidents and the review of existing plans, programs, and procedures. This seminar does not address the technical aspects of explosives/incendiary devices. The seminar is offered on a regional basis at host transit systems. The host should be prepared to invite representatives of fire, police, and other emergency responders in the area, as well as other fleet operators.



***00439**

TRANSIT RAIL SYSTEM SAFETY

4½ Days: This course provides training in the principles of system safety and their use in the identification and reduction of the hazards in a mass transit rail system. The training focuses on system safety concepts and techniques, and on the means of applying them in various stages of acquisition and development. The course also covers the development and revision of system safety program plans.

The course is conducted in the field on a regional basis and is designed for safety, operations, maintenance, and engineering personnel within a rail system, as well as state employees with rail system safety oversight responsibilities.

***00440**

ADVANCED PROBLEMS IN BUS ACCIDENT INVESTIGATION

9½ Days: This specialized course deals with the principles of accident investigation mathematics, interpretation of road marks, complex speed estimates, advanced photographic techniques, field sketching, lamp analysis, hearing and courtroom testimony, pedestrian accidents, and motorcycle accidents. The training involves several outdoor and off-campus activities.

he course is conducted at the Institute and is

designed for transit bus company employees with a job related interest or responsibility for bus accident investigation. Course 00435 is a prerequisite for this course.

***00449**

FIRE/LIFE SAFETY TRAINING SEMINAR

1 Day: This seminar is designed for emergency responders and transit system employees with a job related responsibility or interest in the planning and response to emergency bus evacuations and vehicle fires. This training encourages transit systems and emergency support agencies to work together to develop emergency preparedness plans. The seminar encompasses classroom training and practical exercises in the field in areas of interest identified by the host.

***00450**

SYSTEM SAFETY PLANNING SEMINAR

1 Day: This seminar is conducted on a regional basis and is designed to increase the sensitivity of transit managers and their subordinate employees to safety issues and problems regardless of the size of the transit system. It will assist participants in improving efficiency of transit operations and attempt to foster the highest practicable level of safety.

The seminar is designed for transit system managers and other employees with a job related responsibility for system safety planning.

***00454**

INSTRUCTOR'S COURSE IN ALTERNATIVE FUELS SAFETY

3 Days: This course is conducted regionally at a host transit system on a request basis. It is designed for persons who will train others in the safety issues involving the use of various alternative fuels. Participants receive materials to assist them in training operators, mechanics, and refuelers. The training covers CNG or LNG or both.



***00455**

EMERGENCY RESPONSE AND ACCESS TO ALTERNATIVE FUELED VEHICLES

1 Day: This seminar is conducted regionally and is designed for fire department, law enforcement, civil defense, and emergency medical personnel who respond to transit emergencies involving alternative fuel facilities and vehicles. It provides guidelines on alternative fuels safety issues and hands-on experience in gaining access to alternative fueled vehicles as well as other vehicles in use by the host transit system. The training covers CNG or LNG or both.

***00456**

EFFECTIVELY MANAGING TRANSIT EMERGENCIES

4 Days: This course is conducted regionally and is designed to assist transit systems in keeping abreast of emergency preparedness techniques. The training covers the planning, management, response, and recovery for transit system events considered an emergency or crisis.

***00457**

TRANSIT INDUSTRIAL SAFETY MANAGEMENT

4½ Days: This training is offered on a regional basis and is designed for transit system employees with a job related responsibility for the development, implementation, and maintenance of a comprehensive industrial safety management program. The course addresses the development of safety plans, the conduct of safety inspections and audits, and the identification, elimination, or mitigation of hazards, and unsafe practices and procedures.

***00458**

INSTRUCTOR'S COURSE IN BUS ACCIDENT INVESTIGATION (under development)

4½ Days: This course is designed for transit system employees who have a job related responsibility to train others in the fundamentals of

bus accident investigation. Graduates of this course will receive instructor guides, test guides, and sufficient materials to conduct their own classes in the fundamentals of bus accident investigation. Applicants for this course must have successfully completed courses #00435 and #00440.

***00459**

BUS ACCIDENT CASUALTY EXTRICATIONS

2 Days: This course is offered regionally and is designed for emergency responders who may be tasked to extricate victims of bus accidents. The training addresses the construction of various types of buses and recommended procedures for forcibly entering wrecked buses and extracting casualties. Participants will be required to furnish their own personal protective gear and will be expected to participate in hands-on extrication exercises.

***00460**

SAFETY EVALUATIONS OF ALTERNATIVE FUELS FACILITIES AND EQUIPMENT

2-4 Days: This course is offered regionally and is designed for mass transit system employees who have a responsibility for developing, implementing, and monitoring safety practices, and procedures, for alternative fuels facilities and equipment. This course covers compressed natural gas or liquefied natural gas or both.

NOTE: Training conducted regionally (on-site) is usually hosted by a transit system, state DOT, or transit association. The host is responsible for providing classroom space, audiovisual equipment, and other logistical support. For additional information on hosting a training event, call (405) 954-3682.



Section 4-2
National Safety Council

National Safety Council

About the Council

Locations

The mission of the National Safety Council is "to educate and influence society to adopt safety, health and environmental policies, practices and procedures that prevent and mitigate human suffering and economic losses arising from preventable causes."

History

The National Safety Council has been working for generations to protect lives and promote health with innovative programs. We are a nonprofit, nongovernmental, international public service organization dedicated to improving the safety, health and environmental well-being of all people.

Each year, unintentional injuries cost our society in excess of \$399 billion in the U.S. alone. This figure includes lost wages, medical outlays, vehicle damage, and other expenses.

Worldwide, billions more are lost. The cost -- human misery -- is incalculable. Unintentional injuries are the fifth leading cause of death. The Council believes that such incidents are not just random occurrences, but instead result from multiple conditions involving the interactions of machines and environments with people as they live, work, drive, and play. In our view, what some call "accidents" are unplanned, unwanted and nearly always preventable, as are many illnesses, and our programs and services are dedicated to this belief.

Organization

Since our founding in 1913, we have served as the premier source of safety and health information in the U.S. We started in the workplace -- in factories, warehouses, construction sites -- making businesses aware of ways to prevent unintentional injuries on the job. Subsequently, we expanded our efforts to include highway, community and recreation safety, and our mission now encompasses all people, everywhere. This expansion includes occupational and environmental health and general wellness to promote safety and health 24 hours a day.

Acknowledging our first 40 years of operation as an Illinois nonprofit corporation, an Act of Congress on August 13, 1953, created the National Safety Council as a body corporate under federal law. Public Law 259 of the 83rd Congress formally established the Council as a federally chartered organization. The Charter mandates that the National Safety Council be nonpolitical and shall not contribute to or otherwise support or assist any political party or candidate.

We are governed by a board of directors. Except for two Council senior officers who are

salaried, the directors are unpaid volunteers. The Board and its officers and committees, aided by some 2,000 more volunteers, determine policies, operating procedures and programs to be developed and carried out by the Council's 300-plus professional staff. Board members represent business, labor, chapters, government, community groups, trade and professional associations, schools, and individuals. Council member firms employ more than 30 million people; total membership exceeds 18,500.

Operation

The National Safety Council is not a government agency. We do not have the authority to legislate or regulate. However, we can influence public opinions, attitudes and behavior. We serve as an impartial intermediary by bringing industrial and labor safety and health professionals together with government, association and public interest representatives to form national coalitions on key safety, health and environmental issues. The Council is a consensus-builder.

Our statisticians have established a comprehensive system of tracking and compiling injury and illness data, including annual publication of Accident Facts, a major compendium of statistics. Council researchers produce the Journal of Safety Research, an international interdisciplinary scientific quarterly.

Our library is one of the most complete safety and health information resources anywhere. Together with a nationwide network of local safety councils, community volunteers and members representing business, labor, industry, and government, we provide information that gives clear, practical guidance on prevention.

Most important, the National Safety Council converts its information into action. Our operations take four different forms: training, education programs and materials, consulting, and advocacy leadership.

Our Foundation for Safety and Health enables the Council to develop its actions and expand its outreach by providing funding for innovative, public programs that save lives. Donations to the Foundation have made a difference for millions of people on the job, at home and in communities across the nation. The corporations, foundations and individuals who support the Foundation for Safety and Health collectively make the world a safer and healthier place for everyone.

Locations

Headquarters
National Safety Council
1121 Spring Lake Drive
Itasca, IL 60143-3201
(630) 775-2056
Toll-Free: 800-621-7619

Environmental Health Center
1025 Conn. Ave., NW, Suite 1200
Washington, DC 20036
(202) 293-2270

Foundation for Safety & Health
1121 Spring Lake Drive
Itasca, IL 60143-3201
(630) 285-1121

International Safety Council
21 Tilton Road, Borough Green
Kent, TN15 8RS
UNITED KINGDOM
(44) 1732-88-6581
Telefax (44) 1732-88-6582

Public Policy
National Safety Council
1025 Conn. Ave., NW, Suite 1200
Washington, DC 20036
(202) 293-2270

Southeastern Region Office
National Safety Council
3300 NE Expressway, Suite 7A
Atlanta, GA 30341-3941
(770) 457-5100

Western Region Office
National Safety Council
303 Twin Dolphin Drive, Suite 520
Redwood City, CA 94065-1409
(650) 508-8787

National Safety Council Occupational Safety & Health Services

Courses Offered

- Accident (Incident) Investigation
- Coaching the Lift Truck Operator (Train the Trainer)
- Ergonomics: Evaluation and Applications
- Fundamentals of Industrial Hygiene
- Job Safety Analysis: Basic Skills
- Job Safety Analysis: Managing the Process
- OSHA 10-Hr. Construction
- OSHA 10-Hr. General Industry
- OSHA 30-Hr. General Industry
- Principles of Occupational Safety & Health (POSH)
- Safety Inspections
- Safety Management Techniques (SMT)
- Safety Training Methods (STM)
- Supervisors' Development Program (SDP)

Regional Offices

Central Region Office

National Safety Council
1121 Spring Lake Drive
Itasca, IL 60143-3201
E-mail: osh@nsc.org
(630) 285-1121, ext. 2546
(800) 539-7468
Fax: (630) 285-1613

Southeastern Region Office

National Safety Council
3300 NE Expressway, Suite 7A
Atlanta, GA 30341-3941
E-mail: sro@nsc.org
(770) 457-5100, ext. 16
(800) 441-5103, ext. 16
Fax: (770) 457-6189

Western Region Office

National Safety Council
303 Twin Dolphin Drive, Suite 520
Redwood City, CA 94065-1409
E-mail: wro@nsc.org
(650) 508-8787, ext. 101
(800) 544-1030, ext. 101
Fax: (650) 508-8831

**National Safety Council
Occupational Safety & Health Training**

**Safety Training Methods (STM)
Course Description**

*Ensure that your workforce practices safe behavior
-- train effectively.*

The National Safety Council's performance-based training approach will help you achieve your safety AND business goals. We'll show you how to reach your desired level of performance.

Training Goals

Upon completion of the Safety Training Methods course, you'll be able to •improve the safety performance of your workforce. •make educated decisions about the safety and health training needs of your workforce -- needs analysis, performance objectives, instructional strategy and methods, content, media, delivery, evaluation, and costs.

Who Should Attend

If you are a manager, supervisor, human resource representative, or employee who is responsible for the planning, development and/or delivery of safety and health training programs, attend the Safety Training Methods course.

Why Should You Attend?

Whether you're coordinating training development, purchasing materials from vendors, contracting with trainers, or conducting training yourself -- you'll find this course valuable.

Safety Training Methods is a 4.5 day (30 hours) course that focuses on the knowledge and skills required to assess your training needs, as well as plan, organize, create, and deliver performance-based safety and health training programs. While emphasis is on developing and delivering instructor-lead/classroom training, you'll become acquainted with other instructional methods and media used to effectively train employees on safety and health issues. You'll also have the opportunity to practice your public speaking skills.

This course is a challenging and interactive learning experience. Combined with information, numerous group and independent learning activities provide opportunities to apply newly learned concepts to a variety of safety and health training scenarios.

During the training, you will:

•Plan and design a training program applicable to your work environment. •Learn strategies and methods that address adult learning needs. •Complete a training needs analysis. •Practice your public speaking skills by delivering presentations. •Identify training and non-training solutions for safety and health case studies. •Calculate direct and indirect training costs. •Discuss safety and health training issues with other safety professionals.

We recommend that you successfully complete Principles of Occupational Safety and Health, course 12601, prior to enrolling in this program.

4.5 Day Course

3.0 NSC CEUs

Course No. 12655

Fee: Member -- \$995; Nonmember -- \$1,245

**National Safety Council
Occupational Safety & Health Training**

**Accident (Incident) Investigation
Course Description**

Training goals

Upon completion of the Accident (Incident) Investigation course, you will be able to:

•Employ effective investigation and interview techniques. •Analyze accidents to identify "true" root causes. •Describe human relations issues affecting accident reporting.

Who Should Attend?

All levels of management, safety practitioners, safety committee members, and individuals responsible for investigating accidents (incidents).

Why Should You Attend?

This class examines accident (incident) investigation and analysis as a means of preventing injuries, property damage and financial losses. Coursework focuses on techniques for gathering complete, accurate and objective accident data used to arrive at true root causes and determine corrective action. Participants will learn a step-by-step investigation procedure for analyzing all possible root causes.

Participants examine:

•Incidents to investigate. •On-site investigation process. •Data to include in investigation reports. •Witness interview techniques. •Post action: hazard control measures and follow-up.

See course descriptions for Job Safety Analysis and Safety Inspections courses. For your convenience, courses are offered during the same week.

**1 Day Course
0.6 NSC CEUs
Course No. 12706
Fee: Member -- \$230; Nonmember -- \$290**

**National Safety Council
Occupational Safety & Health Training**

**Safety Inspections
Course Description**

Training Goals

Upon completion of the Safety Inspections course, you will be able to:

•Plan and conduct a safety inspection •Complete inspection reports. •Develop recommendations and follow-up. •Manage an effective inspection program.

Who Should Attend?

Those responsible for conducting or supervising safety inspections and those responsible for training industrial safety and/or health inspectors.

Why Should You Attend?

This workshop provides an overview of the safety and health inspection process, then examines specific techniques to improve the process. Participants learn to develop and use checklists in continuous and formal safety inspections.

The class also covers such topics as:

•Pre-inspection tasks •What to inspect and where to gather information •Recording observations •Handling employee reactions to the inspection process •Developing inspection reports •Analyzing data and setting priorities

See course descriptions for Job Safety Analysis and Accident (Incident) Investigation courses. For your convenience, courses are offered during the same week.

**1-Day Course
0.6 NSC CEUs
Course No. 12707
Fee: Member -- \$230; Nonmember -- \$290**

Section Five

Glossary of Safety Terms

5-1 Mass Transit System Safety Glossary, USDOT

**MASS TRANSIT
SYSTEM SAFETY GLOSSARY**

October 1995

Prepared by

U.S. Department of Transportation
John A. Volpe
National Transportation Systems Center

Prepared For

Federal Transit Administration
Office of Technical Assistance
Safety and Security Staff

PREFACE

This glossary has been developed under the sponsorship and direction of the Urban Mass Transportation Administration (UMTA) Safety Training Task Force. It is intended to complement the course material presented in the Mass Transit Rail System Safety Training Course sponsored by UMTA.

The glossary is a training aid that provides an easily referenced listing of definitions to assist students who may not be familiar with system safety concepts or many of the terms associated with design and operation of rail transit systems. Definitions listed in this glossary have been gathered from the following sources:

APTA - Lexicon (Appendix A of Moving People Safely, 3rd edition, 1977).

Product Safety Management and Engineering, Willie Hammer, 1980.

Military Standard System Safety Program Requirements, MIL-STD-882B, March 1984.

System Safety Engineering Analysis Handbook, Boeing Company.

BART System Safety Program Plan, 1978.

Participating in the development of this document were Lloyd G. Murphy and Gwen R. Cooper of the UMTA Safety and Security Staff, William T. Hathaway, Robert M. Dorer, and Stephanie H. Markos of the Transportation Systems Center, Elisabeth B. Marden of the Dynatrend Corporation, and Donald J. Dzinski of the American Public Transit Association.

A

ABSOLUTE BLOCK (See BLOCK, ABSOLUTE) - A block which no train is permitted to enter while it is occupied by another train.

ABSOLUTE STOP (See STOP, ABSOLUTE) - A signal indication which requires a train to stop and not proceed.

ACCEPTANCE TEST - A test performed to determine whether or not delivered items of hardware satisfy predetermined standards.

ACCIDENT - An unforeseen event or occurrence which causes death, injury, contact or damage to property.

ACCELERATION RATE (See RATE, ACCELERATION) - Time rate of change of speed of a vehicle.

ACKNOWLEDGMENT- The positive confirmation of the completion of a specific action, event or function.

ACQUISITION PHASE - The design, specification, construction and testing phase of a project.

ALARM CONDITION - Any abnormal condition which requires the attention or intervention of responsible personnel or an individual monitoring the transit system operation.

ANOMALY - Deviation from nominal performance which does not cause a significant effect on system performance but does warrant investigation and/or repair.

APPLICATION, BRAKE - The application of brakes to achieve the desired rate of either service deceleration or emergency deceleration.

APPROACH INDICATOR (See INDICATOR, APPROACH) An indicator used to indicate the approach of a train.

APPROACH LOCKING (See LOCKING, APPROACH) - Electric locking effective while a train is approaching a signal displaying an aspect to proceed, which prevents the movement of any interlocked or electrically locked switch, movable point frog, or derail in the route governed by the signal. Control is over a predetermined distance and incorporates a predetermined time release. (See also INTERLOCKING and DETECTOR, TRACK CIRCUIT)

APPROACH SIGNAL (See SIGNAL, APPROACH) - A fixed signal used in connection with one or more signals to govern the approach thereto.

ASSEMBLY - A number of parts or subassemblies or any combination thereof joined together to perform a specific function.

ASPECT - The display or presentation of a wayside signal that provides an indication viewed from the direction of an approaching train; the appearance of a cab signal conveying an indication as viewed by an operator in the cab.

ASPECT, FALSE RESTRICTIVE - The aspect of a signal that conveys an indication more restrictive than intended.

ASPECT, SIGNAL (See ASPECT) - The display or presentation of a wayside signal that provides an indication viewed from the direction of an approaching train; the appearance of a cab signal conveying an indication as viewed by an operator in the cab.

AUDIO FREQUENCY TRACK CIRCUIT - Track circuit energized by electrical current in the audio frequency range.

AUDIT - Formal or official examination and verification.

AUTOMATIC - A term applied to a system, subsystem, or device which has the inherent capability to function without direct manual participation.

AUTOMATIC BLOCK SIGNAL SYSTEM (ABO (See BLOCK, AUTOMATIC) - A series of consecutive blocks governed by block signals, cab signals, or both, actuated by train movement or by certain conditions affecting the use of a block.

AUTOMATIC BLOCK SIGNALING (See AUTOMATIC BLOCK SIGNAL SYSTEM)

AUTOMATIC CAB SIGNALING (See SYSTEM, AUTOMATIC CAB SIGNAL) - An automatic block signal system in which cab signals are provided.

AUTOMATIC CAR IDENTIFICATION (ACI) - A system providing positive recognition and the transmission of the individual number of a train automatically at specific line locations.

AUTOMATIC INTERLOCKING (See INTERLOCKING, AUTOMATIC) - An interlocking controlled by circuit logic so that movements succeed each other in proper sequence without need for manual control.

AUTOMATIC LINE SUPERVISION (See AUTOMATIC TRAIN SUPERVISION)

AUTOMATIC TRAIN CONTROL (ATC) - The system for automatically controlling train movement, enforcing train safety, and directing train operations. ATC includes subsystems for automatic train operation, train protection and line supervision.

AUTOMATIC TRAIN DISPATCHER (See DISPATCHER, AUTOMATIC TRAIN) - A programmable device whose function it is to dispatch trains on a predetermined schedule.

AUTOMATIC TRAIN OPERATION (ATO) - That subsystem within the automatic train control system which performs any or all of the functions of speed regulation, programmed stopping, door control, performance level regulation and other functions normally assigned to the train operator.

AUTOMATIC TRAIN PROTECTION (ATP) - That subsystem within the automatic train control system which maintains safe train operation through a combination of train detection, train separation, and interlocking.

AUTOMATIC TRAIN STOP (See SYSTEM, AUTOMATIC TRAIN STOP) - A system in which the train is brought to a stop through automatic brake application if imposed restrictions are ignored.

AUTOMATIC TRAIN SUPERVISION (ATS) - That subsystem within the automatic train control system which monitors the system status and provides the appropriate controls to direct the operation of trains in order to maintain intended traffic patterns and minimize the effect of train delays on the operating schedule.

AVAILABILITY - The probability that a system or system element will be operational when required. Mathematically, the ratio of the mean time between failure to the sum of mean time between failure plus mean down time.

AVERAGE FAILURE RATE - The average failure rate for a random variable t with reliability function $it(t)$ and density $in(t)$ over the interval of length h from t to $t+h$ is the average rate at which failures occur during the interval, given survival to the start of the interval. The first order approximation for the exponential case is:

$$\frac{it(t) - R(t+hi)}{h it(t)}$$

B

BACKUP - An alternate means of accomplishing a function using software, hardware, circuits or operational procedures separate from those used for the primary method.

BACKUP SYSTEM - A redundant system that performs the principal functions of the primary system with minimum deviation from the performance of the primary system.

BALLAST IMPEDANCE (See **IMPEDANCE, BALLAST**) - The impedance shunting a track circuit due to the condition of the ballast.

BALLAST LEAKAGE - The leakage of current from one rail of a track circuit to the other through the ballast, ties, etc.

BERTH, TRAIN - The space designated for a train of given length to occupy when it is stopped at a station platform, in a terminal, on a transfer truck, or at some other designated place.

BLOCK - A length of track of defined limits, the use of which is governed by block signals, cab signals, or both, or other set procedures.

BLOCK, ABSOLUTE - A block which no train is permitted to enter while it is occupied by another train.

BLOCK; AUTOMATIC (See **AUTOMATIC BLOCK SIGNAL SYSTEM**) - A series of consecutive blocks governed by block signals, cab signals, or both, actuated by train movement or by certain conditions affecting the use of a block.

BLOCK, MANUAL (See **SYSTEM, MANUAL BLOCK**) - A block signal system operated manually, usually based on information communicated by telegraph or telephone.

BLOCK, PERMISSIVE - A block which permits a train to enter while it is occupied by another train.

BLOCK SIGNAL (See **SIGNAL, BLOCK**) - A fixed signal at the entrance to a block to govern trains entering that block.

BLOCK SIGNAL SYSTEM (See **SYSTEM, BLOCK SIGNAL**) - A method of governing the movement of trains into or within one or more blocks by block signals or cab signals.

BOND, IMPEDANCE - An iron core coil of low resistance and relatively high reactance, used to provide a continuous path for the return propulsion current around insulated joints and to confine the alternating current signaling energy to its own track circuit.

BOND, INDUCTIVE COUPLED IMPEDANCE - A device of low resistance and high reactance, used with jointless audio frequency Rack circuits to couple inductively and confine the signaling energy to its own track circuit and equalize the return propulsion current between rails without impeding its flow.

BOND, PROPULSION - A conductor of low resistance providing a path for the return propulsion current at noninsulated rail joints.

BOND, SIGNAL - A conductor of low resistance providing a path for track circuit current across non-insulated rail joints.

BONDING (RAIL) - The connection of rails or frogs to provide a continuous path for signal or propulsion current by use of bonds.

BOOK OF RULES - A set of codified regulations and procedures by which operating personnel are governed.

BRAKE: APPLICATION - The application of brakes to achieve the desired rate of either service deceleration or emergency deceleration.

BRAKE ASSURANCE - The function provided by a subsystem within the automatic train operation system that will cause the emergency brakes of a vehicle to be applied when the actual braking rate of the vehicle is less than the braking rate requested by the automatic train control system.

BRAKE CUTOFF - A device which releases the brakes of a vehicle or portion thereof.

BRAKE, PARKING - A holding brake used to prevent movement of a stopped vehicle.

BRAKE RATE (See RATE, BRAKE) - The negative time rate of change of speed of a vehicle as produced solely by the action of its braking system(s).

BRAKE SHOES - The non-rotating, sacrificial portion of a tread or disc brake assembly.

BRAKE VALVE (See VALVE, BRAKE) - A separate operator's control for the purpose of applying and releasing pneumatic friction brakes.

BRACING, CLOSED LOOP - Braking under continuous direction of the train control system.

BRACING, DYNAMIC - An electric, primary braking system whereby the current derived from the motors, acting as generators, is modulated to provide controlled braking.

BRACING, EMERGENCY - An irrevocable open-loop braking system designed to insure fail safe brake application.

BRACING, FULL SERVICE - A non-emergency brake application which obtains the maximum brake rate consistent with the design of the primary brake system(s).

BRACING, PROGRAMMED - Closed-loop braking with the requirement that a stop be completed at a designated point within a specified distance.

BRACING, SERVICE - Speed retardation produced by the primary train braking system.

BRACING RATE (See RATE, BRAKE) - The negative time rate of change of speed of vehicle as produced solely by the action of its braking system(s).

BRACING SYSTEM - Those elements on board a train and their interconnections that produce speed retardation in response to a control signal.

BREAKDOWN (See FAILURE) - An inability to perform an intended function.

BUMPING POST SIGNAL - A signal to advise that a bumping post at a temporary or permanent end of the track is ahead.

BURN-IN - A conditioning procedure involving the operation of items in specified environmental conditions for the purpose of eliminating early failures by aging or stabilizing the items prior to operational use.

C

CAB - The compartment of a transit car from which control is achieved.

CAB SIGNAL (See SIGNAL, CAB) - A signal in the train operator's cab which conveys the automatic block aspects and indicates the prevailing speed command.

CAB SIGNAL DISPLAY (See CAB SIGNAL)

CAB SIGNAL MODE (See MODE, CAB SIGNAL) - A form of manual train control wherein the operator controls the speed of the vehicle in accordance with signal aspects displayed on the cab signal indicator.

CAPABILITY - The ability of equipment or systems to perform an intended task when in a non-failed state.

CAPACITY, LINE - The number of vehicles per unit time, or passengers per unit time, that flow in one direction between two points along a line.

CAPACITY, VEHICLE - The passenger capacity pertinent to specified loading conditions.

CATENARY - An overhead wire from which a transit vehicle collects propulsion and auxiliary power.

CENTRAL CONTROL - That place where train control or train supervision is accomplished for the entire transit system; the train command center.

CAR (See TRANSIT CAR, RAIL RAPID) - An electrically propelled and passenger carrying rail vehicle.

CENTRAL LINE SUPERVISION (See AUTOMATIC TRAIN SUPERVISION (ATS) - That subsystem within the automatic train control system which monitors the system status and provides the appropriate controls to direct the operation of trains in order to maintain intended traffic patterns and minimize the effect of train delays on the operating schedule.

CENTRALIZED TRAFFIC CONTROL (CTC) - A block signal system within which train movements are authorized by block signals whose indications are monitored and controlled at a central control.

CHARACTERISTICS, OPERATING - Those quantitative, measurable parameters pertinent to a specific system, subsystem, device or component that provide definition of performance.

CIRCUIT, CODED TRACK - A track circuit in which the energy is varied or interrupted periodically.

CIRCUIT, CHECK-IN/CHECK-OUT- An electrical circuit that detects and transmits the front end of the train entrance into, and the rear of the train departure from a block for the purposes of determining block occupancy.

CIRCUIT, NONVITAL - Any circuit which does not affect the safety of train operations.

CIRCUIT, SHUNT FOULING - The track circuit in the fouling section of a turnout, connected in multiple with the track circuit in the main track.

CIRCUIT, TRACK - An electrical circuit of which the rails of the track form a part.

CIRCUIT, VITAL - Any circuit which affects the safety of train operations.

CIVIL SPEED LIMIT (See SPEED LIMIT, CIVIL) - The maximum speed allowed in a specified section of track as

determined by physical limitations of the track structure, train design, and passenger comfort.

CLEARANCE DIAGRAM - A diagram which establishes the minimum safe distance between all points on a moving vehicle and fixed wayside structures or appurtenances.

CLEARANCES - The distance between specified points along the tracks and specified points on moving vehicles.

CLOSED CIRCUIT PRINCIPLE - The principle of circuit design using a normally energized electric circuit which, on being interrupted or de-energized, will cause the controlled function to assume its most restrictive condition.

CLOSED LOOP - The principle of feedback control in which the response of a system is continuously compared with the controlling signal to generate an error signal.

CODE, COMMAND - A transmitted vital coded signal to initiate action.

CODE, CONTROL (See **CODE, COMMAND**)

CODE, STANDARD - The operating, block signal, and interlocking rules of the Association of American Railroads.

COLOR LIGHT SIGNALS (See **SIGNAL, COLOR LIGHT**) - Signals which display aspects by means of lighted color lenses.

COMMAND CENTER (See **CENTRAL CONTROL**,) - That place from where train control or train supervision is accomplished for the entire transit system; the train command center.

COMMUNICATION SYSTEM - Those elements and their interconnection which permit voice, data, or video interchange of information between system functions separated by distance.

COMPONENT - An article which is a self-contained element of a complete operating unit and which performs a function necessary to the operation of that unit.

COMPONENT AND PART RELIABILITY - A component or part is reliable when it will operate to a predetermined level of probability under the maximum ratings at most severe combination of environments for which it was designed and for the length of time or number of cycles specified.

COMPONENT STRESS - The stresses on component parts are those factors of usage or test which tend to affect the failure rate of these parts. This includes voltage, power, temperature, frequency, rise time, etc; however, the principal stress, other than electrical, is usually the thermal-environmental stress.

CONDUCTOR - An on-board train attendant whose function is to operate doors and otherwise assist in passenger movement and safety.

CONFIGURATION MANAGEMENT - A process to assure that all documentation which describes a system and its various components is current and reflects the actual functional and physical characteristics of the system throughout its life cycle.

CONSIST - The number and specific identity of cars that make up a train.

CONSTRUCTION SAFETY - The optimum degree of safety within the constraints of construction effectiveness, time and cost through specific application of safety management throughout all phases of the construction.

CONTACT - A conducting part which co-acts with another conducting part to open or close an electrical circuit.

CONTACT RAIL (See THIRD RAIL.) - A rail mounted on insulators alongside the running rail which provides traction power for train propulsion.

CONTROL, BRAKE] - That system which generates control signals to the braking system that result in a desired application of brakes.

CONTROL CENTER (See CENTRAL CONTROL) - That place from where train control or train supervision is accomplished for the entire transit system; the train command center.

CONTROL, CONTINUOUS - The continuous generation of, and response to, control signals.

CONTROL, DEADMAN - A pressure or activity actuated device to detect inattention or disability of a train operator.

CONTROLLER, MASTER - The device which generates local and trainlined signals to the vehicle control system.

CONTROLLER, SWITCH CIRCUIT - A device for opening and closing electric circuits, operated by a rod connected to a switch, derail, or movable point frog.

CORRESPONDENCE - Agreement between control commands and field indications.

CRASHWORTHINESS- The capacity of a vehicle to act as a protective container and energy absorber during potentially survivable impact conditions.

CRITICAL DEFECT - A defect that judgment and experience indicate could result in hazardous or unsafe conditions for individuals using or maintaining the product or could result in failure in accomplishment of the ultimate objective.

CRITICALITY - Assignment of relative importance to hardware or systems.

CRITICAL FUNCTION LIST - A listing of those functions whose failure would cause system degradation below an acceptable level.

CROSS (EQUALIZER) BOND - An electrical connection from one track to another track to distribute traction power return currents.

CROSSING AT GRADE - An intersection of two or more **tracks** at the same elevation: an intersection of one or more tracks with a roadway.

CROSSOVER- Two turnouts, with track between the frogs, arranged to form a continuous passage between two parallel tracks.

CROSS PROTECTION - A means to prevent the undesired (or unintended) operation of a signal switch, movable point frog, or derail as the result of a cross in electrical circuits.

CURRENT, FOREIGN (STRAY CURRENT) - Stray electric currents which are not a part of the system but which may affect a signaling system or contribute to galvanic corrosion.

CURRENT, LEAKAGE - An electric current which flows through or across the surface of insulation when a voltage is impressed across the insulation.

CURRENT OF TRAFFIC (See DIRECTION, NORMAL) - The designed predominant direction of train traffic as specified by the rules.

CUT-SECTION - A location other than a signal location where two adjoining track circuits end within a block.

D

DEADMAN CONTROL (See CONTROL, DEADMAN) - A pressure or activity actuated device to detect inattention or disability of a train operator.

DEAD SECTION (See SECTION, DEAD) - A section of track, either within a track circuit or between two track circuits, the rails of which are not part of a track circuit.

DECELERATION RATE (See RATE, DECELERATION) - The net negative time rate of change of speed of a vehicle resulting from the summation of all forces acting upon it.

DECODER- A device which transforms a received signal into a data format.

DEDUCTIVE ANALYSIS - Analysis of a specific undesired event to determine possible causes of that event (Top down approach. "What can cause a specific event to occur?").

DE-ENERGIZE - To deprive an electro-receptive device of its operating current.

DEFICIENCY, DESIGN - Any design characteristic which does not meet specified criteria.

DEGRADATION - Falling from an initial level to a lower level in quality or performance.

DEPARTMENT TEST - Operational test made on complete train in a yard or on a transfer track before permitting train to operate on a main line.

DERAIL - A device designed to cause rolling equipment to leave the rails.

DERAILMENT- The condition of rolling equipment leaving the rails.

DESIGN SAFETY - Safety achieved by the integration of system design characteristics to prevent or minimize the probability of operation in an unsafe manner.

DETECTION DEVICES - Sensors used to detect and monitor the status of certain systems, ea., open or closed doors, component temperatures, flow rates, etc. The status is usually displayed on control consoles.

DETECTOR, GROUND - A device for detecting a ground on an electrical circuit.

DETECTOR, TRACK CIRCUIT - A track circuit, within an interlocking which, when occupied by a train, prevents the position of a track switch from being changed.

DETECTOR, POINT - A circuit controller which is part of a switch operating mechanism and operated by a rod connected to a switch, derail, or movable point frog to indicate that the point is within a specified distance of the stock rail.

DEVICE, ACKNOWLEDGING - A manually operated device used to acknowledge an alarm condition.

DIRECTION, NORMAL - The designed predominant direction of train movement as specified by the rules.

DIRECTION, REVERSE - Train movement in the direction opposite the normal direction.

DISPATCHER, AUTOMATIC TRAIN - A programmable device whose function it is to dispatch trains on predetermined schedule.

DISPATCHER, TRAIN (LINE SUPERVISOR, CENTRAL SUPERVISOR) - An operating person, within a control center, whose function it is to dispatch trains, monitor train operation, and to intervene in the event of disruption of schedule or when any change in service or routing is required.

DISPATCHING - The process of starting a train into service from a terminal, yard, or transfer track.

DISTANCE, STOPPING - The maximum distance on any portion of any track which any train, operating on such portion of railroad at its maximum authorized speed, will travel during a full service application of the brakes, between the point where such application is initiated and the point where the train comes to a stop. (Also referred to as Safe Braking Distance)

DOOR CONTROL, - Circuitry, including such safeguards and interlocks as required, which operates to open and close car doors.

DOWN TIME (See TIME, DOWN) - The total time during which the equipment is not in acceptable operating condition. Down time starts with a failure event and ends at the completion of repair and functional checks/inspections.

DWELL TIME - The total time from the instant that a train stops in a station until the instant it resumes moving.

E

EMERGENCY - A situation which is life threatening or which causes damage on or in any transit facility, trainway or vehicle.

EMERGENCY BRAKE APPLICATION - An irrevocable open loop braking system designed to insure fail safe brake application.

EMPLOYEE, OPERATING - The employee of a transit system having direct and supervisory responsibility for the movement of trains,

ENCODER - A device that transforms the format of the supplied data into the format required for transmission. (See also DECODER)

ENVIRONMENT - The aggregate of all conditions which externally influence the performance and life of an item.

EQUIPMENT FAILURE - The state in which equipment no longer meets the minimum acceptable specified performance and cannot be restored through operator adjustment of controls.

EQUIPMENT RELIABILITY (See RELIABILITY) - The characteristic which describes the ability of a component, subsystem, or system to perform its specified function without failure and within prescribed limits, expressed as a probability or mean failure rate.

EQUIPMENT, WAYSIDE (See WAYSIDE EQUIPMENT) - Train control or movement apparatus which is located along the track or wayside as opposed to the control center or other remote location.

F

FACING MOVEMENT (See MOVEMENT, FACING) - The movement of a train over the points of a switch which

face in a direction opposite to that in which the train is moving.

FACING POINT SWITCH (See SWITCH, FACING POINT) - A track switch the points of which face toward approaching traffic.

FAILED COMPONENT - A component **which has ceased to perform its intended function.**

FAIL OPERATIONAL - A characteristic design which permits continued operation in spite of the occurrence of a discrete failure.

FAIL OPERATIONAL FAIL SAFE - A system characteristic which permits continued operation on occurrence of a failure while remaining acceptably safe. A second failure results in the system remaining safe, but non-operational.

FAIL-SAFE SAFETY - A characteristic of a system and its elements, the object of which is to ensure that any fault or malfunction will not result in an unsafe condition.

FAIL-SAFE DESIGN - A design principle in which each of the elements which make up a system is analyzed to determine the potential consequence of failure of that element, alone or in combination with any or all other elements of the system, to ensure that a failure or a combination of failures will not result in an unsafe condition.

FAILED COMPONENT - A component which has ceased to perform its intended function.

FAILURE - An inability to perform an intended function.

FAILURE ANALYSIS - The logical and systematic examination of a system to identify and analyze the probability, causes, and consequences of potential and real failure.

FAILURE ASSESSMENT - The process by which the cause, effect, responsibility, and cost of an incident (reported problem) in the transit system is determined and reported.

FAILURE, CRITICAL- A failure which could result in major injury or fatality to people or which could result in major damage to any system or loss of a critical function.

FAILURE CRITICALITY ANALYSIS - Study of the potential failures that might occur in any part of a system in relation to other parts of the system in order to determine the severity of effect of each failure in terms of a probable resultant safety hazard, and acceptable degradation of system performance.

FAILURE EFFECT ANALYSIS - The study of the potential failures that might occur in any part of a system in order to determine the probable effect of each on all other parts of the system.

FAILURE, HUMAN - Failure due to human error.

FAILURE MANAGEMENT- Decisions, policies and planning which identify and eliminate or control potential failures and implement corrective or control procedures following real failures.

FAILURE MECHANISM - The process which results in a part or equipment failure.

FAILURE MODE - The description of the manner in which a failure occurs, and the operating condition of the equipment at the time of the failure.

FAILURE MODE ANALYSIS - The study of a system and working inter-relationships of the parts thereof under various anticipated conditions of operation (normal and abnormal) in order to determine probable location and mechanism where failures will occur.

FAILURE MODE AND EFFECT ANALYSIS (FMEA) - An inductive procedure in which potential malfunctions are identified and then analyzed as to their possible effects.

FAILURE RATE - Rate at which failures occur as a function of time. If the failure rate is constant, it is frequently expressed as the reciprocal of mean-time between-failure (MTBF).

FALSE OCCUPANCY - Indication of track occupancy when no train is present.

FALSE RESTRICTIVE (See ASPECT, FALSE RESTRICTIVE) -The aspect of a signal that conveys an indication more restrictive than intended.

FAULT TREE ANALYSIS - A deductive analysis procedure which graphically presents undesired events to determine possible causes of that event.

FIXED SIGNAL (See SIGNAL, WAYSIDE) - A signal of fixed location along the track right-of-way.

FLAGMEN - A person assigned to control movement of trains by the display of hand signals, flags, or lights.

FLEETING - Manually established route selection, not canceled by the passage of a train.

FOULING POINT - The track location beyond which the train will block an adjacent track or roadway.

FROG, MOVABLE POINT - A frog equipped with points which are movable in the same manner as the points of a switch.

FROG, TRACK - A track structure used, at the intersection of two running rails, to provide support for wheels and passageways for their flanges, thus permitting wheels on either rail to cross the other.

FULL SERVICE BRAKE APPLICATION (See BRAKING, FULL SERVICE) - A non-emergency brake application which obtains the maximum brake rate consistent with the design of the primary brake system(s).

G

GATE - Entrance to a block or route where signal information is conveyed.

GATE, FIXED (END OF CAB SIGNAL/TRAIN CONTROL TERRITORY) - The limit of an interlocked route past which automatic operation of trains is never permitted.

GROUND DETECTOR (See DETECTOR, GROUND) - A device for detecting a ground on an electrical circuit.

GUARD (See CONDUCTOR) - An onboard train attendant whose function is to operate doors and otherwise assist in passenger movement and safety.

H

HAND BRAKE - A train braking device manually applied to prevent vehicle movement, or to provide emergency braking (See also BRAKE, PARKING).

HAND-THROWN SWITCH (See SWITCH, HAND OPERATED) -A switch which can only be operated manually.

HAND SIGNAL (See SIGNAL, HAND) - A manual signal used to govern the movement of trains.

HAZARD - Any real or potential condition that can cause injury or death, or damage to or loss of equipment or property.

HAZARD ANALYSIS - A systematic analysis of a system operation performed to identify hazards and make recommendations for their elimination or control during all lifecycle phases.

HAZARD CRITICALITY - The minimum hazard risk or index value which can be accepted for a given potential hazardous situation.

HAZARD INDEX - A quantitative measure, combining the numerical probability of occurrence with a hazard severity.

HAZARD MANAGEMENT (LOSS CONTROL) - An element of the system safety management function that evaluates the safety effects of potential hazards considering acceptance, control, or elimination of such hazards with respect to expenditure or resources. (The feasibility of hazard elimination must be considered in light of financial, legal, and human considerations.)

HAZARD PROBABILITY - The probability that a hazard will occur during the planned life of the system. Hazard probability may be expressed in quantitative or qualitative terms. An example of a hazard probability ranking system is:

- A Frequent
- B Probable
- C Occasional
- D Remote
- E Improbable
- F Impossible

HAZARD RESOLUTION - The analysis and subsequent actions taken to reduce, to the lowest level practical, the risk associated with an identified hazard.

HAZARD SEVERITY - A qualitative measure of the worst potential consequences that could be caused by a specific hazard.

Category I - catastrophic. May cause death or system loss.

Category II - critical. May cause severe injury, severe occupational illness, or major system damage.

Category III - marginal. May cause minor injury, occupational illness, or system damage.

Category IV - negligible. Will not result in injury, occupational illness, or system damage.

HEADWAY - The time separation between two trains, both traveling in the same direction on the same track, measured from the time the head end of the leading train passes a given reference point to the time the head end of the train immediately following passes the same reference point.

HEADWAY CONTROL - The means by which the desired headway is maintained.

HOLDING LIGHTS - Indicators at wayside stations which, in conjunction with manual or automatic train dispatchers, are used to maintain scheduled train operation.

HOME SIGNAL (See SIGNAL, HOME) - A fixed signal at the entrance of a route or block to govern trains entering

that route or block.

IMPEDANCE; BALLAST - The impedance shunting a track circuit due to the condition of the ballast.

IMPEDANCE BOND (See BOND, IMPEDANCE) - An iron core coil of low resistance and relatively high reactance, used to provide a continuous path for the return propulsion current around insulated joints and to confine the alternating current signaling energy to its own track circuit.

IMPEDANCE, SHUNT - Impedance between rails presented by a train's wheels and axles and the wheel/rail interface.

IN ADVANCE OF A SIGNAL - The territory beyond a signal as seen from an approaching train.

IN APPROACH OF A SIGNAL - The territory to which a signal indication is conveyed.

INCIDENT - An unforeseen event or occurrence which does not necessarily result in death, injury, contact, or property damage.

INDICATION LOCKING (See LOCKING, INDICATION) - Electric locking of control circuits which prevents actions that would result in an unsafe condition for a train movement if a signal, switch, or other operative unit fails to make a movement corresponding to a control command

INDICATION, SIGNAL - The information conveyed by the aspect of a signal.

INDICATOR, APPROACH - An indicator used to indicate the approach of a train.

INDICATOR, AUDIBLE (See SIGNAL, AUDIBLE) - A soundproducing device used for attracting attention.

INDICATOR, CAB (See SIGNAL, CAB) - A signal in the train operator's cab which conveys the automatic block aspects and indicates the prevailing speed command.

INDICATOR, CAB; AUDIBLE - An alerting device, located in cab equipped with cab signals, designed to sound when cab signal changes and continues to sound until acknowledged.

INDICATOR, SPEED - An analog or digital speedometer mounted in cab.

INDICATOR, SWITCH (POSITION) - An indicator used to indicate the position of switch points.

INDUCTIVE ANALYSIS - An analysis which determines the impact of specific events or failures on a system (A bottom-up approach. "What happens if a specific event or failure occurs?")

INSULATED RAIL JOINT (See JOINT, RAIL; INSULATED) - A rail joint in which electrical insulation is provided between adjoining rails.

INTERFACE - The junction points or the points within or between systems or subsystems where matching or accommodation must be properly achieved in order to make their operation compatible with the successful operation of all other functional entities.

INTERLOCKED SWITCH (See SWITCH, INTERLOCKED) - A track switch within interlocking limits, the control of which is interlocked with other functions of the interlocking.

INTERLOCKING - An arrangement of signals and signal appliances so interconnected that their movements must succeed each other in proper sequence.

INTERLOCKING, AUTOMATIC - An interlocking controlled by circuit logic so that movements occur in the proper sequence without need for manual control.

INTERLOCKING LIMITS (See LIMITS, INTERLOCKING) - The tracks between the absolute signals of an interlocking.

INTERLOCKING, MANUAL - An interlocking operated manually from an interlocking machine interconnected by means of mechanical linkages or electrical circuits.

INTERLOCKING SIGNAL (See SIGNAL, INTERLOCKING) - A wayside signal which governs movements into or within interlocking limits.

JERK - The time rate of change of acceleration.

JOINT, RAIL; INSULATED (See INSULATED JOINT RAIL) - A rail joint in which electrical insulation is provided between adjoining rails.

JUNCTION - A location where train routes converge or diverge.

K

KEY-BY - The act of overriding a stop signal by activating a key operated relay.

L

LAP - The position of a brake valve in which the pressure being control led is being neither increased nor decreased.

LAY-UP (STORAGE) - The act of storing cars of a train.

LIFE CYCLIC - The acquisition and operations stages of a system's evolution. The phases of development of a system typically include the concept, design, development, production and deployment, and deposition efforts.

LIMITS, INTERLOCKING - The tracks between the absolute signals of an interlocking.

LINE SUPERVISION (See AUTOMATIC TRAIN SUPERVISION; CENTRAL CONTROL)

LOCKING - The electrical or mechanical establishment of a condition for a switch, interlocked route, speed limit or automatic function so that its state cannot be altered except by prescribed and inviolate sequence of unlocking.

M

MAINLINE - Track over which passenger service is operated.

MAINTAINABILITY - The quality of the combined features of equipment design and installation that facilitates the accomplishment of inspection, test, checkout, servicing, repair, and overhaul with a minimum of time, skill, and resources in the planned maintenance environments.

MAINTENANCE - All actions necessary for retaining an item in or restoring it to an operable condition.

MAINTENANCE, CORRECTIVE - The action taken to restore a failed item of equipment to an operable state.

MAINTENANCE, PREVENTIVE - The actions performed in an attempt to retain an item in a specified condition by providing systematic inspection, detection and prevention of incipient failure.

MAINTENANCE, SCHEDULED- Programmed preventive maintenance.

MAINTENANCE, UNSCHEDULED - Maintenance action (unscheduled maintenance) initiated by the malfunction of equipment.

MALFUNCTION - Any anomaly or failure wherein the system, subsystem, or component fails to function as intended.

MANAGING ACTIVITY - The organizational element that will plan, organize, direct, contract, and control tasks and associated functions appropriate to the life cycle phase of the system.

MANUAL BLOCK SIGNAL, SYSTEM (See SYSTEM, MANUAL BLOCK) - A block signal system operated manually, usually based on information communicated by telegraph or telephone.

MANUAL TRAIN CONTROL - An operating mode in which the train responds to the actions of its operator through manipulation of the brake valve or master controller.

MAXIMUM AUTHORIZED SPEED (See SPEED, MAXIMUM AUTHORIZED) - The highest speed limit which is authorized for a particular section of track.

MASTER CONTROLLER (See CONTROLLER, MASTER) - The device which generates local and trainlined signals to the vehicle control system.

MEAN LIFE - The arithmetic mean of time to wear out of all items in the test sample or population.

MEAN CYCLES BETWEEN FAILURES (MCBF) - The arithmetic mean of the number of cycles between successive failures of a repairable device.

MEAN DISTANCE BETWEEN FAILURES (MDBF) - The arithmetic mean of the distance traveled between successive failures of a repairable vehicle.

MEAN DOWN TIME (MDT) - The arithmetic mean of the time that the device remains in an inoperable state after it has failed.

MEAN MAINTENANCE TIME - The arithmetic mean of the time required to perform a maintenance action.

MEAN TIME BETWEEN FAILURES (MTBF) - The arithmetic mean of the time between successive failures.

MEAN TIME BETWEEN SERVICE FAILURES (MTBSF) - The arithmetic mean of the time between failures which interrupt or impact service operations.

MEAN TIME BETWEEN SERVICE INTERRUPTING FAILURES (MTBSIF) (See MTBSP')

MISHAP - An unplanned event or series of events that result in death, injury, occupational illness, or damage to or loss of equipment or property. (See also ACCIDENT)

MODE, AUTOMATIC TRAIN OPERATION (See AUTOMATIC TRAIN OPERATION) - That subsystem within the automatic train control system which performs any or all of the functions of speed regulation, programmed stopping, door control, performance level regulation and other functions normally assigned to the train operator.

MODE, CAB SIGNAL - A form of manual train control wherein the operator controls the speed of the vehicle in accordance with signal aspects displayed on the cab signal indicator.

MODE, MANUAL (See MANUAL TRAIN CONTROL) - An operating mode in which the train responds to the actions of its operator through manipulation of the brake valve or master controller.

MODE, WAYSIDE SIGNAL - A form of manual train control wherein the operator controls the speed of the vehicle in accordance with the indications given by wayside signals.

MOTORMAN (See OPERATOR) - That person having direct and immediate control of the movement of a train.

MOVEMENT, FACING - The movement of a train over the points of a switch which face in a direction opposite to that in which the train is moving.

MOVEMENT, TRAILING - The movement of a train over the points of a switch which face in a direction in which the train is moving.

MULTIPLE UNIT (MU) (OPERATION, CONTROL) - A method of controlling the actions of the propulsion, braking, and other systems of two or more cars of the train from a single cab.

N

NAME, SIGNAL - The term used to describe the signal aspect.

NOISE, ELECTRICAL - Interference produced by undesirable or casual electrical occurrences.

NORMAL DIRECTION (See DIRECTION, NORMAL) - The designed predominant direction of train movement as specified by the rules.

NORMAL POSITION (See POSITION, NORMAL,) - The position in which a switch is aligned for train movement continuing on the same track.

O

OPEN LOOP - No feedback control.

OPERATING EMPLOYEE - The employee of a transit system having direct and supervisory responsibility for the movement of trains.

OPERATING TIME - The time period between turn-on and turnoff of a system, subsystem, component or part during which lime operation is as specified. Total operating time is the summation of all operating time periods.

OPERATIONAL PHASE - The post construction phase where designed project function is achieved and maintenance requirements begin

OPERATIONAL HAZARD ANALYSIS (OVA) - Identifies and evaluates hazards resulting from the implementation of operations or tasks performed by persons, considering: operation, test, maintenance, repair transportation, handling, emplacement or removal of the system.

OPERATOR - That person having direct and immediate control of the movement of a train.

OVERSPEED CONTROL - That portion of the carborne automatic train control system which enforces speed limits.

P

PERFORMANCE LEVEL. (TRAIN) - A command, generally instituted by line supervision, which will vary train speed or running time from normal to achieve the desired schedule speed or headway.

PHANTOM SIGNAL - An unexplained aspect displayed by light signal different from the aspect intended.

POINT DETECTOR (See DETECTOR, POINT) - A circuit controller which is part of a switch operating mechanism and operated by a rod connected to a switch, derail, or movable point frog to indicate that the point is within a specified distance of the stock rail.

POINTS (See SWITCH POINT) - A movable tapered track rail, the point of which is designed to fit against the stock rail.

POSITION, NORMAL - The predetermined position in which a switch is aligned when not in use.

POSITION, REVERSE - The opposite to normal position.

POWER RAIL (See THIRD RAIL) - A rail mounted on insulators alongside the running rail which provides traction power for train propulsion.

POWER (TRACTION) SYSTEM - The substations, feeder cables, contact rails or wires, switch gear and other equipment interfacing with public utilities or other power generation equipment and providing the electrical power for the movement of the trains and the operation of their auxiliary systems.

PRELIMINARY HAZARD ANALYSIS (PICA) - An analysis performed to obtain an initial risk assessment of a concept or system.

PROCEED SIGNAL, (See SIGNAL,, PROCEED) - A wayside or cab signal displaying any aspect which conveys an indication which permits a train to move.

PROCEDURES - Established methods to perform a series of tasks.

PROGRAM STOP (See STOP, PROGRAMMED) - A train stop preceded by closed-loop braking such that the train is stopped at a designated point according to a predetermined speed-distance profile.

Q

QUALITATIVE - Those inductive or deductive analytical approaches which are oriented toward relative, non-measurable and subjective values.

QUALITY ASSURANCE - The planned and systematic pattern of all actions necessary to provide adequate confidence that the end items will perform satisfactorily in actual operations.

QUALITY CONTROL - The discipline which insures the manufacture of a uniform product within specified defect limits in accordance with design requirements.

QUANTITATIVE - Those inductive or deductive analytical approaches which are oriented toward the use of numbers or symbols used to express a measurable quantity.

R

RAIL RAPID TRANSIT SYSTEM - An electrified fixed guideway transportation system, utilizing steel rails, usually operating on an exclusive grade-separated right-of-way for the mass movement of passengers within a city or metropolitan area and consisting of its fixed way, transit vehicles and other rolling stock, power system, maintenance facilities, and other stationary and movable apparatus and equipment, and its operating practices and personnel:

RATE, ACCELERATION - Time rate of change of speed of a vehicle.

RATE, BRAKE - The negative time rate of change of speed of a vehicle as produced solely by the action of its braking system, or systems in combination.

RATE, DECELERATION - The net negative time rate of change of speed of a vehicle resulting from the summation of all forces acting upon it.

REACTION TIME (See TIME, REACTION) - The time used by equipment, operator, or both, that elapses between the moment an action is called for and when the desired result occurs.

RECEIVER, TRACK CIRCUIT - A device on the wayside which receives track signal currents for the purpose of occupancy detection.

RECEIVER, TRAIN CONTROL - A device on a vehicle so placed that it is in position to be influenced inductively or actuated by an automatic train control or cab signal roadway element.

REDUNDANCY - The existence in a system of more than one means of accomplishing a given function.

REGULATOR, SPEED - An on-board vehicle subsystem, generally but not necessarily a part of the automatic train operation system, which controls acceleration and braking efforts in order for the vehicle to reach and maintain a desired speed within a desired tolerance.

RELAY - An electromagnetic device which is opened and closed to provide control system electrical signals.

RELAY, VITAL - A relay, meeting certain stringent specifications, so designed that the probability of its failing to return to the prescribed state upon dc-energization is so low as to be considered, for all practical purposes, nonexistent.

RELIABILITY - The probability that the system or sub system will perform satisfactorily for a given period of time when used under stated conditions.

RELIABILITY, ACHIEVED - The reliability level which has actually been attained at some point in time.

RELIABILITY ASSESSMENT - An analytical determination of numerical reliability of a system or portion thereof without actual demonstration testing. Such assessments usually employ mathematical modeling, use of available test results, and some use of estimated reliability figures.

RELIABILITY BLOCK DIAGRAM - A schematic representation which portrays system operation by showing all possible success paths.

RELIABILITY GOAL - A preset reliability objective determined by consideration of operational needs, state-of-the-art capability, cost, time, etc. The goal can be a minimum acceptable level, an expected program accomplishment or an idealistic target.

REPAIR - The maintenance activity which restores a failed item to an operable state.

RESIDUAL HAZARD - A hazard that remains after system design and construction is completed.

RESISTANCE, BALLAST (See IMPEDANCE, BALLAST) - The impedance shunting a track circuit due to the condition of the ballast.

RESISTANCE, TRAIN SHUNT - The actual resistance in ohms from rail to rail through wheels and axles of a vehicle and the wheel/rail interface.

RESTRICTED SPEED (See SPIKED, RESTRICTED) - Proceeding prepared to stop short of train ahead, switch not properly aligned, broken rail or other obstruction, at a speed established by individual transit systems but not to exceed 20 mph.

REVENUE SERVICE - The transportation of fare paying passengers.

REVERSE DIRECTION (See DIRECTION, REVERSE) - Train movement in the direction opposite to the normal direction.

REVERSE RUNNING - The operation of a train in the direction opposite to the normal direction.

REVERSIBLE TRACK (See TRACK, REVERSIBLE)

RISK - An expression of possible loss over a specific period of time or number of operational cycles. It may be indicated in terms of hazard severity and probability.

ROUTE - The path a train will travel between two controlled interlocking signals.

ROUTE, INTERLOCKED; INTERLOCKING - A route within interlocking limits.

ROUTES, CONFLICTING - Two or more routes, opposing, converging or intersecting, over which movements cannot be made simultaneously without possibility of collision.

RULE - A law or order authoritatively governing conduct or action.

SAFE - Secure from danger or loss.

SAFETY - Freedom from danger; a reasonable degree of freedom from those conditions that can cause injury or death to personnel, damage to or loss of equipment or property.

SAFETY CHECKLIST - A list for examining the safety aspects of equipment, procedures, and personnel.

SAFETY CRITICAL - A designation placed on a system, subsystem, element, component, device, or function denoting that satisfactory operation of such is mandatory to assurance of patron, personnel, equipment, or facility safety. Such a designation dictates incorporation of special safety design features.

SAFETY DEVICES - Protective devices which do not alter the fundamental nature of a hazard but which do control the extent of the hazard in some manner.

SCHEDULED MAINTENANCE (See MAINTENANCE, SCHEDULED) - Programmed preventive maintenance.

SECTION, DEAD - A section of track, either within a track circuit or between two track circuits, the rails of which are not part of a track circuit.

SECTIONAL RELEASE: (OF LOCKING) (SEE LOCKING, TRAILING RELEASE OF) - Locking so arranged

that as a train clears a track section of the route, the locking affecting that section is released.

SECURITY - Freedom from intentional danger.

SERVICE BRAKE APPLICATION - Any non-emergency brake application.

SERVICE DEPENDABILITY - The combination of reliability and maintainability characteristics of a system that describes on-time system performance probability.

SERVICE BRAKE (See also BRAKING, SERVICE) - The primary train brake system(s).

SHUNT - A bypass in an electrical circuit.

SHUNT CIRCUIT - A low-resistance connection across the source of supply, between it and the operating unit.

SHUNT IMPEDANCE (See IMPEDANCE, SHUNT) - Impedance between rails presented by a train's wheels and axles and the wheel/rail interface.

SHUNTING SENSITIVITY - The maximum impedance in ohms which, when placed at the most adverse shunting location, will cause the track circuit to indicate the presence of a train.

SIGNAL - A means of communicating direction or warning.

SIGNAL, APPROACH - A fixed signal used in connection with one or more signals to govern the approach thereto.

SIGNAL, AUDIBLE - A sound-producing device used for attracting attention.

SIGNAL, AUTOMATIC - A signal activated without need for manual action.

SIGNAL, ASPECT (See ASPECT) - The display or presentation of a wayside signal that provides an indication viewed from the direction of an approaching train; the appearance of a cab signal conveying an indication as viewed by an operator in the cab.

SIGNAL BLOCK - A fixed signal at the entrance to a block to govern trains entering that block.

SIGNAL, CAB - A signal in the train operator's cab which conveys the automatic block aspects and indicates the prevailing speed command.

SIGNAL, CALL-ON - An interlocked signal aspect which permits a train to enter an occupied block at restricted speed.

SIGNAL, CLEARED - A signal which has been caused to display an aspect to proceed,

SIGNAL, COLOR LIGHT - Signals which display aspects by means of lighted color lenses.

SIGNAL, FIXED (See SIGNAL, WAYSIDE) - A signal of fixed location along the track right-of-way.

SIGNAL, HAND - A manual signal used to govern the movement of trains.

SIGNAL, HOME - A fixed signal at the entrance to a route or block to govern trains entering that route or block.

SIGNAL INDICATION (See INDICATION, SIGNAL) - The information conveyed by the aspect of a signal.

SIGNAL, INTERLOCKING - A wayside signal which governs movements into or within interlocking limits.

SIGNAL NAME (See NAME, SIGNAL) - The term used to describe the signal aspect.

SIGNAL, PROCEED - A wayside or cab signal displaying any aspect which conveys an indication which permits a train to move.

SIGNAL, STOP - A signal which displays the most restrictive aspect indicating stop.

SIGNAL, TIME - A signal which controls train speed by requiring that a certain time elapse in an approach block.

SIGNAL, WAYSIDE - A signal of fixed location along the track right-of-way.

SIGNALS, OPPOSING- Wayside signals which govern train movements in opposite directions on the same track.

SLIDE (WHEEL,) - The condition wherein the wheel tread speed is less than train speed.

SLIP (WHEEL) - The condition wherein the wheel tread speed is greater than the train speed.

SLIP-SLIDE SYSTEM - An on-board system for detecting and correcting wheel slips and slides.

SPEED COMMAND - That speed limit being imposed upon a train at a given point in time by the automatic train control systems.

SPEED, CAR WASH - The speed prescribed for cars to move through a car wash; usually an automatic feature in the train control circuitry.

SPEED LIMIT - A prescribed maximum speed.

SPEED LIMIT, CIVIL- The maximum speed allowed in a specified section of track as determined by physical limitations of the track structure, train design, and passenger comfort.

SPEED, RESTRICTED - The speed during which train operation is conducted, prepared to stop short of train ahead, improperly aligned switch, broken rail or other destruction. This speed is established by individual transit systems but it is not to exceed 20 mph.

SPEED, YARD - A speed, used within yard limits, that will permit stopping within one-half the range of vision.

SPEED MAINTAINING - The automatic action of a speed regulator.

SPEED PROFILE - A plot of speed against distance traveled.

SPEED REGULATION (See SPEED MAINTAINING) - The automatic action of a speed regulator.

SPEED REGULATOR (See REGULATOR, SPEED) - An on-board vehicle subsystem, generally but not necessarily a part of the automatic train operation system, which controls acceleration and braking effort in order for the vehicle to reach and maintain a desired speed within a desired tolerance.

SPEED RECORDER - A device for continuously recording the speed of a train.

SPEED SENSOR - A device which detects axle, gear, or motor speed, and produces a signal at a frequency proportional to that speed.

SPOTTING - Placing a train in a designated or specific location.

SPRING SWITCH - A track switch equipped with a spring mechanism arranged to restore points (if necessary) to a predetermined position after it has been trailed through.

STATION - A place designated for the purpose of loading and unloading passengers.

STOCK RAIL - The rail against which the point of a switch, derail, or movable point frog rests.

STOPPING DISTANCE (See DISTANCE, STOPPING) - The maximum distance on a portion of track, which any train, operating on such portion of track at its maximum authorized speed, will travel during a full service application of the brakes, between the point where such application is initiated and the point where the train comes to a stop. (Also referred to as Safe Braking Distance)

STOP, ABSOLUTE - A signal indication which requires a train to stop and stay stopped.

STOP, EMERGENCY - The stopping of a train by an emergency brake application which, after initiated, cannot be released until the train has stopped.

STOP, PROGRAMMED - A train stop produced by closed-loop braking such that the train is stopped at a designated point according to a predetermined speed-distance profile.

STOP, SERVICE (FULL) - A train stop achieved by a brake application, other than emergency, that develops the (maximum) brake rate.

STOP, TRAIN PROTECTION - A train stop, initiated by the automatic train protection system.

STOP AND PROCEED - A signal indication to stop and then proceed with certain cautions not to exceed a designated speed.

STOP SIGNAL (See SIGNAL, STOP).- A signal which displays the most restrictive aspect indicating stop.

SUBSYSTEM - A major functional subassembly or grouping of items or equipment which is essential to operational completeness of a system.

SUBSYSTEM HAZARD ANALYSIS (SSHA) - An analysis applied to some element of the system to identify hazards associated with component failures.

SWITCH, FACING POINT - A track switch the points of which face toward approaching traffic.

SWITCH, HAND OPERATED - A non-interlocked switch which can be operated only manually.

SWITCH, INTERLOCKED - A track switch within the interlocking limits, the control of which is interlocked with other functions of the interlocking.

SWITCH INDICATOR (See INDICATOR, SWITCH (POSITION) -An indicator used to indicate the position of switch points.

SWITCH POINT - A movable tapered track rail, the point of which is designed to fit against the stock rail.

SWITCH POSITION, NORMAL, - The position in which a switch is aligned for train movement continuing in the same direction.

SWITCH POSITION, REVERSE - The opposite to normal position.

SWITCH, TRACK - A pair of switch points which, with their **fastenings** and operating rods, provide the means for establishing a route from one track to another.

SWITCH, TRAILING POINT (See TRAILING POINT SWITCH) - A track switch, the points of which face away from traffic approaching.

SYSTEM - A composite of people, procedures and equipment which are integrated to perform a specific operational task or function within a specific environment.

SYSTEM, AUTOMATIC BLOCK SIGNAL, (ABS) - A series of consecutive blocks governed by block signals, cab signals, or both, actuated by train movement or by certain conditions affecting the use of a block.

SYSTEM, AUTOMATIC CAB SIGNAL - An automatic block signal system in which cab signals are provided.

SYSTEM, AUTOMATIC TRAIN CONTROL - A system which enforces speed restrictions and prevents exceeding speed restrictions by automatic brake applications; may additionally encompass automatic train operation, automatic train protection, and automatic train supervision.

SYSTEM, AUTOMATIC TRAIN STOP - A system in which the train is brought to a stop through automatic brake application if imposed restrictions are ignored.

SYSTEM, BLOCK SIGNAL - A method of governing the movement of trains into or within one or more blocks by block signals and/or cab signals.

SYSTEM, MANUAL BLOCK SIGNAL - A block signal system operated manually, usually based on information communicated by telegraph or telephone.

SYSTEM SAFETY - The application of operating, technical, and management techniques and principles to the safety aspects of a system throughout its life to reduce hazards to the lowest practical level through the most effective use of available resources.

SYSTEM HAZARD ANALYSIS (SHA) - An Analysis performed on subsystem interfaces to determine the safety problem areas of the total system.

SYSTEM SAFETY ANALYSES - inductive and deductive procedures in which hazards are identified and analyzed.

SYSTEM SAFETY ENGINEERING (SHA) - The application of **scientific** and engineering principles during the design, development, construction, and operation of a system to meet or exceed established safety goals by identifying and restoring hazards.

SYSTEM SAFETY MANAGEMENT - An element of management that defines the system safety requirements and ensures the planning, implementation and accomplishment of system safety tasks and activities.

SYSTEM SAFETY PROGRAM - The combined tasks and activities of system safety management and system safety engineering that enhance operational effectiveness by satisfying the system safety requirements in a timely, cost-effective manner throughout all phases of a system life-cycle.

T

THIRD RAIL - A rail mounted on insulators alongside the running rail which provides traction power for train

propulsion.

THIRD-RAIL SHOE - A truck-mounted power pickup device which slides on top of, on the side of, or under, the third rail.

TIME, DOWN - The total time during which the equipment is not in acceptable operating condition. Down time starts with a failure event and ends at the completion of repair and functional checks/inspections.

TIME, REACTION The time used by equipment, operator, or both, that elapses between the moment an action is called for and when the desired result occurs.

TIME, RELEASE - A device used to prevent the operation of a unit until after the expiration of a predetermined time interval after the device has been actuated.

TIME, UP - The time during which equipment is either operating satisfactorily or is in an operable state and ready to be placed in operation. Up time is initiated by a completion of repair and is terminated by a failure event.

TRACK BRAKE - A friction brake, usually activated electromagnetically, which compresses against the running rails.

TRACK INDICATOR- A device used to indicate the occupancy of a given track section.

TRACK RELAY - A relay receiving all or part of its operating energy through conductors of which the track rails are an essential part.

TRACK SWITCH (See **SWITCH, TRACK**) - A pair of switch points which, with their fastenings and operating rods, provide the means for establishing a route from one track to another.

TRACK, TRANSFER - A track in a yard area where the transfer between main track and manual yard modes of operation takes place.

TRAFFIC DIRECTION (See **DIRECTION, NORMAL**) - The designed predominant direction of train movement as specified by the rules.

TRAILING MOVEMENT (see **MOVEMENT, TRAILING**) - The movement of a train over the points of a switch which face in a direction in which the train is moving.

TRAILING POINT SWITCH - A track switch, the points of which face away from traffic approaching.

TRAIN - A consist of one or more cars combined into an operating unit. (See also **CONSIST**)

TRAIN CONTROL RECEIVER (See **RECEIVER, TRAIN CONTROL**) - A device on a vehicle so placed that it is in position to be influenced inductively or actuated by an automatic train control or cab signal roadway element.

TRAIN DEFECTION - A method by which the presence of a train in a block is known.

TRAIN IDENTIFICATION - A method of identifying trains using information such as train number, destination, length, or a combination of these elements. May be accomplished automatically for such functions as routing.

TRAIN LENGTH - The number of units (cars) in a train.

TRAINLINE - Circuits routed between cars by means of couplers or jumper cables so that power or control signals may be transmitted to other cars of the train.

TRAIN NUMBER - Numerical designation of a train.

TRAIN, OPPOSING - A train, the movement of which is in a direction opposite to and toward another train on the same track.

TRAIN ORDERS - Instructions, usually written, used to govern train operations manually.

TRAIN PROTECTION (See AUTOMATIC TRAIN PROTECTION) - That subsystem within the automatic train control system which maintains safe train operations through a combination of train detection, train separation, and interlocking.

TRANSIT CAR, RAIL RAPID - An electrically propelled passenger carrying rail vehicle.

TRANSIT SYSTEM (See RAIL RAPID TRANSIT SYSTEM) - An electrified fixed guideway transportation system, utilizing steel rails, usually operating on an exclusive grade-separated right-of-way for the mass movement of passengers within a city or metropolitan area and consisting of its fixed way, transit vehicles and other rolling stock, power system, maintenance facilities, and other stationary and movable apparatus and equipment, and its operating practices and personnel.

TREAD BRAKE UNIT - A unit composed of brake shoe and apparatus to apply the brake shoe to the wheel tread.

TRIP COCK - A mechanical device located on the train which, when hit by a trip stop, results in an emergency brake application.

TRIP STOP (ARM) - A mechanical arm located on the wayside which, when in the up (trip) position, initiates an emergency brake application on a train which passes it.

TRIP STOP, FIXED - A trip stop permanently positioned in the tripping position.

TROLLEY WIRE (See CATENARY) - An overhead wire from which a transit vehicle collects propulsion and auxiliary power.

TURNOUT - An arrangement of a switch and frog with closure rails by means of which trains may be diverted from one track to another.

U

UNSAFE CONDITION OR ACT - Any condition or act which does endanger human life or property.

UNSCHEDULED MAINTENANCE (See MAINTENANCE, UNSCHEDULED) - Maintenance action initiated by the malfunction of equipment.

UP TIME (See TIME, UP) - The time during which an equipment is either operating satisfactorily or is in an operable state and ready to be placed in operation. Up time is initiated by a completion of repair and is terminated by a failure event.

UP TIME RATIO (STEADY STATE AVAILABILITY) - The ratio of system up time to the total time. It is also expressed in terms of means as:

MTBF
MTBF + MUIR

V

VALVE, BRAKE - A separate operator's control for the purpose of applying and releasing pneumatic friction brakes.

VEHICLE (See TRANSIT CAR) - An electrically propelled, passenger carrying rail vehicle.

VITAL CIRCUIT (See CIRCUIT, VITAL) - Any circuit which affects the safety of train operations.

VITAL COMPONENT OR CIRCUIT - Any device, circuit or software module used to implement a vital function.

VITAL FUNCTION - A system, subsystem, equipment, or component that provides a function critical to safety.

W

WARNING DEVICES - Sensors that monitor or detect conditions and provide visible and/or audible alerting signals as desired for selected events.

WAYSIDE EQUIPMENT (See EQUIPMENT, WAYSIDE) - Train control or movement apparatus which is located along the track or wayside as opposed to the control center or other remote location.

WAYSIDE SIGNAL (See SIGNAL, WAYSIDE) - A signal of fixed location along the track right-of-way.

WAYSIDE TRAIN STOP (See TRIP STOP) - A mechanical arm located on the wayside which, when in the up (trip) position, initiates an emergency brake application on a train which passes it.

X

Y

YARD-A system of tracks within defined limits for making up trains and storing cars.

YARD SPEED (See SPEED, YARD)- A speed, used within yard limits, that will permit stopping within one-half the range of vision.

Z

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Section Six

Statutes, Rules, and Regulations

6-1 Florida Statutes for Public Transit Safety

6-2 Florida Administrative Codes

14-90: Bus Transit Safety

**14-55: Fixed-Guideway Transportation System
Safety**

**6-3 U.S. Department of Transportation, Federal Transit
Administration: 49 CFR Part 659**

Section 6-1
Florida Statutes for Public Transit Safety

341.061 Transit safety standards; inspections and system safety reviews.

(1)

(a) The department shall adopt by rule minimum safety standards for governmentally owned fixed-guideway transportation systems and privately owned or operated fixed-guideway transportation systems operating in this state which are financed wholly or partly by state funds. Standards must be site-specific for fixed-guideway transportation systems and shall be developed jointly by the department and representatives of the affected systems, giving full consideration to nationwide industry safety norms relating to the development and operation of fixed-guideway transportation systems.

(b) Each fixed-guideway transportation system shall develop a safety program plan that complies with established standards and shall certify to the department that the plan complies with the standards. Following certification to the department, the fixed-guideway transportation system shall implement and comply with the plan during the development and operation of the system. Each fixed-guideway transportation system shall verify annually in writing to the department that it has complied with its adopted safety program plan.

(c) Before beginning passenger service operations, a fixed-guideway transportation system must certify in writing to the department that the system is safe for passenger service. Further, before a fixed-guideway transportation system the operations of which have been suspended as a result of noncompliance with established standards returns to service, the system must certify in writing to the department that the system is safe for passenger service.

(d) If a fixed-guideway transportation system does not comply with paragraph (b) or paragraph (c) or if, upon certification by a fixed-guideway transportation system, the department has good cause to believe that the system is not complying with its adopted safety program plan or is not safe for passenger service, the department may conduct a review of the system for safety compliance. Upon completion of its review, the department shall provide a copy of the review report to the affected system. Any adverse findings and any corrective actions required and the time allowed for such actions must be stated in the report. If

at any time continued operation of the system, or a portion thereof, poses an immediate danger to public safety, the system operator shall suspend affected system service until corrective action is taken. If the system operator fails to take corrective action or fails to suspend service when immediate danger to the public exists, the department may require the affected system service to be suspended.

(2)

(a) The department shall adopt by rule minimum equipment and operational safety standards for all governmentally owned bus transit systems and privately owned or operated bus transit systems operating in this state that are financed wholly or partly by state funds, all bus transit systems created pursuant to chapter 427, and all privately owned or operated bus transit systems under contract with any of the foregoing systems. Standards for bus transit systems shall be developed jointly by the department and representatives of the transit systems. Each such bus transit system shall develop a transit safety program plan that complies with established standards and shall certify to the department that the plan complies with the standards. Following certification to the department, the bus transit system shall implement and comply with the plan during the operation of the transit system.

(b) Each bus transit system shall, as part of the safety program plan, require that all transit buses operated by the system be inspected at least annually in accordance with established standards. Qualified personnel of the bus transit system or public or private entities qualified by the bus transit system shall perform safety inspections. Each bus transit system shall certify annually in writing to the department that it has complied with its adopted safety program plan and, as part of that plan, that safety inspections have been performed by a qualified entity at least once that year on all transit buses operated by such system.

(c) If a bus transit system does not comply with paragraph (a) or paragraph (b) or if, upon certification by a bus transit system, the department has good cause to believe that the system is not complying with its adopted safety program plan or is not safe for passenger service, the department may conduct a review

of the system for safety compliance. Upon completion of its review, the department shall provide a copy of the review report to the affected system. Any adverse findings and any corrective actions required and the time allowed for such actions must be stated in the report. If at any time continued operation of the system, or a portion thereof, poses an immediate danger to public safety, the system operator shall suspend affected system service until corrective action is taken. If the system operator fails to take corrective action or fails to suspend service when immediate danger to the public exists, the department may require the affected system service to be suspended.

History.--s. 6, ch. 84-340; s. 37, ch. 86-243.

Section 6-2
Florida Administrative Codes

**CHAPTER 14-90
EQUIPMENT AND OPERATIONAL SAFETY
STANDARDS GOVERNING PUBLIC-SECTOR
BUS TRANSIT SYSTEMS**

- 14-90.001 Scope.
- 14-90.002 Definitions.
- 14-90.003 Department Responsibilities and Authority.
- 14-90.004 Bus Transit System Operational Standards.
- 14-90.0041 Physical Examinations for Drivers.
- 14-90.005 Transit Bus Accidents.
- 14-90.006 Operational and Driving Requirements.
- 14-90.007 Equipment and Devices Required.
- 14-90.008 Standards for Accessible Buses.
- 14-90.009 Public-sector Bus Safety Inspection Procedures.
- 14-90.010 Safety Certification.
- 14-90.011 Inspection of Buses by Law Enforcement Officers.
- 14-90.012 Suspension of Operation.

14-90.001 Scope. These rules provide the minimum equipment and operational safety standards for all governmentally owned bus transit systems and privately owned or operated bus transit systems operating in this state which are financed wholly or partly by State funds; all bus transit systems designated as a Community Transportation Coordinator pursuant to Chapter 427, Florida Statutes; and all privately owned or operated bus transit systems under contract with any of the aforementioned systems. These rules shall not apply to nonpublic-sector buses as defined in Rule Chapter 14-108, Florida Administrative Code, buses used for the transportation of migrant workers, or school buses subject to the provisions of Chapters 234 and 316, Florida Statutes. These rules shall be in addition to all applicable Federal Motor Vehicle Safety Standards and State of Florida Uniform Traffic Control Laws, Chapter 316, Florida Statutes. Every bus transit system shall be knowledgeable of and comply with all safety standards contained in this Rule Chapter which are applicable to that system's operations. Every driver and employee shall be instructed regarding, and shall comply with, all applicable standards contained in this Rule Chapter. Nothing in this Rule Chapter shall be construed to prohibit a bus transit system from establishing and implementing more stringent requirements relating to safety of equipment and operations and employee safety and health. Specific Authority 334.044(2), 341.061(2)(a) FS. Law Implemented 334.044(12), (21), 341.061(2)

FS. History - New 9-7-87, Amended 11-10-92, 8-2-94.

14-90.002 Definitions.

(1) "Accessible Bus" means any vehicle readily accessible to and usable by individuals with disabilities and meeting the requirements of Title 49, Code of Federal Regulations, Part 38, Subpart B – Buses, Vans, and Systems.

(2) "Bus" means any motor vehicle as defined in Subsection 316.003(21) Florida Statutes, other than a taxicab, designed, constructed and used for the transportation of persons for compensation. For purposes of this Rule Chapter, buses are designated in two categories.

(a) Type 1. Over 22 feet in length.

(b) Type 2. 22 feet or less in length. This category shall include all such paratransit type vehicles, i.e., minibuses, vans, modified vans, station wagons, etc., when used for the transportation of persons for compensation.

(3) "Bus Driver" means any person who drives and is in actual physical control of a bus on a street or highway which is being used for the transportation of persons for compensation.

(4) "Bus Transit Systems" means those systems defined in subsections 14-90.002(5), (10) and (13).

(5) "Bus Transit System Created Pursuant to Chapter 427" means any public or private transportation entity designated as a Community Transportation Coordinator pursuant to Chapter 427, Florida Statutes, which provides coordinated transportation services or ensures such services are provided by a transportation operator or private contract bus transit system.

(6) "Department" means the State of Florida Department of Transportation.

(7) "Drive" or "Operate" are terms which include all time spent at the driving controls of a bus in operation.

(8) "FMVSS" means Federal Motor Vehicle Safety Standards in effect at the time the bus or component is manufactured.

(9) "For Compensation" means a return in money, property or of anything of value for service in transporting persons or property by buses over public highways, whether paid,

received or realized, directly or indirectly, and shall specifically be deemed to include any profit in money, goods or things realized from such transportation.

(10) "Governmentally Owned Bus Transit System" means any governmentally owned entity or agency, financed wholly or partly by state funds, that owns, operates, leases, or controls buses.

(11) "Manufacturer of the Chassis" means the original manufacturer of the chassis or the manufacturer of any integral type of bus.

(12) "On Duty" means the status of the driver from the time he or she begins work, or is required to be in readiness to work, until the time the driver is relieved from work and all responsibility for performing work. "On Duty" includes all time spent by the driver as follows:

(a) Waiting to be dispatched at bus transit system terminals, facilities or other private or public property, unless the driver has been relieved from duty by the bus transit system.

(b) Inspecting, servicing or conditioning any vehicle.

(c) Driving.

(d) Remaining in readiness to operate a vehicle (Stand-by).

(e) Repairing, obtaining assistance, or remaining in attendance in or about a disabled vehicle.

(13) "Privately Owned or Operated Bus Transit System That is Financed Wholly or Partly by State Funds" means any private entity or agency that receives operational or capital funding from the state and owns, operates, leases, or controls buses that provide transportation services available for use by the general riding public.

(14) "Privately Owned or Operated Bus Transit System Under Contract" means a private entity or agency which owns, operates, leases, or controls buses or taxicabs and provides transportation services under contract for a bus transit system for compensation where such transportation consists of continuous or recurring transportation under the same contract. This term shall hereinafter be referred to as "private contract bus transit system".

(15) "Public-sector Bus" means a bus which is owned, operated, leased, or controlled by a bus transit system.

(16) "Safe Condition" means a condition where hazards are reduced to the lowest level feasible through the most effective use of

available resources and substantial compliance exists with all safety rules, regulations and requirements.

(17) "Safety Certification" means a formal statement or documentation declaring, verifying or attesting that safety requirements are incorporated in designs, construction, procurement activities, training and operation of a transit system.

(18) "Safety Review" means an on-site assessment to determine if a bus transit system has adequate safety management controls in place and functioning that meet safety standards provided and incorporated by reference in this Rule Chapter.

(19) "Seven Consecutive Days" means the period of seven consecutive twenty-four hour days beginning on any day at a time designated by the bus transit system for a 24 hour period.

(20) "System Safety Program Plan (SSPP)" means a documented organized approach and guide to accomplishing a system safety program.

(21) "Taxicab" means any motor vehicle of a nine passenger capacity or less, including the driver, engaged in the general transportation of persons for compensation on occasional trips, not on a regular schedule or between fixed termini or over regular routes, and such vehicle does not provide transportation services as a result of a contractual agreement with a bus transit system.

(22) "Trailer Bus" means a trailer or semitrailer designed or used for the transportation of more than 10 persons, e.g., tram buses.

(23) "Twenty-four Hour Period" means any 24 consecutive hour period beginning at a time, designated by the bus transit system, from the terminal or location from which the driver is normally dispatched.

(24) "Unsafe Condition" means any condition which endangers human life or property.

(25) "Work Period" means the duration between the time a driver first reports for duty and the time a driver is completely relieved of all duties and is permitted to go off duty for a minimum of eight consecutive hours. The terms "work period" and "on duty" have the same meaning or intent in this rule chapter. Specific Authority 334.044(2), 341.061(2)(a) FS. Law Implemented 341.061(2) FS. History - New 9-7-87, Amended 11-10-92.

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14-90.003 Department Responsibilities and Authority.

(1) The Department shall:

(a) Assure that each bus transit system develops a SSPP that complies with the minimum established standards set forth in this rule chapter.

(b) Assure that all transit buses operated by each bus transit system have received safety inspections at least annually in accordance with standards set forth in this rule chapter.

(2) The Department shall:

(a) Conduct a safety review of any bus transit system which is believed to be in noncompliance with its SSPP or providing passenger service operations in an unsafe condition.

1. Copies of any noncompliance review report shall be provided to the affected transit system.

2. Reports shall state actions required and time allowed for such corrective actions.

(b) Require suspension of system service if continued operation of the system, or a portion thereof, poses an immediate danger to public safety.

(3) The Department reserves the right to conduct on-site safety reviews of a bus transit system's safety performance, including but not limited to review of operational, maintenance and safety inspection records.

Specific Authority 334.044(2), 341.061(2)(a) FS. Law Implemented 341.061(2) FS. History - New 9-7-87, Amended 11-10-92.

14-90.004 Bus Transit System Operational Standards.

(1) Each bus transit system shall:

(a) Develop a SSPP that complies, at a minimum, with established safety standards set forth in this rule chapter. The SSPP plan shall consist of safety considerations and standards for the following:

1. Management
2. Vehicles and equipment
3. Operational functions
4. Driving requirements
5. Maintenance
6. Equipment for transporting wheelchairs
7. Training
8. Federal, State, and Local regulations, ordinances or laws

9. Private contract bus transit system(s) that provide(s) continuous or recurring transportation services for compensation as a

result of a contractual agreement with the bus transit system.

(b) Implement and comply with the SSPP during the operation of the system.

(c) Require that all operable transit buses be inspected at least annually in accordance with established standards.

(d) Assure that safety inspections are performed by personnel qualified by the bus transit system, as specified in 14-90.009(2).

(e) Annually submit a safety certification to the Department verifying the adoption of a SSPP in accordance, at a minimum, with established standards set forth in this rule chapter.

(f) Annually submit a safety certification to the Department verifying compliance with its adopted SSPP and that safety inspections have been performed by a qualified entity at least annually on all buses operated by the system.

(g) Require immediate suspension of affected system service operations, if, at any time, continued operation of the system or a portion thereof, is believed not safe for passenger service or poses a potential danger to public safety.

(2) Bus transit systems that engage in a contract with a private contract bus transit system(s) pursuant to 14-90.004(1)(a)9. shall:

(a) Establish minimum safety standards pursuant to 14-90.004(1)(a) which apply to private contract bus transit system(s), as defined in 14-90.002(14).

(b) Monitor and assure the private contract bus transit system(s) comply(s) with established safety standards while engaged in a contract pursuant to 14-90.004(2).

(3) Bus transit systems shall:

(a) Require that all buses be operated at all times in compliance with applicable traffic regulations, ordinances, and laws of the jurisdiction in which they are being operated.

(b) Require proof of valid license for all employees who drive buses in accordance with Chapter 322, Florida Statutes, and maintain a current legible photostatic record of each driver's license.

(c) Establish driver training and testing to demonstrate an employee's capabilities to safely operate each different type of bus or bus combination before driving on a street or highway unsupervised, i.e., buses requiring different skills for drivers to safely and properly drive. Driver training and testing shall include:

1. Explicit instructional and procedural training regarding operational and driving requirements, defensive driving, equipment inspection and handling of emergencies.

2. A road test of sufficient duration to enable the person who gives it to evaluate the skill of the person who takes it at handling the bus, and associated equipment, that the bus transit system intends for the person to operate.

3. The road test shall be given by the bus transit system or a person designated by it.

4. The road test shall be given by a person who is competent to evaluate and determine whether the person who takes the test has demonstrated the capability of operating the vehicle, and associated equipment, that the bus transit system intends for the person to drive.

(d) Establish driver training for operation of special equipment on buses, such as wheelchair lifts, ramps and wheelchair securement devices, as applicable.

(e) Provide written operational and safety procedures to all drivers before driving on a street or highway unsupervised.

(f) Maintain a current record of the different types of buses and bus special equipment each driver is capable of driving and operating.

(g) Maintain a record of each driver's work period which shall include documentation of the following:

1. Total days worked
2. On-duty hours
3. Driving hours
4. Time of reporting on and off duty each day

(h) Notwithstanding the provisions of Section 316.193, 316.1931, 316.1932, 316.1933, 316.1934, Florida Statutes, pursuant to driving under the influence, each bus transit system shall establish a drug-free workplace policy statement in accordance with Title 49, Code of Federal Regulations, Part 29, "Government-wide Requirements for Drug-Free Workplace (Grants)", Drug Free Workplace Act.

(i) Assure that the SSPP provides for the prevention of an employee to drive, move or cause to be driven or moved, on any street or highway, any bus:

1. Which is in such unsafe condition as to endanger any person or property.
2. Which does not contain those safety parts or is not at all times equipped with safety equipment and devices in proper condition and

adjustment as required by Chapter 316, Florida Statutes, and this rule chapter.

3. Which is equipped in any manner in violation of Chapter 316, Florida Statutes, and this rule chapter.

4. The provisions of this subsection shall not apply to personnel authorized by the bus transit system to temporarily drive, move, or road test a bus to perform repairs or maintenance services and it has been determined that such temporary operation does not create an unsafe operating condition or create a hazard to public safety.

(j) Require that drivers write and submit a daily bus inspection report pursuant to subsections 14-90.006(7) and (8).

(4) Bus Maintenance. All buses operated shall be properly maintained and equipped with all required parts necessary to ensure such buses are in safe and proper operating condition at all times. Bus transit systems shall assure:

(a) That all buses operated, and all parts and accessories on such buses, including those specified in Rules 14-90.007 and 14-90-008, and any additional parts and accessories which may affect safety of operation, including frame and frame assemblies, suspension systems, axles and attaching parts, wheels and rims, and steering systems, are regularly and systematically inspected, maintained and lubricated at a minimum in accordance with the standards developed and established in the SSPP to ensure they are in safe and proper operating condition.

(b) A method of indicating the types of inspections, maintenance and lubrication intervals to be performed on each bus and the date or mileage when these services are due. Maintenance inspections required shall be more comprehensive than daily inspections performed by the driver.

(c) That proper preventive maintenance is performed when a bus is assigned away from the system's regular maintenance facility, or when maintenance services are contracted.

(d) The maintenance of records providing written documentation of preventive maintenance, regular maintenance, inspections, lubrication and repairs performed for each bus under their control. Such records shall be maintained by the system for at least four years and include at a minimum the following information:

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1. Identification of the bus, including make, model, license number or other means of positive identification and ownership.

2. Date, mileage and type of inspection, maintenance, lubrication or repair performed.

3. Date, mileage and description of each inspection, maintenance or lubrication intervals performed.

4. If not owned by the bus transit system the name of any person or lessor furnishing any bus.

5. The name and address of any entity or contractor performing an inspection, maintenance, lubrication or repair.
Specific Authority 334.044(2), 341.061(2)(a) FS. Law Implemented 341.061(2) FS. History - New 9-7-87, Amended 11-10-92.

14-90.0041 Physical Examinations for Drivers.

(1) Bus transit systems shall establish physical examination requirements for all new and current employees who drive (will drive) buses as defined in Rule Sections 14-90.002(2) and (3). As part of the physical examination requirements, all employees who are bus drivers must receive an initial physical examination and one at least once every two years.

(a) Physical examinations shall be performed by the examining physician according to the instructions, and recorded by the physician on Department of Transportation Form Number 775-030-01, "Physical Examination for Public-Sector Bus Driver", 07/92, which is hereby incorporated by reference. Copies of Form Number 775-030-01 are available from the Florida Department of Transportation, Public Transit Office, 605 Suwannee Street, Mail Station 26, Tallahassee, Florida 32399-0450.

(b) Physical examinations may be performed and recorded in a form adopted by the bus transit system provided the physical examination requirements and the form adopted by the bus transit system meet or exceed that provided by Department Form Number 775-030-01. The physical examination shall be performed and recorded by a physician meeting the requirements of Rule 14-90.0041(1)(b).

1. Physical examinations shall be performed by a Doctor of Medicine or Osteopathy licensed by the State of Florida.

2. An ophthalmologist or optometrist licensed by the State of Florida may perform so

much of the examination as pertains to visual acuity, field of vision, and color recognition.

(c) Bus transit systems shall have on file proof of physical examination dated within the past 24 months.

(2) Records and results of physical examinations of employee bus drivers shall be maintained by the bus transit system for a minimum of four years.

Specific Authority 334.044(2), 341.061(2)(a) FS. Law Implemented 341.061(2) FS. History - New 11-10-92.

14-90.005 Transit Bus Accidents.

(1) Each bus transit system shall establish and maintain a comprehensive accident reporting, evaluation and record maintenance system.

(2) Notification of Transit Bus Accidents: Every bus transit system shall give the Department notice of each accident involving the death of a person.

(a) The Department shall be notified by telephone or in person of each accident involving a fatality by the end of regular working hours on the next regular working day following such occurrence.

(b) A written copy of local or state accident investigation reports of each accident involving a fatality shall be submitted to the Department within 30 days after the accident occurs.

(c) If a person dies within 30 days after an accident, the bus transit system shall, within 24 hours after the death, give written notice of the death to the Department.
Specific Authority 334.044(2), 341.061(2)(a) FS. Law Implemented 341.061(2) FS. History - New 9-7-87, Amended 11-10-92.

14-90.006 Operational and Driving Requirements.

(1) Bus transit systems shall not permit a driver to drive a bus when such driver's license has been suspended, canceled or revoked. Bus transit systems shall require a driver who receives a notice that his or her license to operate a motor vehicle has been suspended, canceled or revoked to notify his or her employer of the contents of the notice immediately, or no later than the end of the business day following the day he or she received it.

(2) Public-sector buses shall be operated at all times in compliance with applicable traffic regulations, ordinances and laws of the jurisdiction in which they are being operated.

(3) The driver of a bus shall not be permitted or required to drive more than 12 hours in any one 24-hour period, or drive after having been on duty for 16 hours in any one 24-hour period, or drive more than 70 hours in any period of seven consecutive calendar days.

(a) A driver who has reached the maximum 12 driving hours or 16 hours on duty time shall be required to have a minimum of eight consecutive hours off duty time within any one 24-hour period.

(b) A driver's work period shall begin from the time a driver first reports for duty for his or her employer.

(4) A driver may be permitted to drive for more than the regulated hours if the hours are necessitated by adverse conditions resulting from weather, road or traffic, or emergencies resulting from an accident, medical reasons or disaster.

(5) The driver of a bus may be permitted to exceed his or her regulated hours in order to reach a regularly established relief point, provided the additional driving time does not exceed one hour.

(6) No driver shall drive a bus when his or her ability is so impaired, or so likely to be impaired, by fatigue, illness or other causes, as to make it unsafe for the driver to begin or continue driving. Bus transit systems shall not permit or require any driver to drive a bus when his or her ability is so impaired by such condition as to make it unsafe for the driver to begin or continue driving.

(7) Bus transit systems shall require each driver to submit a daily written report indicating the condition of the bus and listing all defects and deficiencies likely to affect safe operation or cause mechanical malfunctions.

(a) Prior to operation of a bus, or no less than daily if the bus is so operated, an inspection or test shall be made of the following parts and devices to ascertain that they are in safe condition and in good working order:

1. Service brakes
2. Parking brakes
3. Tires and wheels
4. Steering
5. Horn
6. Lighting Devices
7. Windshield Wipers
8. Rear vision mirrors
9. Passenger doors
10. Exhaust System

11. Equipment for transporting wheelchairs

12. Safety and Emergency equipment

(b) Bus transit systems shall retain records of daily bus inspections a minimum of two weeks.

(8) A bus with passenger doors in the open position shall not be operated with passengers aboard. The doors shall not be opened until the bus is stopped. A bus with inoperable passenger doors shall not be operated with passengers aboard.

(9) During darkness, interior lighting and lighting in stepwells on buses shall be sufficient for passengers to enter and exit safely.

(10) Passenger(s) shall not be permitted in the stepwell(s) of any bus while the bus is in motion, or occupy an area forward of the standee line as required in subsection 14-90.007(14).

(11) Standee passenger(s) shall not be permitted on buses not designed and constructed for that purpose.

(12) Buses shall not be refueled in a closed building. The fueling of buses when passengers are being carried shall be reduced to the minimum number of times necessary during such transportation.

(13) With passenger(s) aboard, the bus transit system shall require the driver to be properly secured to the driver's seat with a restraining belt at all times while the bus is in motion.

(14) Buses shall not be left unattended with passenger(s) aboard for longer than 15 minutes.

(15) Buses shall not be left unattended in an unsafe condition with passenger(s) aboard at any time.

(16) The provisions of Subsections 14-90.006(8), (9), (10), (11), (12) shall not apply to persons testing or training a driver, maintenance personnel or a sales or manufacturer's representative.

(17) Buses carrying passengers shall stop at all railroad grade crossings in compliance with Section 316.159, Florida Statutes.

(18) Whenever a bus 80 or more inches in width or 30 feet or more in length is stopped (except when lawfully stopped to pick up or discharge passengers) or disabled upon a roadway or adjacent shoulder, warning lights and devices shall be displayed as required by Section 316.301, Florida Statutes. Specific Authority 334.044(2), 341.061(2)(a) FS.

Law Implemented 341.061(2) FS. History - New 9-7-87, Amended 5-31-89, 11-10-92.

14-90.007 Equipment and Devices Required. At the time of manufacture, every public-sector bus operated on or over the streets and highways of this State shall be equipped in compliance with applicable Federal Motor Vehicle Safety Standards (Title 49 C. F. R. Part 571); and the State of Florida Uniform Traffic Control Laws (Chapter 316, Florida Statutes); (available from the Florida Department of Transportation, Public Transit Office, 605 Suwannee Street, Mail Station 26, Tallahassee, Florida 32399-0450), which regulations are hereby incorporated by reference and made a part of these rules. With the exception of certain date of manufacture exemptions, as specified herein, every public-sector bus operated on or over the streets and highways of this State shall be equipped as follows:

(1) Horn. The horn must be capable of emitting sound audible under normal conditions from a distance of not less than 200 feet and having an activating device which is easily accessible to the driver.

(2) Windshield Wipers. There must be the same number of windshield wipers as originally equipped at time of manufacture, or equipped with adequate number of wipers to properly clean the windshield(s). The wipers shall be activated by a device(s) easily accessible to the driver.

(3) Mirrors. There must be two exterior rear vision mirrors, one at each side. The mirrors shall be firmly attached to the outside of the bus and so located as to reflect to the driver a view of the highway to the rear along both sides of the vehicle. Each exterior rear vision mirror, on Type I buses, manufactured on or after February 7, 1988, shall have a minimum reflective surface of 50 square inches and the right (curbside) mirror shall be located on the bus so that the lowest most part of the mirror and its mounting is at a minimum of 80 inches above the ground. All Type I buses shall, in addition to the above requirement, be equipped with an inside rear-view mirror capable of giving the driver a clear view of seated or standing passengers, and buses having a passenger exit door that is located inconveniently for drivers visual control shall be equipped with an interior mirror, or a combination of mirrors, enabling the driver to view the passenger exit door during

egress of passenger(s). The exterior right (curbside) rear vision mirror and its mounting on Type I buses may be located lower than 80 inches from the ground, provided such buses are used exclusively for paratransit operations, as defined in Section 341.031, Florida Statutes. In lieu of interior mirrors, trailer buses and articulated buses may be equipped with closed circuit video systems or adult monitors in voice control with the driver.

(4) Wiring and Battery. Electrical wiring shall be maintained so as not to come in contact with moving parts, heated surfaces or be subject to chafing or abrasion which may cause insulation to become worn. Every Type I bus manufactured on or after February 7, 1988, shall be equipped with a storage battery(ies) electrical power main disconnect switch. The disconnect switch shall be practicably located in an accessible location adjacent to or near to the battery(ies) and be legibly and permanently marked for identification. Every storage battery on each public-sector bus shall be mounted with proper retainers or securement devices in a compartment which provides adequate ventilation and drainage.

(5) Service Brakes, Parking Brakes. Braking systems shall comply with Subsections 316.261(1), (2), (3), (8), (9), (10), or Section 316.262, Florida Statutes, as applicable, and shall be maintained in good working order in compliance with Section 316.263, Florida Statutes.

(a) All Type I buses having a rear passenger exit door shall be equipped with a rear exit door/brake interlock that automatically applies the brake(s) on the bus upon driver activation of the passenger exit door to the open position. Interlock brake application shall remain activated until deactivation by the driver and the rear exit door returns to the closed position. The exit door interlock on such buses shall be equipped with an identified override switch enabling emergency release of interlock function and shall not be located within reach of the seated driver.

(b) Air pressure application to the brake(s) during interlock operation on buses equipped with rear exit door/brake interlock, shall be regulated at the original equipment manufacturer's specifications.

(6) Warning Devices. Every bus using compressed air, vacuum or a combination thereof, shall be equipped with gauges and

warning signal devices as required by Subsection 316.261, Florida Statutes. These required warning devices shall not have override switches.

(7) Directional Signals. Every bus shall be equipped with electrical turn signal devices which shall meet the requirements of Subsection 316.234(2), Florida Statutes.

(a) Lamps shall be located and mounted as widely spaced laterally as practical.

(b) Lenses on lamps may be single faced, double faced or incorporated into the parking lamp assembly. Lenses shall indicate white or amber to the front and red or amber to the rear.

(8) Hazard Warning Signals. Every bus manufactured on or after January 1, 1964, shall be equipped with a vehicular hazard warning signal operating unit.

(a) Signals shall operate independently of the ignition, master or equivalent switch.

(b) The operating unit shall cause to flash simultaneously sufficient turn signal lamps as required by FMVSS 108, "Lamps, Reflective Devices and Associated Equipment", (Title 49 C. F. R. Part 571, Section 108, effective October 2, 1986).

(c) Buses manufactured on or after February 7, 1988, that are equipped with engine or other access door(s) that obscure hazard warning signals with the door(s) raised or in the open position, shall be equipped with rear auxiliary hazard warning signals, which when lighted, shall be visible from a distance of 500 feet to the rear of the bus. Auxiliary hazard warning signals may be activated and operated independently of the main hazard warning signals on the bus.

(9) Stop Lamp. There must be at least two lamps on the rear of the bus which shall display red or amber light upon application of the service (foot) brakes or air activated parking brakes, or activation of the passenger exit door control to open position and application of the brake(s) as required in subsection 14-90.007(5)(a). The lamps shall be visible from a distance of no less than 300 feet to the rear of the bus and shall be securely mounted.

(10) Tail Lamps. There must be at least two tail lamps which are in compliance with Section 316.221, Florida Statutes.

(11) Head Lamps. There must be at least two head lamps mounted in equal number on each side. The head lamps shall be in proper adjustment in compliance with Sections 316.220

and 316.237, Florida Statutes.

(12) Clearance Lamps, Identification Lamps, Marker Lamps, Backup Lamps, and Reflectors. Such lamps and reflectors in the kind, size and number and shall be mounted to comply with the requirements for Sections 316.2225, 316.224, 316.225, 316.226, Florida Statutes.

(13) Deceleration Lights. Buses may be equipped with a deceleration lighting system in accordance with Subsection 316.235(5), Florida Statutes, which cautions following vehicles that the bus is slowing, preparing to stop, or stopped.

(14) Standee Line and Warning. Every bus designed and constructed to allow standees, shall be plainly marked with a line of contrasting color at least two inches wide or equipped with some other means to indicate any passenger is prohibited from occupying a space forward of a perpendicular plane drawn through the rear of the driver's seat and perpendicular to the longitudinal axis of the bus. A sign shall be posted at or near the front of the bus stating that it is a violation for a bus to be operated with passengers occupying an area forward of the line.

(15) Handrails and Stanchions. Every bus designed and constructed to allow standees shall be equipped with overhead grab rails for standee passengers. Overhead grab rails shall be continuous, except for a gap at the rear doorway, and terminate into vertical stanchions or turn up into a ceiling fastener. Every Type I and Type II bus designed for carrying more than 16 passengers shall be equipped with grab handles, stanchions or bars at least 10 inches long and installed to permit safe on-board circulation, seating and standing assistance, and boarding and unboarding by elderly and handicapped persons. Type I buses shall be equipped with a safety bar and panel directly behind each entry and exit stepwell.

(16) Flooring, Steps and Thresholds. Flooring, steps and thresholds on all buses shall have slip resistant surfaces without protruding or sharp edges, lips and overhangs, to prevent tripping hazards. All step edges and thresholds shall have a band of color(s) running the full width of the step or edge which contrasts from the step tread and riser, either light-on-dark or dark-on-light.

(17) Doors. Power activated doors on all buses shall be equipped with a manual device

designed to release door closing pressure.

(18) Emergency Exits. Every Type I bus shall be equipped with emergency door(s) or exits, or side windows or roof hatches as required by FMVSS No. 217 "Bus Window Retention and Release" (Title 49 C. F. R. Part 571, Section 217, effective August 26, 1982). Every Type I bus equipped with an auxiliary door for emergency exit shall be equipped with an audible alarm or light indicating to the driver, should the door become ajar or opened while the engine is running. Every Type II bus shall be equipped with at least one emergency door or push-out escape window either at the rear of the bus or on each side, to the rear of the driver's seat. All emergency exits shall function properly, shall be periodically tested to ensure proper performance and shall be marked by a visible sign indicating "Emergency Exit" or "Emergency Door". Supplemental security locks operable by a key are prohibited on emergency exit doors unless these security locks are equipped and connected with an ignition interlock system or an audio visual alarm located in the driver's compartment. Any supplemental security lock system used on emergency exits shall be kept unlocked whenever a bus is in operation.

(19) Tires and Wheels. Tires shall be properly inflated in accordance with manufacturer's recommendations.

(a) No bus shall be operated with a tread groove pattern depth:

1. Less than $4/32$ ($1/8$) of an inch, measured at any point on a major tread groove for tires on the steering axle of all buses. The measurements shall not be made where tie bars, humps, or fillets are located.

2. Less than $2/32$ ($1/16$) of an inch, measured at any point on a major tread groove for all other tires of all buses. The measurements shall not be made where tie bars, humps, or fillets are located.

(b) No bus shall be operated with recapped, regrooved or retreaded tires on the steering axle.

(c) Wheels shall be visibly free from cracks, distortion and missing, cracked or broken mounting lugs.

(20) Suspension. The suspension system of all buses, including springs, air bags and all other suspension parts as applicable, shall be free from cracks, leaks or any other defect which would or may cause its impairment or

failure to function properly.

(21) Exhaust System. The exhaust system of all buses shall be maintained in compliance with Section 316.272, Florida Statutes.

(22) Steering and Front Axle. The steering system of all buses shall have no indication of leaks which would or may cause its impairment to function properly, and shall be free from cracks and excessive wear of components that would or may cause excessive free play or loose motion in the steering system and above normal effort in steering control.

(23) Seat Belts. Every bus shall be equipped with an adjustable driver's restraining belt in compliance with the requirements of FMVSS 209, "Seat Belt Assemblies" (Title 49 C. F. R. Part 571, Section 209, effective September 5, 1986) and FMVSS 210 "Seat Belt Assembly Anchorages" (Title 49 C. F. R. Part 571, Section 210, effective August 19, 1986).

(24) Safety Equipment. Every bus shall be equipped with one fully charged dry chemical or carbon dioxide fire extinguisher, having at least a 1A:BC rating and bearing the label of Underwriter's Laboratory, Inc.

(a) Each fire extinguisher shall be securely mounted on the bus in a conspicuous place or a clearly marked compartment and readily accessible.

(b) Each fire extinguisher shall be maintained in efficient operating condition and equipped with some means of determining if it is fully charged.

(c) Every Type I bus shall be equipped with portable red reflector warning devices in compliance with Section 316.300, Florida Statutes.

Specific Authority 334.044(2), 341.061(2)(a) FS. Law Implemented 341.061(2) FS. History - New 9-7-87, Amended 11-10-92, 8-2-94.

14-90.008 Standards for Accessible Buses.

(1) Equipment installed on any bus for the purpose of transporting individuals with disabilities shall meet the requirements set forth in Title 49 Code of Federal Regulations, Transportation for Individuals With Disabilities, Part 38, Subpart A – General, Subsections 38.1, 38.2, 38.3 and Subpart B – Buses, Vans and Systems, Subsections 38.21, 38.23, 38.25, 38.27, 38.29, 38.31, 38.33, 38.35, 38.37, and 38.29.

(a) Installation of a wheelchair lift or ramp shall not cause the manufacturer's gross vehicle weight rating, gross axle weight rating, or tire

rating to be exceeded on the accessible bus.

(b) Except in locations within 3 ½ inches of the bus floor, all readily accessible exposed edges or other hazardous protrusions of parts of wheelchair lift assemblies or ramps that are located in the passenger compartment of accessible buses shall be padded with energy absorbing material to mitigate injury in normal use and in case of accident. This requirement shall also apply to parts of the bus associated with the operation of the lift or ramp.

(c) The controls for operating the lift shall be at a location where the bus driver or lift attendant has a full view, unobstructed by passengers, of the lift platform, its entrance and exit, and the wheelchair passenger, either directly or with partial assistance of mirrors. Lifts located entirely to the rear of the driver's seat shall not be operable from the driver's seat, but shall have an override control at the driver's position that can be activated to prevent the lift from being operated by the other controls (except for emergency manual operation upon power failure).

(d) The installation of the wheelchair lift or ramp and its controls and the method of attachment in the accessible bus body or chassis shall not diminish the structural integrity of the accessible bus nor cause a hazardous imbalance of the bus. No part of the assembly, when installed and stowed, shall extend laterally beyond the normal side contour of the bus nor vertically beyond the lowest part of the rim of the wheel closest to the lift.

(e) Each wheelchair lift or ramp assembly shall be legibly and permanently marked by the manufacturer or installer with the following minimum information:

1. The manufacturer's name and address.
2. The month and year of manufacture.
3. A certificate that the wheelchair lift or ramp and its installation conforms to State of Florida requirements applicable to accessible buses.

(2) Wheelchair lifts and their controls shall be inspected and maintained as required in subsections 14-90.004(3)(a), (b), (c), (d). Instructions for normal and emergency operation of the lift or ramp shall be carried or displayed in every accessible bus. Specific Authority 334.044(2), 341.061(2)(a) FS. Law Implemented 341.061(2) FS. History - New 9-7-87, Amended 11-10-92.

14-90.009 Public-Sector Bus Safety

Inspection Procedures.

(1) Each bus transit system shall require that all buses operated by such bus transit system, and all buses operating under contract with the transit system, be inspected at least annually in accordance with bus inspection procedures set forth in this section.

(2) It shall be the bus transit system's responsibility to ensure that each individual performing a bus safety inspection under Rule Section 14-90.009(4) is qualified as follows:

(a) Understands the requirements set forth in rules 14-90.007, 14-90.008, 14-90.009, and can identify defective components.

(b) Is knowledgeable of and has mastered the methods, procedures, tools, and equipment used when performing an inspection.

(c) Has at least one year of training and/or experience as a mechanic or inspector in a vehicle maintenance program and has sufficient general knowledge of buses owned and operated by the bus transit system to recognize deficiencies or mechanical defects.

(3) Each public-sector bus receiving a safety inspection shall be checked for compliance with the safety devices and equipment requirements as referenced or specified herein. Specific operable equipment and devices as required by this Rule Chapter include the following (as applicable to Type I or II bus(es)):

- (a) Horn
- (b) Windshield Wipers
- (c) Mirrors
- (d) Wiring and Battery(ies)
- (e) Service and Parking Brakes
- (f) Warning Devices
- (g) Directional Signals
- (h) Hazard Warning Signals
- (i) Lighting Systems and Signaling Devices
- (j) Handrails and Stanchions
- (k) Standee Line and Warning
- (l) Doors and Interlock Devices
- (m) Stepwells and Flooring
- (n) Emergency Exits
- (o) Tires and Wheels
- (p) Suspension System
- (q) Steering System
- (r) Exhaust System
- (s) Seat Belts
- (t) Safety Equipment
- (u) Equipment for Transporting

Wheelchairs

- (4) A safety inspection report shall be

prepared by the individual(s) performing the inspection which shall include the following:

- (a) Identification of the individual(s) performing the inspection.
- (b) Identification of the bus transit system operating the bus.
- (c) The date of the inspection.
- (d) Identification of the bus inspected.
- (e) Identification of the equipment and devices inspected including the identification of equipment and devices found defective, and describe the results of the inspection.

(5) Records of annual safety inspections shall be retained a minimum of four years by the bus transit system for future compliance review. Specific Authority 334.044(2), 341.061(2)(a) FS. Law Implemented 341.061(2) FS. History - New 9-7-87, Amended 11-10-92.

14-90.010 Safety Certification.

(1) Each bus transit system shall annually submit to the Department a safety certification which verifies the following:

- (a) The adoption of a SSPP in accordance, at a minimum, with established standards set forth in the Rule Chapter.
- (b) Compliance with its adopted SSPP.
- (c) Performance of safety inspections on all buses operated by the system in accordance with Rule 14-90.009.

(2) The safety certification shall include:

- (a) The name and address of the bus transit system, and the name and address of the entity(ies) which has (have) performed safety inspections, if different from that of the bus transit system.

(b) A statement signed by an officer or person directly responsible for management of the bus transit system attesting to compliance with 14-90.010(1)(a), (b), (c).

Specific Authority 334.044(2), 341.061(2)(a) FS. Law Implemented 341.061(2) FS. History - New 9-7-87.

14-90.011 Inspection of Buses by Law Enforcement Officers. Annual safety certification and compliance with this Rule Chapter shall not preclude any law enforcement officer or Department designee from inspecting equipment for compliance with the provisions of Chapter 316, Florida Statutes, and this Rule Chapter.

Specific Authority 334.044(2), 341.061(2)(a) FS. Law Implemented 341.061(2), 316.610 FS. History - New 9-7-87.

14-90.012 Suspension of Operation. If the

Department determines that a bus transit system is not in compliance with the provisions of this rule chapter and the continued operation of the system, or a portion thereof, is not safe for passenger service or is posing a potential danger to public safety, the Department shall initiate the following actions to suspend the affected system service.

(1) Notify the affected bus transit system, by certified mail, of specific non-compliance items or unsafe conditions. The notification shall establish the following:

(a) A specific timetable for correction of non-compliance items or unsafe conditions.

(b) A requirement that the bus transit system certify in writing to the Department of completion and implementation of corrective action in accordance with the timetable.

(2) Conduct an on-site review if the transit system does not certify correction of specific non-compliance items in accordance with Rule Sections 14-90.012(1)(a) and (b) and establish a resolution and timetable for correction of safety items.

(3) Initiate legal action to suspend affected passenger service operations if the bus transit system fails to comply with the resolution and timetable established during the on-site review.

(4) The affected passenger service operations shall be suspended until the Department has substantiated compliance by the bus transit system.

Specific Authority 334.044(2), 341.061(2)(a) FS. Law Implemented 341.061(2), 316.610 FS. History - New 11-10-92.

CHAPTER 14-55
FIXED GUIDEWAY TRANSPORTATION SYSTEMS SAFETY CRITERIA

- 14-55.001 Purpose. (Repealed)
- 14-55.0011 Definitions. (Repealed)
- 14-55.0012 General Provisions
- 14-55.0013 Reports; Investigations; Audits; Corrective Actions of Accidents; and Unacceptable Hazardous Conditions
- 14-55.002 Authority. (Repealed)
- 14-55.003 Scope. (Repealed)
- 14-55.004 General Application. (Repealed)
- 14-55.0041 Metro-Dade Transit Agency Application, Reporting, and Certification. (Repealed)
- 14-55.0042 Greater Orlando Aviation Authority Application, Reporting, and Certification. (Repealed)
- 14-55.0043 Jacksonville Transportation Authority Application, Reporting, and Certification. (Repealed)
- 14-55.0044 Tri-County Commuter Rail Organization Application, Reporting, and Certification. (Repealed)
- 14-55.005 Reporting and Certification. (Repealed)

14-55.001 Purpose.

Specific Authority 334.044(2), 341.061(1) FS. Law Implemented 341.061(1) FS. History - New 9-22-82. Formerly 14-55.01, Amended 9-20-89, Repealed 8-5-96.

14-55.0011 Definitions.

Specific Authority 334.044(2), 341.061(1) FS. Law Implemented 341.061(1) FS. History - New 9-20-89, Repealed 5-22-97.

14-55.0012 General Provisions.

(1) Definitions. Throughout this rule chapter, the following words and phrases shall have the respective meanings set forth below unless a different meaning is plainly required by the context:

- (a) "Accident" means any event involving the revenue service operation of a fixed guideway transportation system if as a result:
 - 1. An individual dies or suffers bodily injury and immediately receives medical treatment away from the scene of the accident.
 - 2. A collision, derailment, or fire causes property damage in excess of \$100,000.
- (b) "Danger" means exposure to injury, damage, loss, or pain.
- (c) "Department" means the State of Florida Department of Transportation.
- (d) "FTA" means the United States Department of Transportation, Federal Transit Administration.

(e) "Fixed Guideway Transportation System" means a transit system for the transporting of people by a conveyance, or a series of interconnected conveyances, which conveyance or series of conveyances is specifically designed for travel on a stationary rail or other guideway, whether located on, above, or under the ground. For purposes of this rule chapter, fixed guideway transportation systems are designated in two categories and subject to the provisions of this rule chapter as applicable or specified herein.

1. "Non-Federal Transit Administration (Non-FTA) funded fixed guideway transportation system" includes any governmentally owned and privately owned or operated fixed guideway transportation system operating in this state which is financed wholly or partly by state funds and subject to the provisions of Section 341.061, Florida Statutes, but does not include guided busways or rubber-wheeled trolley buses that use a catenary system.

2. "Federal Transit Administration (FTA) funded fixed guideway transportation system" includes those systems defined as a "Rail Fixed Guideway System" and subject to the provisions of 49 C.F.R. Part 629, but does not include guided busways or rubber-wheeled trolley buses that use a catenary system.

(f) "Hazardous Condition" means a condition that may endanger human life or property. It includes unacceptable hazardous conditions.

(g) "Individual" means anyone, including a passenger, trespasser, employee, or other bystander.

(h) "Safety" means freedom from danger.

(i) "Safety Certification" means a formal statement or documentation by the fixed guideway transportation system declaring, verifying, or attesting that the criteria and requirements of this rule chapter are adopted and implemented by the fixed guideway system.

(j) "System Safety Program Plan (SSPP)" means a document(s) adopted by a fixed guideway transportation system, detailing its safety policies, objectives, responsibilities, and procedures.

(k) "System Safety Program Criteria" means the criteria for the development of a system safety program plan. For purposes of this rule chapter, "Military Standard System

Safety Program Plan Requirements" (MIL-STD 882C) or the American Public Transit Association *Manual for the Development of Rail Transit System Safety Program Plans*, is the system safety program criteria.

(l) "Security" means freedom from intentional danger.

(m) "Security Program Plan" means a document(s) adopted by a fixed guideway transportation system detailing its policies, objectives, responsibilities, and procedures for the personal security of employees and passengers. The security program plan may be a portion of the system safety program plan.

(n) "Unacceptable Hazardous Condition" means a hazardous condition determined to be an unacceptable hazardous condition using the "Hazard Risk Assessment Matrix" or the "Hazard Resolution Matrix" in the system safety program plan criteria.

(2) Scope. These rules are authorized by Section 341.061, Florida Statutes, and establish the system safety criteria to be met by site specific plans for fixed guideway transportation systems in the State of Florida. FTA standards provided by 49 C.F.R. Part 659 "Rail Fixed Guideway Systems; State Safety Oversight," are incorporated by this rule chapter for meeting minimum acceptable safety program criteria. Except as provided in Section 14-55.0013(10), each fixed guideway transportation system shall comply with the provisions of this rule chapter.

(a) Each fixed guideway transportation system shall develop and adopt a System Safety Program Plan (SSPP) which meets the minimum safety program criteria of Rule 14-55.0012 and implement and comply with the SSPP during the operation of the system. The SSPP shall describe the controls used to maintain effective communication and liaison with the Department for reporting and certifying requirements. Periodic reviews and updates shall be made to the SSPP to assure maximum hazard identification and control. All revisions or updates to the SSPP shall be provided to the Department. Excerpts from existing specifications, standards, or criteria may be proposed for adoption by the Department, in whole or in part, for establishing minimum safety and security criteria for fixed guideway transportation systems within the state.

(b) The Department, or its contractor(s), is authorized to conduct on-site reviews and monitor conformance by the fixed guideway

transportation system with its SSPP on a program level basis.

(c) The Department shall prepare a written report of its findings and recommendations resulting from each on-site safety review for action, as required, by the fixed guideway transportation system to revise its system safety program plan and implementing procedures.

(3) System Safety Program Criteria.

(a) The Department hereby adopts "Military Standard System Safety Program Requirements" (MIL-STD-882C, available from: Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, Pennsylvania 19120, Attention Code: 1052, Telephone 215-697-2000), and, as an alternative, the American Public Transit Association *Manual for the Development of Rail Transit System Safety Program Plans*, (available from the American Public Transit Association, 1201 New York Avenue, N.W., Washington, D.C. 20005-3917, Telephone 202-898-4083), as the criteria for the development of System Safety Program Plans by fixed guideway transportation systems within the state. These system safety program criteria were established to provide a logical and comprehensive approach to early identification, elimination, and control of hazards within a system.

(b) The Department also adopts *Transit Security Procedures Guide* (FTA-MA-90-7001-94-2) and *Transit System Security Program Planning Guide* (FTA-MA-90-7001-94-1) (available from the Research and Special Programs Administration, John A. Volpe National Transportation Systems Center, Cambridge, Massachusetts 02142, Telephone 617-494-2206), as guidelines for the development of security program plans by FTA funded fixed guideway transportation systems.

(c) The Department also adopts *Recommended Emergency Preparedness Guidelines for Rail Transit Systems* (UMTA-MA-06-0152-85-1) (available from: National Technical Information Service, 5285 Port Royal Road, Springfield, Virginia 22161), as a guideline to assist fixed guideway transportation systems in the development of safety criteria to assess, document, and improve their capability for responding to emergency situations, and to coordinate these efforts with emergency response organizations in a manner which best protects the public and transit system facilities and equipment.

Specific Authority 334.044(2), 341.041(3) FS.
Law Implemented 341.041(3) FS. History -
New 5-22-97.

14-55.0013 Reports; Investigations; Audits;
Corrective Actions of Accidents; and
Unacceptable Hazardous Conditions.

(1) Accident Reporting. Every fixed
guideway transportation system shall notify the
Department of any accident or unacceptable
hazardous condition, as defined in Rule Section
14-55.0012(1)(a) and (n) and identified using
the "Hazard Risk Assessment Matrix" or the
"Hazard Resolution Matrix" in the system safety
program criteria.

(a) Notification shall be by FAX, electronic
mail, or delivered in person, within 24 hours, or
by the end of regular working hours on the next
regular working day following the accident or
determination of unacceptable hazardous
condition.

(b) The notification shall include a written
interim report that briefly describes the accident
or unacceptable hazardous condition and
subsequent corrective action, as applicable.

(2) Investigation of Accidents and
Unacceptable Hazardous Conditions. Each
fixed guideway transportation system shall
conduct investigations of reportable accidents
and identified unacceptable hazardous
conditions on behalf of the Department.

(a) The fixed guideway transportation
system may use its own staff or a contractor to
conduct investigations of accidents or
unacceptable hazardous conditions.

(b) The fixed guideway transportation
system shall designate a staff person
responsible for overseeing investigations of
reported accidents and identified unacceptable
hazardous conditions and ensuring preparation
and submittal of investigation reports.

(c) The fixed guideway transportation
system shall prepare and submit a written report
on any investigated accident or identified
unacceptable hazardous condition to the
Department within 30 days after the last day of
the month in which the accident occurred or the
unacceptable hazardous condition was
identified.

(d) The Department may oversee
investigations of accidents or unacceptable
hazardous conditions to ensure investigations
are conducted according to the Fixed Guideway
Transportation System's policy and procedures.

(3) Each fixed guideway transportation

system shall establish and adopt a uniform
policy and procedures for investigation of
reportable accidents and identified,
unacceptable hazardous conditions.
Investigations shall be conducted according to
its adopted policy and procedures. The fixed
guideway transportation system's adopted
policy and procedures for investigations shall
address and accomplish the following
objectives:

(a) Identification, collection, and
preservation of all equipment, documents, facts,
and information relevant to accidents and
unacceptable hazardous conditions.

(b) Determination of the cause(s) of an
accident or identified unacceptable hazardous
condition, including any contributory cause(s) or
conditions.

(c) Identification of corrective actions to
help prevent reoccurrence of similar accidents
or unacceptable hazardous conditions.

(d) Preparation of written reports, both
preliminary and final, for identifying the cause(s)
of the accident or unacceptable hazardous
condition. The final report shall contain:

1. A detailed description of the investigation
and the findings.

2. A detailed description and analysis of
any tests conducted.

3. Application of pertinent rules and
procedures.

4. Conclusions drawn from the
investigation.

5. Corrective action plan and
implementation schedule.

6. Supporting documents pertinent to the
investigation.

(4) Each fixed guideway transportation
system shall provide a copy of its adopted
policy and procedures for investigation of
accidents and identified unacceptable
hazardous conditions to the Department.

(a) A copy shall be provided to the
Department no later than June 1, 1997.

(b) All revisions or updates to the policy
and procedures shall be provided to the
Department before February 15 each year
thereafter.

(5) Internal Safety Audits. Each fixed
guideway transportation system shall annually
perform planned and scheduled safety audits to
evaluate and measure the effectiveness of its
system safety program plan.

(a) The safety audits shall be conducted

according to written checklists by persons technically qualified to determine compliance and assess the effectiveness of the system safety program plan activity being audited.

(b) The auditors may be independent of the fixed guideway transportation system or organizationally assigned to the unit responsible for management of the activity being audited, but they must be independent from the first line of supervision responsible for performing the activity being audited.

(c) The safety audits shall be documented in an annual audit report that covers the audits performed and the results of each audit in terms of the adequacy and effectiveness of the system safety program.

(6) Corrective Action Plan. Each fixed guideway transportation system shall develop a corrective action plan to eliminate or prevent the reoccurrence of an accident, or to mitigate the identified unacceptable hazardous condition. To eliminate or otherwise control as many hazards as possible, and prevent the reoccurrence of accidents, the fixed guideway transportation system shall implement corrective action according to the following criteria:

(a) For hazards identified and determined as unacceptable, using the "Hazard Risk Assessment Matrix" or the "Hazard Resolution Matrix" in the system safety program criteria, the system shall implement corrective action immediately or prior to continuation of affected passenger service operations.

1. A corrective action plan and implementation schedule shall be prepared by the fixed guideway transportation system for each identified unacceptable hazardous condition.

2. Each fixed guideway transportation system shall submit a copy of its corrective action plan and implementation schedule to the Department as part of the unacceptable hazardous condition investigation report.

(b) For hazards determined as the causal factor in an accident investigation, the fixed guideway transportation system shall implement corrective action immediately or prior to continuation of the affected passenger service operations.

1. A corrective action plan and implementation schedule shall be prepared by the fixed guideway transportation system for each investigated accident.

2. Each guideway transportation system shall submit a copy of its corrective action plan and implementation schedule to the Department as part of the accident investigation report.

(c) For hazards determined as unacceptable or as the causal factor in an accident investigation, each fixed guideway transportation system shall provide written verification to the Department that corrective action has been implemented and completed according to the corrective action plan and implementation schedule.

(7) System Security Program Plan. Each guideway transportation system shall develop and adopt a system security program plan that addresses policies, objectives, responsibilities, and procedures for the personal security of employees and passengers. The system security program plan may be contained in the system safety program plan.

(8) Disclosure. Fixed guideway transportation systems are prohibited from publicly disclosing security program plans or security portions of system safety program plans, as applicable under any circumstance.

(9) Reporting and Certification.

(a) Reporting, Initial Submissions. Before June 1, 1997, each fixed guideway transportation system shall submit the following information to the Department:

1. The name and address of the fixed guideway transportation system.

2. A copy of the system safety program plan that complies with the system safety program criteria.

3. Procedures for ensuring that appropriate corrective actions have been taken to correct, eliminate, minimize, or control investigated accidents or unacceptable hazardous conditions.

(b) Before January 1, 1998, each fixed guideway transportation system shall submit the following information to the Department:

1. The name and address of the fixed guideway transportation system.

2. A copy of the system's security program plan with the plan being a portion of or a separate document from the system safety program plan.

3. Procedures for ensuring that appropriate corrective actions have been taken to correct, eliminate, minimize, or control insecure conditions.

(c) Reporting, Annual Submissions. Before

February 15 of each year, each fixed guideway transportation system shall submit the following information to the Department:

1. An annual report summarizing the system's safety activities for the preceding calendar year including a report of the internal safety audits performed during the preceding calendar year.

2. A description of the most common probable causal factors of investigated accidents and unacceptable hazardous conditions, including any contributory causes, that occurred during the preceding calendar year.

(d) Certification of Compliance. Before June 1, 1997, and before February 15 of each year thereafter, each fixed guideway transportation system shall certify to the Department that it has complied with the provisions of this rule chapter.

1. Each certification shall be signed by an official authorized by the fixed guideway transportation system.

2. The certification shall comply with the applicable sample certification provided in Figure 1.

**Figure 1 – SAMPLE
CERTIFICATION OF COMPLIANCE**

This Sample Certification of Compliance contains an example of the certification language.

I, (name) (title) certify that (name of fixed guideway transportation system) has implemented a system safety program that meets the requirements of Rule Chapter 14-55,

(e) New Systems and Expansions. Before a new fixed guideway transportation system or expansion or replacement of an existing fixed guideway transportation system or subsystem begins passenger service operations, it must certify to the Department that the new system, subsystem, or expanded or replacement portion of an existing system, is safe for passenger service operations.

1. Each certification shall be signed by an official authorized by the fixed guideway transportation system.

2. The certification shall comply with the applicable sample certification provided below.

(10) Exceptions. Non-FTA funded fixed guideway transportation systems are exempt from the following provisions and reporting requirements:

(a) The requirements in Section 14-55.0013(4)(a), (b) relating to the submittal of a policy and procedures to the Department for investigations of accidents and unacceptable hazardous conditions.

(b) The requirements in Section 14-55.0013(6)(c) relating to the submittal of written verification to the Department that corrective action has been implemented and completed for unacceptable hazardous conditions and investigated accidents.

(c) The requirement in Section 14-55.0013(7) relating to the development and adoption of a system security program plan.

(d) The requirements in Section 14-55.0013(9)(a)3. relating to the submittal of procedures to the Department for ensuring corrective action is taken for investigated accidents and identified unacceptable hazardous conditions.

(e) The requirements in Section 14-55.0013(9)(b) relating to submittal of a system security program plan and corrective action procedures to the Department for insecure conditions.

(f) The requirements in Section 14-55.0013(9)(c) relating to the submittal of an annual report to the Department summarizing the system's safety activities, including a description of the probable causes of investigated accidents and unacceptable hazardous conditions, for the preceding calendar year.

Specific Authority 334.044(2), 341.061(1) FS.
Law Implemented 341.061(1) FS. History - New 5-22-97.

Chapter 14-55

14-55.002 Authority.

Specific Authority 334.02(6), 341.041(3) FS.
Law Implemented 341.041(3) FS. History -
New 9-22-82, Formerly 14-55.02, Repealed 9-
20-89.

14-55.003 Scope.

Specific Authority 334.044(2), 341.061(1) FS.
Law Implemented 341.041(3) FS. History -
New 9-22-82, Formerly 14-55.03, Amended 9-
20-89, Repealed 5-22-97.

14-55.004 General Application.

Specific Authority 334.044(2), 341.061(1) FS.
Law Implemented 341.041(3) FS. History -
New 9-22-82, Formerly 14-55.04, Amended 9-
20-89, Repealed 5-22-97.

14-55.0041 Metro-Dade Transit Agency Application, Reporting, and Certification.

Specific Authority 334.044(2), 341.061(1) FS.
Law Implemented 341.041(3) FS. History -
New 9-20-89, Repealed 5-22-97.

14-55.0042 Greater Orlando Aviation Authority Application, Reporting, and Certification.

Specific Authority 334.044(2), 341.061(1) FS.
Law Implemented 341.061 FS. History - New 9-
20-89, Repealed 5-22-97.

14-55.0043 Jacksonville Transportation Authority Application, Reporting, and Certification.

Specific Authority 334.044(2), 341.061(1) FS.
Law Implemented 341.041(3) FS. History -
New 9-20-89, Repealed 5-22-97.

14-55.0044 Tri-County Commuter Rail Organization Application, Reporting, and Certification.

Specific Authority 334.044(2), 341.061(1) FS.
Law Implemented 341.061 FS. History - New 9-
20-89, Repealed 5-22-97.

14-55.005 Reporting and Certification.

Specific Authority 334.02(6), 341.041(3) FS.
Law Implemented 341.041(3) FS. History -
New 9-22-82, Formerly 14-55.05, Repealed 9-
20-89.

Section 6-3
U.S. Department of Transportation
Federal Transit Administration
49 CFR Part 659

federal register

Wednesday
December 27, 1995

Part IV

**Department of
Transportation**

Federal Transit Administration

**49 CFR Part 659
Rail Fixed Guideway Systems; State
Safety Oversight; Final Rule**

DEPARTMENT OF TRANSPORTATION**Federal Transit Administration****49 CFR Part 659**

[Docket No. 92-D]

RIN 2132-AA39

Rail Fixed Guideway Systems; State Safety Oversight

AGENCY: Federal Transit Administration, DOT.

ACTION: Final rule.

SUMMARY: As required by the Intermodal Surface Transportation Efficiency Act of 1991, the Federal Transit Administration (FTA) issues a rule requiring States to oversee the safety of rail fixed guideway systems not regulated by the Federal Railroad Administration (FRA). This document accordingly sets forth FTA's State safety oversight program, which is intended to improve the safety of rail fixed guideway systems.

EFFECTIVE DATE: This regulation is effective January 26, 1996. The incorporation by reference of certain documents in the regulation is approved by the Director of the Federal Register as of January 26, 1996.

FOR FURTHER INFORMATION CONTACT: For program issues: Judy Meade or Roy Field, Office of Safety and Security, Federal Transit Administration, (202) 366-2896 (telephone) or (202) 366-3765 (fax). For legal issues: Nancy Zaczek, Office of Chief Counsel, Federal Transit Administration, (202) 366-4011 or (202) 366-3809.

SUPPLEMENTARY INFORMATION:

This preamble is organized as follows:

- I. Background
 - A. 49 U.S.C. § 5330
 - B. Summary of the final rule
 - C. Overview of the comments
- II. Discussion of the Comments
 - A. Rail Fixed Guideway System
 - B. System Safety Program Standard
 - C. System Safety Program Plan—the six factors
 - D. Planning, design, and construction
 - E. Accountability factor
 - F. EPA and OSHA requirements
 - G. Security
 - H. Biennial safety reviews
 - I. Safety audits
 - J. Accident
 - K. Hazardous condition
 - L. Investigations
 - M. Confidentiality of oversight agency investigation reports
 - N. Certified Transit Safety Professional
- III. Section-by-Section Analysis
- IV. Economic Analysis
- V. Regulatory Process Matters

I. Background

The Intermodal Surface Transportation Efficiency Act of 1991 (Pub. L. 102-240), enacted into law on December 18, 1991, added section 28 to the Federal Transit Act (recently codified at 49 U.S.C. 5330 (1994)), which requires the Federal Transit Administration to issue regulations creating a State oversight program. On June 25, 1992, FTA issued an Advance Notice of Proposed Rulemaking (ANPRM) soliciting public comment on a range of issues to be addressed in drafting a Notice of Proposed Rulemaking (NPRM). 57 FR 28572. The agency held hearings on the ANPRM in Los Angeles, California; Portland, Oregon; and Washington, DC. Thirty-five entities either submitted comments to the docket or testified at one of the three hearings, including fifteen transit authorities, three utility commissions, eight States, one engineering firm, two transit associations, one labor union, one Federal agency, one transit supplier, two representatives from the people mover industry, and one transportation consultant.

On December 9, 1993, FTA published its NPRM (58 FR 64855) and today publishes its final rule, which requires States to oversee the safety of rail fixed guideway systems.

A. 49 U.S.C. 5330

In general, section 5330 applies only to those States in which a rail fixed guideway system operates that is not regulated by the Federal Railroad Administration, and requires any such State to designate a State oversight agency to be responsible for overseeing the rail fixed guideway system's safety practices. FTA is required to issue a rule implementing the program and may withhold Federal funds if a State fails to implement the rule.

More specifically, the statute describes the responsibilities of the State and the agency the State designates to provide oversight, which in most instances will be an agency of the State because most rail fixed guideway systems operate in only one State. When a rail fixed guideway system operates in more than one State, however, the statute permits the affected States to designate any entity, other than the transit agency itself, to oversee that rail fixed guideway system.

Whether the oversight agency is a State agency or some other entity, it must require each affected transit agency to create a system safety program plan, which the oversight agency must review and approve. The oversight agency must also investigate accidents

and hazardous conditions. Once a hazardous condition has been discovered, the oversight agency must require the transit agency to correct or eliminate it.

If a State has not met these requirements or has not made adequate efforts to comply with them, the Secretary may withhold up to five percent of a fiscal year's apportionment under FTA's formula program for urbanized areas (formerly section 9) attributable to the State or an affected urbanized area in the State.

B. Summary of the Final Rule

The rule delineates the responsibilities of the State, the oversight agency, the transit agency, and the FTA.

The State

Under the rule, the primary responsibility of the State is to designate an entity or entities to oversee the safety of a rail fixed guideway system. When the rail fixed guideway system operates only within a single State, that entity or entities must be an agency of the State; when it operates in more than one State, the affected States may designate a single entity to oversee that system. In neither case may the State designate the transit agency as the oversight agency.

To ensure the oversight agency's candid assessment of the probable cause of a particular accident or unacceptable hazardous condition, the rule allows the State to enact legislation prohibiting the disclosure of oversight agency investigation reports.

The Oversight Agency

The rule directs the oversight agency, or an entity acting on its behalf, to develop a system safety program standard, a document that establishes the relationship between the oversight and transit agencies and specifies the procedures that the transit agency must follow. The system safety program standard must, at a minimum, comply with the American Public Transit Association's "Manual for the Development of Rail Transit System Safety Program Plans" ("APTA Guidelines"), a manual widely used throughout the transit industry and available from the American Public Transit Association (APTA), 1201 New York Avenue, N.W., Washington, D.C. 20005-3917, or the Federal Transit Administration, Office of Safety and Security, 400 7th Street, S.W., Washington, D.C. 20590. The APTA Guidelines assist in developing safety practices to reduce the likelihood of unintentional events that may lead to death, injury, or property damage. In

addition, the system safety program standard must include specific provisions addressing "security" matters, intentional wrongful or criminal acts, such as muggings, rapes, murders, assaults, or terrorist activities. To develop this portion of the system safety program plan, we suggest that the oversight agency use FTA's "Transit Security Procedures Guide" and "Transit System Security Program Planning Guide," available from the FTA at the address above.

The oversight agency must require the transit agency to develop a system safety program plan that complies with the oversight agency's system safety program standard. By January 1, 1997, the oversight agency must review and approve, in writing, the transit agency's system safety program plan; however, the "security" provisions of the system safety program plan must be approved initially by the oversight agency by January 1, 1998. After the initial approvals, the oversight agency must review, as necessary, the transit agency's system safety program plan and determine whether it should be updated. All oversight agency approvals must be in writing.

The rule allows the oversight agency to prohibit the transit agency from publicly releasing the "security" provisions in the system safety program plan.

The oversight agency must require the transit agency to conduct safety audits according to the Internal Safety Audit Process detailed in checklist number 9 of the APTA Guidelines. Once a year the transit agency must compile and submit an audit report to the oversight agency or an entity acting on its behalf for review.

Aside from reviewing the transit agency's safety audit reports, the oversight agency must conduct on-site safety reviews every three years. In a safety review, the oversight agency must assess whether the transit agency's actual safety practices and procedures comply with its system safety program plan. Once this review is completed, the oversight agency must prepare a report containing its findings and recommendations, an analysis of the efficacy of the transit agency's system safety program plan, and a determination of whether the system safety program plan should be updated.

The oversight agency must require the transit agency to report the occurrence of accidents and unacceptable hazardous conditions within a period of time specified by the oversight agency. The oversight agency must investigate such reports in accordance with procedures it has established. The

oversight agency may conduct its own investigation, use a contractor to conduct an investigation, or rely on the investigation conducted by the transit agency or the National Transportation Safety Board (NTSB).

After the oversight agency has investigated an accident or unacceptable hazardous condition, it must require the transit agency to minimize, control, correct, or eliminate it, in accordance with a corrective action plan drafted by the transit agency and approved by the oversight agency.

The oversight agency must submit three kinds of reports to FTA: an initial submission, an annual submission, and a periodic submission. In the initial submission, the oversight agency lists the names and addresses of the rail fixed guideway systems it oversees. This report must be updated only when that information changes. In the annual submissions, the oversight agency must submit to FTA a publicly available report summarizing its oversight activities for the past year. Periodically, an oversight agency must submit to FTA status reports of accidents, hazardous conditions, and corrective action plans. The oversight agency must submit these reports only if FTA so requests.

The Transit Agency

The transit agency must develop a system safety program plan that complies with the oversight agency's system safety program standard. It must conduct safety audits that comply with the Internal Safety Audit Process, APTA Guidelines, checklist number 9, and draft and submit to the oversight agency a report summarizing the results of the safety audit. The transit agency must classify hazardous conditions according to the APTA Guidelines' Hazard Resolution Matrix. The transit agency must report, within the timeframe specified by the oversight agency, any accident or unacceptable hazardous condition that has occurred on the rail fixed guideway system. The transit agency may, if the oversight agency so chooses, conduct investigations on behalf of the oversight agency. Once an investigation has been completed, the transit agency must obtain the oversight agency's approval of a corrective action plan and then implement the plan so as to minimize, control, correct, or eliminate the particular unacceptable hazardous condition or condition that has caused an accident.

The Federal Transit Administration

The FTA assesses whether the State has complied with the rule or has made adequate efforts to comply with it. If the FTA determines that the State is not in

compliance or has not made adequate efforts to comply, it may withhold up to five percent of the amount apportioned for use in the State or affected urbanized areas under FTA's formula program for urbanized areas (formerly section 9). Also, FTA receives reports from the oversight agency.

C. Overview of the Comments

The FTA received 60 comments in response to the NPRM. FTA considered all comments filed in a timely manner as well as all statements and material presented at the public hearings on the rule. The breakdown among commenter categories is as follows:

Transit Agencies	27
State DOTs	9
Public Utilities	6
Cities.....	1
Federal Agencies.....	2
Independent Consultants.....	8
Trade Associations	2
Safety Societies/Associations.....	5

In Section II below, we discuss in detail the public comments addressing issues raised in the NPRM. One such issue, how the term "rail fixed guideway system" should be defined, affects the scope of the rule. Another key issue, how the system safety program standard should be developed and what it should include, will directly affect the relationship between the oversight and transit agencies. Most important, we examine whether the oversight agency should use the APTA Guidelines or Military Standard 882B or 882C (MIL-STD 882B or 882C) to develop its system safety program standard. We also examine whether the system safety program standard should cover the planning, design, and construction phases of a rail fixed guideway system's life cycle; EPA and OSHA-type matters; "security"; and other issues.

Also, we discuss the oversight agency's role in investigating accidents and unacceptable hazardous conditions. A related issue concerns whether investigation reports should be kept confidential.

For additional discussion on individual issues, see also the Section-By-Section Analysis below in Section III.

II. Discussion of the Comments

A. Rail Fixed Guideway System

The first issue is the definition of "rail fixed guideway system." Statutes give us limited guidance in this regard; section 5330, the authority for this rulemaking, states that it applies "only to States that have rail fixed guideway mass transportation systems not subject

to regulation by the Federal Railroad Administration." Another provision, 49 U.S.C. § 5302, defines "mass transportation" as "transportation by a conveyance that provides regular and continuing general or special transportation to the public * * *." Finally, 49 U.S.C. § 20102(1), which defines railroads subject to regulation by the FRA, specifically excludes "rapid transit operations within an urban area that are not connected to the general railroad system of transportation." Of mass transportation systems, generally, only commuter railroads are regulated by the FRA. Therefore, we asked in both the ANPRM and the NPRM whether we should adopt a narrow definition and include only light and heavy rail systems or a broad definition and include other rail systems, such as monorails, inclined planes, trolley systems, and funiculars, as well.

Many commenters to the ANPRM did not address this issue. Those that responded directed their comments to specific issues; for instance, six commenters discussed including people movers, while only two commenters proposed a definition for FTA's consideration. In the NPRM, FTA proposed to define "rail fixed guideway system" as

Any public transportation facility not regulated by the Federal Railroad Administration, which occupies a separate right-of-way exclusively for public transportation or uses a steel-wheeled catenary or other rail system sharing a right-of-way with other forms of transportation and, which is included in the calculation of fixed guideway route miles under section 9 of the FT Act.

As we explained in the preamble to the NPRM, this definition would cover light and heavy rail, cable cars, trolleys, people movers, and inclined planes so long as their mileage is included in the calculation of fixed guideway route miles under section 9 of the FT Act. We further noted that the Morgantown People Mover, which is not used in the calculation of route miles under the section 9 formula program, would not be covered by the proposed rule, while the Detroit People Mover, which is used in the calculation of the section 9 formula would be covered. We further noted that the definition also would not cover rubber-wheeled trolley buses that use a catenary system, as they are subject to motor vehicle regulations.

Many of the commenters to the NPRM urged FTA to adopt the narrow definition, with most of them suggesting that the definition be limited to light and heavy rail systems only. In support of their contention, some of these commenters noted that in the past,

NTSB had recommended that FTA oversee the safety of rapid rail transit systems only, although these commenters stated that light rail systems should be covered by the rule as well. Concerning people movers, inclined planes, amusement rides, funiculars, historical trolleys, cable cars, and other rail transit systems, these commenters opposed their inclusion, opining that they do not present the same level of risk to public safety as posed by heavy and light rail systems.

NTSB also commented on this issue by stating that although it had no accident investigation experience with people movers or incline planes that would provide a basis to determine if these systems should be covered by the FTA's regulations, the Board believe[s] that the safety of any system that regularly transports people should be monitored by an appropriate State or local agency. Limiting the definition of a rail fixed guideway system to those systems used by an urbanized area in the calculation of fixed guideway route miles under Section 9 of the Federal Transit Act would apparently exclude some of these systems from the proposed regulation. Further, it is possible that an urbanized area could not count in the statutory formula to determine Section 9 Federal funds the rail route miles of a particular system to avoid having the system covered by the proposed oversight regulation. In short, the Safety Board questions the need for the Section 9 limitation to the definition.

FTA Response. Although most commenters recommended that we cover only light and heavy rail systems, we agree with the NTSB that "any system that regularly transports people should be monitored by an appropriate State or local agency." Hence, the rule covers inclined planes, monorails, trolleys, automated guideways, and funiculars along with light, rapid, and heavy rail systems. We did, however, change the definition to clarify that guided busways are not covered.

We also made another change in light of NTSB's assertions that the proposed definition may exclude some systems that are not used to calculate fixed guideway route miles under FTA's formula grant program for urbanized areas. We do not believe this would be the case because FTA's grant program is based, in part, on the amount of "fixed guideway route miles" within an urbanized area. It is therefore in the urbanized area's interest to include as many systems as possible. Moreover, in most instances, a system that receives Federal funding under FTA's formula grant program for urbanized areas would have its mileage included in the calculation. The opposite, however, is not true; there are systems whose mileage is used in the calculation that do not receive funding under FTA's

formula grant program for urbanized areas. That is why we proposed covering those systems that are used in the calculation instead of just certain recipients of FTA funding; it is actually a broader category. Nevertheless, we have added a provision to cover any system that receives funding under FTA's formula grant program for urbanized areas or is used in the calculation of "fixed guideway route miles." This definition should cover most rail mass transit systems not regulated by the FTA.

B. System Safety Program Standard

Section 5330 requires FTA to issue regulations that direct the State oversight agency to develop "a safety program plan for each [rail] fixed guideway mass transportation system in the State." In the NPRM, we proposed to require the oversight agency to adopt a system safety program standard, which a transit agency would then use to develop its system safety program plan, the document used by the transit agency to ensure that it uses proper safety practices and procedures.

The NPRM further proposed that the oversight agency's "system safety program standard" comply, at a minimum, with the American Public Transit Association's "Manual for the Development of Rail Transit System Safety Program Plans," ("APTA Guidelines"). In the preamble to the NPRM, we noted that we had considered adopting Military Standard 882B (MIL-STD 882B), which has been subsequently superseded by MIL-STD 882C, but found it unnecessary because APTA had developed its Guidelines by adapting MIL-STD 882B to the transit industry.

While most commenters favored the use of the APTA Guidelines, one commenter strongly favored the use of MIL-STD 882B or 882C to develop the system safety program standard. This commenter noted that:

[T]he discussion of the Proposed Rule indicates that the APTA requirement is equivalent to MIL-STD 882B, and that the APTA standard can therefore be used in place of the MIL-STD. It should be noted that the APTA standard is not equivalent to the military standard. There are significant and important philosophical differences between the two documents. The most important of the differences is that MIL-STD 882 specifies that system safety be started very early in the project, that it must be involved in the design of the system, that a specific order of precedence must be followed to increase safety, and that risk assessments must be based upon probability and severity. The APTA standard emphasizes the use of system safety for operational systems after they have been completed and put into service.

indicates that system safety is mostly concerned with operations and procedures, and implies that safety can be 'audited' into a system. While the APTA Manual does mention that system safety is needed during the design phases, the emphasis is clearly on later phases * * *. Another potential concern with the APTA Manual is that it describes the audit process in terms of determining whether or not the transit agency is following its system safety program, but is silent on the issue of determining whether or not that program can be expected to accomplish its goals. While this is appropriate for an organization such as APTA, it may not be appropriate for an Oversight Agency. It may be important for the Oversight Agency to review the Transit Agencies' plans with an eye toward trying to determine whether or not the plan is likely to result in an effective system safety program * * *.

This commenter also noted that MIL-STD 882C incorporates changes concerning "Software Safety."

FTA Response. This commenter has certainly made a convincing case for the adoption of MIL-STD 882B or 882C, and we emphasize that, although we have adopted the proposal as published in the NPRM, we have not precluded the use of either of those Military Standards. Instead, we have adopted the APTA Guidelines as a minimum standard the oversight agency must meet or exceed; because the APTA Guidelines were derived from MIL-STD 882B, an oversight agency that bases its system safety program standard on either MIL-STD 882B or 882C should meet or exceed the requirements of the APTA Guidelines. Moreover, by adopting the APTA Guidelines as a minimum standard, we accomplish two objectives: establishing a nation-wide baseline standard and giving a State more flexibility and control in developing its own program.

We do, in fact, urge the oversight agency to assess the APTA Guidelines in relation to MIL-STD 882B or 882C and decide which one best addresses its needs. We believe that an oversight agency that uses either MIL-STD 882B or 882C as a basis for its system safety program standard is well served, and we urge an oversight agency to at least consider those Military Standards in developing its own oversight program.

Although we have not mandated the use of MIL-STD 882B or 882C, we have addressed one of the concerns of this commenter, by adding a provision in the rule to require the oversight agency to determine the efficacy of the transit agency's system safety program plan and require the transit agency to update it, if necessary.

This commenter also commented that the MIL-STD 882C's section on

"Software Safety" is "of critical importance to modern transit systems"; we recommend that both the oversight agency and the transit agency assess whether that section meets the safety needs of the "rail fixed guideway system."

C. System Safety Program Plan—the Six Factors.

As mentioned above, under the NPRM the transit agency was to develop a system safety program plan that complied with the oversight agency's system safety program standard. In the preamble to the NPRM, we suggested that the system safety program plan should: (1) be endorsed by top management; (2) establish the safety goals and objectives of the transit agency; (3) identify safety issues; (4) require cooperation within the transit agency to address the identified safety issues; (5) recognize that achieving safety goals and objectives may require the involvement of entities other than the transit agency; and (6) provide a schedule for the implementation and revision of the system safety program plan. We then asked for comment on whether we should require these six factors in the final rule.

Only seven commenters responded to this issue, and none of them opposed the general concept of the six factors. Several of the commenters noted, however, that all six factors are included in the APTA Guidelines, making them unnecessary if FTA incorporates the APTA Guidelines into the final rule.

FTA Response. Since the six factors are included in the APTA Guidelines, which we have incorporated by reference into the final rule, the oversight agency must require the transit agency to address all six factors in its system safety program plan.

D. Planning, Design, and Construction.

In the preamble to the NPRM, we noted that section 5330 may be read

To apply only to the operation of rail fixed guideway systems, which would lead to the conclusion that the NPRM covers only those rail fixed guideway systems already in existence, or other systems only when they commence operations. On the other hand, if we were to interpret section [5330] to apply during the planning, design, and construction phases of a system, we would then have to decide when the State would be required to comply with this proposed rule. This would be especially difficult for those States where systems are in the planning stage, which can be a lengthy process, and it would be difficult to specify at what point the oversight agency would have to be established.

Of the commenters that responded to this issue, only a few favored covering the pre-operational phases of the rail fixed guideway system's life cycle. One of these commenters stated that "[t]o ensure that the design of facilities and systems results in optimal safety, the system safety approach has been shown to be highly effective and cost efficient."

The vast majority of the commenters were against covering the planning, design, and construction phases in this rule, stating in effect, that other mechanisms, *i.e.*, FTA's Program Management Oversight (PMO) process and the construction contract itself can ensure that safety is planned, designed, and constructed into new rail fixed guideway systems.

FTA Response. Although we agree that a system safety program plan should cover the planning, design, and construction of a "rail fixed guideway system," the language of section 5330 leads us to conclude that it covers only operating systems or systems about to commence operations. Section 5330 directs a State to establish and carry out a "safety program plan for each [rail] fixed guideway mass transportation system in the State," never mentioning the planning, design, and construction phases of a system's life cycle. Moreover, because of the lengthy planning, design, and construction phases of a system's life cycle, we believe that it is impractical, especially for a State planning its first "rail fixed guideway system," to require that a State create a bureaucracy years before a single passenger is served, when there are other mechanisms available to ensure that safety is designed, planned, and constructed into a new "rail fixed guideway system." This does not mean, however, that a State is precluded from creating an oversight agency that oversees the planning, design, and construction of a "rail fixed guideway system." On the contrary, we encourage the States to do so, although we do not, under this rule, require it. Also, we encourage the oversight agencies to work with PMOs to ensure that safety is designed, planned, and constructed into new "rail fixed guideway systems."

E. Accountability Factor.

While drafting the NPRM, we were concerned that the development of a State Safety Oversight Program would not be complete without some mechanism to ensure transit agencies' commitment to safety. To "institutionalize" this commitment and to meet the requirements of section 5330, we developed the "accountability factor," in which the oversight agency would require a transit agency to

identify tasks critical to safety and the persons responsible for performing those tasks. This concept was derived from section 207 of MIL-STD 882B, which concerns the "identification of safety-critical equipment and procedures." The "accountability factor" was intended to help the transit agency identify and correct problems.

Most of the commenters on this issue opposed the inclusion of the "accountability factor" in the rule because, in their opinion, it would not achieve its intended purpose of making systems safer. For instance, one commenter stated such a requirement would allow the oversight agency not just to oversee but to micromanage the transit agency; another claimed that it would become a "paperwork" exercise and actually hinder the development of safety practices and procedures. Yet another commenter stated that it would be used to "fix" blame. One commenter argued that the "accountability factor" was a "misapplication" of section 207 of MIL-STD 882B, which, according to this commenter, was developed to verify compliance with safety equipment and procedures, an activity distinct from system safety program activities. Last, some commenters indicated that the "accountability factor" was not necessary under the rule because a well-drafted system safety program plan incorporates accountability into it.

Although the NTSB favored the inclusion of the "accountability factor" in the final rule, it did not elaborate on its reasoning.

FTA Response. The final rule does not include the "accountability factor" because on balance, we have concluded that the oversight agency is best suited to meet the directives of section 5330(c)(1) to "establish] * * * lines of authority [and] levels of responsibility and accountability * * *" for the rail fixed guideway system. We note that the APTA Guidelines checklist numbers 1 through 5 stress the development of a concept similar to the proposed "accountability factor."

F. EPA and OSHA Requirements.

We asked whether the system safety program plan should address matters covered by the Occupational Safety and Health Administration (OSHA) and the Environmental Protection Agency (EPA). Four argued that it should; three were opposed. Those in favor supported a "comprehensive approach" to safety in which various safety issues or "disciplines" are integrated for a total prevention effort. Those in opposition were concerned about creating overlapping jurisdiction between the oversight agency and the State agency

with authority to enforce the EPA and OSHA laws and regulations.

FTA Response. By adopting the APTA Guidelines, which address OSHA and EPA matters in System Safety Checklist numbers 19 and 20, respectively, we have required that these matters be included in the system safety program plan. Although this allows the possibility of jurisdictional conflicts among State agencies, the benefits of the oversight agency's adopting a total approach to safety outweigh this possibility. Moreover, a State can plan to reduce or eliminate any duplicative jurisdiction between the oversight agency and any other State agency with jurisdiction over EPA and OSHA matters.

G. Security.

In the preamble to the NPRM, we asked whether the system safety program plan should address security matters, and if so, what specifically should be included. Many commenters responded to this question, most negatively; some contended that security matters should be handled by law enforcement personnel and not by transit safety professionals, others opined that requiring the system safety program plan to address security matters is outside the scope of section 5330, and others stated that whether transit security matters should be included in the system safety program plan should be decided by State and local transit officials and not mandated by the Federal government.

More particularly, one commenter noted that "security is a separate issue which requires separate treatment, separate techniques, separate concerns, and separate disciplines." This commenter continued:

[A]lthough, many times the public may perceive their safety as being 'freedom from assault or attack from other individuals', normally professionals in the industry define safety in association with unintentional events or conditions (accidents), whereas, security is defined as being associated with intentional acts (usually illegal acts). The causes and the control measures for these two situations (safety and security) are entirely different * * *. One good reason for keeping these separate is the different type of management required. Typically, effective management of security requires law enforcement type management philosophies, whereas effective management of safety requires entirely different (and sometimes opposite) kinds of thinking. Management of these two functions must be separated, because of the different skills, philosophies, management styles, and kinds of managers required.

Other commenters noted another important difference between safety

procedures and security measures: Safety procedures, policies, and processes can be made public and still be effective, whereas security measures, to be effective, must be kept confidential. Thus, these commenters reasoned, security measures should not be included in a publicly available document, such as a system safety program plan.

The commenters in favor of requiring the system safety program plan to address security matters focused on the similarities between security measures and safety issues. Most notably, these commenters stated, safety and security procedures are both forms of risk management; "[s]afety is the management of the risk to persons and property from accidental or negligent loss * * [while] security is the management of the risk to persons and property from criminal acts."

Last, some commenters contended that emergency planning and response procedures were the same for both safety and security events. Four commenters recommended that FTA include security only when it relates to emergency planning and response.

FTA Response. Because we agree with the commenter who noted that safety and security are both forms of risk management and because of recent terrorist acts, we have decided to require the inclusion of security considerations in the system safety program plan. In response to another commenter, however, we have added a provision to the rule that will allow the security portion of the system safety program plan to be barred from public disclosure.

We disagree, however, with the argument that Congress did not intend section 5330 to include security. Section 5330(c)(1) states that "[a] State meets the requirement of this section if the State—establishes and is carrying out a safety program plan for each [rail] fixed guideway mass transportation system in the State * * *" [emphasis added]. According to Webster's Third New International Dictionary, "safety" means "the condition of being safe; freedom from exposure to danger, exemption from hurt, injury, or loss," whereas "security" means "the quality or state of being secure: as (a) freedom from danger: safety." It seems clear, therefore, that the meaning of safety encompasses the meaning of security. Moreover, according to the System Safety Glossary published in 1985, by the Transportation Safety Institute "safety" is defined as "[a] reasonable degree of freedom from those conditions that can cause injury or death to personnel, damage to or loss of equipment or

property; freedom from danger"; this would certainly cover intentional acts. Similarly, according to the Transit Security Program Planning Guide recently published by the FTA, "security" means "freedom from intentional danger," while "safety" means "freedom from danger." Therefore, section 5330 can be interpreted, and we do, to require the inclusion of security in the system safety program plan.

Other commenters indicated that security should not be included in the system safety program plan because safety and security are as different from each other as apples from oranges. One transit agency presented safety and security as two different disciplines requiring two different approaches and two different kinds of trained personnel. Thus, this commenter reasoned, the system safety program plan should not address security matters. In our view, however, safety and security risks are interrelated, especially from the perspective of transit passengers. We agree with the commenter who wrote:

[A]lthough the disciplines have been separated in their normal application, there is a trend for a united knowledge base of safety with security so that any type of hazard is examined for its implication as a security type of problem. As with other disciplines, safety and security requirements may be at odds requiring careful analysis of the potential hazards and threats against the transit system and the development of appropriate trade-off studies. The Transit Safety Professional needs to have security analyses in the curriculum of study and certification to ensure awareness of the issues and concerns related to security. In addition, security systems themselves require safety analyses to ensure that they are properly covered.

We also disagree with the commenter who recommended that only emergency response procedures be included in the system safety program plan. We note that the APTA Guidelines already contain a provision concerning emergency preparedness. While emergency preparedness is itself a valuable activity, it does not prevent either intentional or unintentional acts from occurring. An emergency preparedness plan is used to develop a response to an event, while the overall system safety program plan develops procedures to reduce the likelihood of either intentional or unintentional events from occurring.

H. Biennial Safety Reviews

In the proposed rule, the oversight agency would comprehensively review, on-site, the rail fixed guideway system's safety practices every two years. Most commenters objected to this provision.

Some maintained that a review every two years was unnecessary and burdensome; in support of their contention, they mentioned APTA's Rail Safety Audit Program, in which auditors employed by APTA review a rail fixed guideway system's safety practices every three years. They maintain that a three-year review schedule adequately addresses safety needs. One commenter indicated that APTA adopted a three-year schedule to give rail fixed guideway systems time to take corrective and other recommended actions. Another commenter, a State agency already overseeing rail fixed guideway systems, stated that it does not independently conduct on-site reviews, but instead observes the APTA auditors review a system; this commenter concluded that this approach works well for it and the rail fixed guideway systems under its jurisdiction. Some commenters urged us to specifically allow oversight agencies to use the APTA Rail Safety Audit Program.

Other commenters favored a flexible approach, in which the oversight and transit agencies schedule reviews appropriate for the age, size, and complexity of the rail fixed guideway system. One commenter recommended that we specify the exact requirements of a safety review.

FTA Response. Agreeing generally with the commenters, we have made the rule more flexible. For instance, the rule requires the oversight agency to review the transit agency's safety practices at least every three years instead of every two, as we had proposed. The oversight agency may conduct these reviews more frequently if it chooses. Moreover, the rule expressly allows the oversight agency to use a contractor to conduct the required review, which allows the oversight agency to use the APTA Rail Safety Audit Program or any other qualified contractor to conduct safety reviews.

Although one commenter had urged us to define specifically the requirements of a safety review, we have declined to do so. Instead, the oversight agency should determine for itself, based on the age, size, and complexity of the individual rail fixed guideway system within its jurisdiction, the exact extent of the review; however, it must be comprehensive, *i.e.*, cover all matters included in the transit agency's system safety program plan.

The process used by the California Public Utilities Commission (CPUC) illustrates how the rule can be flexible. Instead of using its staff to conduct comprehensive safety reviews, CPUC staff accompany and observe APTA

auditors who perform a comprehensive safety audit. This system allows CPUC personnel to cover the daily operation and maintenance activities of the rail fixed guideway system and conduct in-depth reviews of particular activities on an "apparent need" basis. For instance, CPUC's staff conducted in-depth reviews of track maintenance practices at five different rail fixed guideway systems. In short, an oversight agency could conduct its own safety reviews, contract them out completely, or adopt an approach similar to CPUC's, in which both a comprehensive safety review and an in-depth review of a particular system component is conducted by another contractor or oversight agency personnel.

One commenter recommended that the extent and frequency of safety reviews depends on the particular phase of the rail fixed guideway system's lifecycle. This commenter recommended that a safety audit be performed during the preliminary engineering phase to assure properly defined criteria, during the final design stage to assure that the criteria has been included in the specifications, during pre-revenue testing to assure the systems have been properly installed and the system tested and safety certified, then every two to three years when the system is operational, and more frequently if there are serious problems. We agree with this commenter, although we have not adopted his suggestions formally in the rule. Instead, we strongly urge oversight agencies to consider these kinds of factors when establishing a safety review process.

I. Safety Audits

FTA proposed to require the transit agency to conduct a "safety audit," a "methodical, ongoing, internal examination of a transit agency's safety practices to determine whether they comply with the policies and procedures required under the transit agency's system safety program plan." The results of these safety audits were to be compiled every six months by the transit agency into a report to the oversight agency, which would review those reports as part of its monitoring function required under section 5330.

Nineteen commenters responded to this proposed safety audit process, with most of them objecting that such audits amount to a "paperwork exercise" that could be detrimental to the safe operation of a rail fixed guideway system. They argued that the "safety audits" and the "biennial reviews" were redundant and that auditing continuously was not necessary to

ensure the safe operation of a rail fixed guideway system. Some of these commenters recommended that FTA adopt a system of random periodic checks similar to the APTA review process; others recommended that the oversight agency set the timeframe for safety audits by the transit agency. Still others recommended that the frequency of safety audits be linked to the age, type, and speed of the system, maintaining that different rail fixed guideway systems have different safety auditing needs.

FTA Response. FTA had intended the "safety audit" process to be used in addition to the "Internal Safety Audit Process" in checklist number 9 of the APTA Guidelines, which apparently confused the commenters. To clarify our intent, we have withdrawn the proposed definition, "safety audit," and now require the oversight agency to develop a process that complies with APTA's "Internal Safety Audit Process." Although we make this change, we nevertheless encourage transit and oversight agencies to view safety and the safety auditing process as a routine, daily matter. As noted in the APTA Guidelines, "[t]he Internal Safety Audit Process * * * requires constant attention and activity."

To ensure that both transit and oversight agencies view the safety auditing process as a "constant activity," we have retained the requirement for the transit agency to complete and submit safety auditing reports to the oversight agency, a requirement in the APTA Guidelines, which states that audit reports are to be used as a "management tool." FTA had proposed semi-annual reports, which most commenters objected to as a "paperwork exercise." In response, we have changed the reporting time period from semi-annually to annually to reduce the paperwork burden.

J. Accident

To focus oversight agency accident investigations on serious events that may show a systemic safety problem, FTA proposed to define "accident" as "any event involving the operation of a rail fixed guideway system resulting in: (1) [D]eath directly related to the event; (2) [i]njury requiring hospitalization within twenty-four hours of the event; (3) [a] collision, derailment, or fire causing property damage in excess of \$25,000; or (4) [a]n emergency evacuation." The vast majority of commenters opposed this definition and recommended numerous ways to change it.

For instance, several commenters requested that FTA limit the definition

to those events involving revenue service operations, thus excluding incidents occurring in rail yards. According to the commenters, these kinds of incidents are covered by OSHA rules; eliminating them from the rule, these commenters reasoned, would avoid duplicative and perhaps conflicting jurisdiction between the oversight agency and the State and Federal agencies responsible for enforcing OSHA regulations.

Some commenters recommended that any incident involving trespassers or employees be excluded from the definition. These commenters maintained that events involving trespassers would not necessarily indicate a systemic safety problem; in other words, it is impossible to protect against trespassers. Several commenters maintained that events involving employees should not be covered to avoid duplicative jurisdiction between the oversight agency and the State and Federal agencies regulating the workplace.

Other commenters recommended that FTA exclude certain kinds of personal injuries from the definition, stating that it is difficult, if not impossible, for a transit agency to monitor every slip, trip, or fall that occurs at a rail fixed guideway system. They further maintain that these kinds of injuries are not sufficiently serious to trigger an investigation by the oversight agency.

Still other commenters noted that, in most cases, a transit agency would be unable to determine whether a person was hospitalized as a result of the injury. Transit agency personnel operating in large metropolitan areas would be forced to contact dozens of hospitals, a task that would strain its resources; moreover, many hospitals do not release this kind of information to the public.

Several of these commenters recommended that FTA define accident, in part, as any injury in which a person is treated at the scene or is transported from the scene by medical personnel. This change would ease the administrative burden on the rail fixed guideway system, these commenters contended.

Many commenters strongly objected to the \$25,000 property damage threshold, with most of them indicating that property damage estimates are subjective and become obsolete over time; others contended that \$25,000 was too low. Some recommended that FTA annually adjust the dollar amount for inflation, and others recommended that the dollar amount be set by agreement between the oversight and transit agencies.

Several commenters recommended that FTA define an emergency evacuation, with one proposing that it be limited to circumstances in which emergency doors and exit routes are used, thus excluding instances when passengers are asked to leave a train disabled in a station.

FTA Response. In light of the comments, FTA has made several changes to the definition of accident. For instance, we have limited the definition to only those events that occur during the revenue service operation of the rail fixed guideway system, which eliminates from the rule any injuries or deaths to workers in rail yards. We made this change, not because these are unimportant events, but to avoid overlapping jurisdiction among State agencies. We do, however, encourage the oversight agency to establish a relationship with the State agency having jurisdiction over these matters and share information, thus making the workplace safer for rail fixed guideway system employees.

We disagree with commenters asking us to exclude incidents involving trespassers from the rule. Although we sympathize with the perspective of transit agencies, we believe that any death or injury requiring immediate medical treatment away from the scene of the event, which occurs while the rail fixed guideway system is in revenue service, should be investigated by the oversight agency.

We agree with those commenters who objected to the hospitalization requirement and have changed the rule to state that an accident has occurred if a person has been injured and "immediately receives medical treatment away from the scene of the accident." This language is used in FTA's drug and alcohol rules, as well.

Although several commenters asked us to remove property damage dollar thresholds, we did not do so. Instead, we have raised the dollar threshold to \$100,000, which should reduce the number of accidents involving property damage.

Last, we have removed the portion of the definition concerning emergency evacuations. In many instances, a serious event involving the evacuation of a mass transit vehicle also will involve a death, an injury requiring immediate medical treatment away from the scene, or more than \$100,000 in property damage, any of which, by themselves, will trigger an oversight agency investigation. Hence, by making this change we have focused an oversight agency's resources on serious events involving the emergency evacuation of a mass transit vehicle.

K. Hazardous Condition

FTA proposed to define a "hazardous condition" as "any condition which may endanger human life or property," and "unacceptable hazardous condition" as "a hazardous condition determined to be an unacceptable hazardous condition using the hazard resolution matrix of the 'Rail Safety Audit Manual' published by APTA." FTA further proposed to require the oversight agency to investigate only unacceptable hazardous conditions, whereas the transit agency was to correct or eliminate any hazardous condition.

Several commenters were confused by these two definitions and one maintained that the definitions were understandable only in conjunction with the APTA Guidelines checklist number 7.

Another commenter argued that FTA should not adopt the APTA Guidelines' hazard classification process. This commenter stated that

[T]he Hazard Resolution Matrix contained in the APTA guidelines is an inadequate indicator of when an investigation should be triggered. As an example, it is well-known that currently-operating modern escalators frequently cause minor injuries to patrons (particularly children). Following the APTA guidelines, one would categorize the hazard associated with an operating escalator in Category III (marginal-minor injury). Furthermore, since escalators are usually operating more often than not, the hazard exists all the time the escalator is operating. Again following the APTA guidelines, the hazard probability would be in Category A—frequent-likely to occur frequently (individual); continuously experienced (fleet/inventory). Under the Hazard Resolution Matrix of the APTA guidelines, this would be a Category III-A, which would be labeled 'unacceptable.' Following the reasoning proposed in the NPRM, all escalators would continuously have to be corrected or eliminated by all transit agencies, and all escalator accidents investigated by the oversight agency. Since escalators cannot be corrected (at least so far no one has been successful in creating an escalator that doesn't have these hazards), all escalators would have to be eliminated from transit properties.

In contrast, another commenter supported the use of the APTA Guidelines Hazard Resolution Matrix because, according to this commenter, it has been adopted and practiced by more than 95 percent of the affected systems.

Several commenters objected to FTA's proposal to require transit agencies to "correct or eliminate any hazardous condition," which they characterize as an "impossible chore." In the words of one commenter, "[i]f every transit agency was required to eliminate every condition that may cause minor injury

***, all of its resources would be extended in attempting to eliminate these potential minor threats, with little resources left to run the transit system." One commenter recognized this problem also, and suggested that FTA require that hazardous conditions be corrected, eliminated, or controlled. One commenter maintained that the oversight agency should not be required to investigate any hazardous condition.

FTA Response. Although FTA has made some changes to the rule, we have not changed the definitions. The terms "hazardous condition" and "unacceptable hazardous condition" must be read in conjunction with the APTA Guidelines, particularly with the hazard resolution process, checklist number 7. To identify hazards, FTA has mandated the use of this particular process by transit agencies, even if a transit agency has used MIL-STD 882B or 882C to develop its system safety program plan. We have mandated this process, despite some commenters who opposed its adoption, because it is widely used and accepted throughout the transit industry.

Also, the rule requires the oversight agency to investigate unacceptable hazardous conditions as well as accidents. Although at least one commenter opposed requiring the oversight agency to investigate unacceptable hazardous conditions, section 5330(c)(2)(B) requires the oversight agency to "investigate hazardous conditions." To focus State resources on serious safety issues, FTA has interpreted section 5330 narrowly, thus requiring an oversight agency to investigate only "unacceptable hazardous conditions."

We agree with the commenters who maintained that not all hazardous conditions can be corrected or eliminated. Risk cannot be taken out of life. Therefore, we require a transit agency to correct or eliminate any hazardous condition if possible, and if not, the transit agency must either minimize or control it. For instance, one commenter noted that escalators are hazardous conditions, which can be corrected only by eliminating the escalator. Under this rule, the transit agency is not required to eliminate escalators, but it is required to minimize or control the risks associated with escalators. A transit agency can take one or more of several actions to minimize these risks, such as installing an emergency shut-off switch, retrofitting the escalator with additional safety devices, posting instructions on how to avoid accidents on escalators, or developing educational programs for children on how to properly use

escalators. Many transit agencies have addressed the safety issues of escalators, but we urge them to consider other measures to make escalators safer, especially for children.

L. Investigations

FTA proposed to require the oversight agency to develop its own investigation procedures and to investigate accidents, except those being investigated by the National Transportation Safety Board (NTSB), and all unacceptable hazardous conditions.

Twenty-seven commenters responded to issues arising from this proposal. Although one commenter stressed that the oversight agency should not conduct any investigations, most commenters focused on the oversight agency's role in investigating an "accident" or "unacceptable hazardous condition." The vast majority of these commenters maintained that the oversight agency should not conduct its own independent investigation, but should focus on the process used by the transit agency in conducting investigations. These commenters noted that the transit agency must be responsible for operating its own system; an independent investigation by the oversight agency may implicitly usurp the authority of the transit agency over safety and other operational matters, according to these commenters. Others insisted that although the oversight agency's primary responsibility was to ensure that the transit agency properly conducted investigations, it should nevertheless be authorized to investigate extraordinary events. One commenter maintained that the oversight agency should not investigate an "accident" or "unacceptable hazardous condition" unless the transit agency's investigation is inadequate.

FTA Response. Despite the opinion of at least one commenter, the oversight agency is required under section 5330 to investigate accidents and hazardous conditions. As discussed above, we proposed to define "accident" in a manner to focus the oversight agency's investigation on serious events of a systemic nature. Similarly, instead of proposing to require the oversight agency to investigate all "hazardous conditions," we proposed that it investigate only "unacceptable hazardous conditions." We have not changed this basic scheme.

Moreover, we believe that our proposal was misunderstood, and we seek now to clarify the role of the oversight agency in conducting investigations. The oversight agency is not only responsible for developing its own investigatory procedures, it is

responsible for determining how it will investigate. An oversight agency may contract for this service; some may elect to use APTA's Panel of Inquiry, others may choose to use other experts. The oversight agency may allow the transit agency to conduct some or all investigations. The oversight agency may choose to investigate all "accidents" and "unacceptable hazardous conditions" or investigate some and contract for the investigation of others. The rule is flexible in this regard, just as we had proposed in the NPRM. Although the examples set forth above are not exhaustive, ultimately, unless the NTSB is conducting an investigation, either the oversight agency or an entity acting on its behalf must investigate "accidents" and "unacceptable hazardous conditions."

We do, however, encourage the oversight agency to either directly or by contract conduct independent investigations. Moreover, we disagree strongly with commenters who maintain that the oversight agency should focus on the process used by the transit agency to conduct investigations. The purpose of this rule is to ensure that a rail fixed guideway system operates safely and that the systemic causes of "accidents" and "unacceptable hazardous conditions" are addressed; focusing on process in this context, therefore, is misplaced. Rather, the focus of the oversight agency should be to assist the transit agency in preventing "accidents" and "hazardous conditions."

M. Confidentiality of Oversight Agency Investigation Reports

Several commenters to the ANPRM requested that we include a provision in the rule barring the discovery or the use in evidence of any investigative report compiled as a result of this rule. In the NPRM, we noted that section 5330 did not specifically address this matter, and hence, we doubted that we could make such a mandate. Nevertheless, we asked whether we should adopt a provision which would require that the oversight agency investigation reports be kept confidential.

Almost every commenter favored the adoption of such a provision. One commenter wrote:

[T]he investigations at rail fixed guideway systems are often confidential * * * and thus they are not subject to discovery or public disclosure. If the information gathered by the states becomes a public document, then the FTA will be building into this regulation a serious conflict between the state agencies and the [rail] fixed guideway systems. In order to ensure better gathering of information by the states, and to maintain

unreserved cooperation with the local transit systems, it is strongly recommended that the information gathered by the states must be protected from disclosure.

Another commenter wrote "[w]e submit that a discovery exemption is critical to the efficient operation of the oversight agency, as it would protect the agency's limited staff and resources from the inundation of subpoenas and other discovery requests." Yet another commenter wrote that

[The rail fixed guideway system] believes that FTA should provide protection for Attorney-Client privilege under the proposed rule to include investigative materials and materials pertaining to 'hazardous condition' discussions or findings by the State oversight agency. If FTA does not have the statutory authority to provide such protection, it should require the States to do so. The loss of [the rail fixed guideway system's] Attorney-Client privilege over such documents would have a serious negative economic impact on third party litigation.

The remaining commenters maintained that although the issue is an important one, FTA should remain silent on it.

FTA Response. FTA agrees strongly that the oversight agency investigation reports should be kept confidential; thus, we have added a provision to the rule permitting a State to require that these reports be kept confidential, and we encourage strongly that the State authorize the oversight agency to do so.

N. Certified Transit Safety Professional.

FTA proposed to require the use of Certified Transit Safety Professionals primarily in response to comments to the ANPRM and related public hearings, which reflected concern throughout the transit industry about the expertise necessary to carry out an effective oversight program. These commenters maintained that an effective oversight program could not be achieved without the use of certified safety professionals.

In response to these comments, the NPRM proposed to require both the oversight agency and the transit agency to use the services of a Certified Transit Safety Professional, either from within their own organizations or under contract, to comply with the requirements of the rule. A Certified Transit Safety Professional was defined as one who had "successfully completed the Safety Professional Certification requirements established by the Board of Certified Safety Professionals, * * * or, a registered professional engineer in system safety." FTA also sought comment on whether it should require a Certified Transit Safety Professional to have a minimum number of years of experience in transit safety.

Forty-seven comments were received on this matter, which was among the most controversial proposals in the NPRM. Although most commenters opposed the inclusion of this concept in the final rule, some recommended changes to the definition of certified transit safety professional. For instance, several commenters noted that organizations other than the Board of Certified Safety Professionals certify safety professionals, such as the World Safety Organization or the Federal Railroad Administration. Others recommended that the rule recognize experience equivalent to the training required by the Board of Safety Professionals. One commenter recommended that, in addition to certification, a Certified Transit Safety Professional be required to have a minimum number of years of experience.

Several commenters opposing this proposal maintained that the Board of Certified Safety Professionals does not certify professionals in transit safety. The Board of Safety Professionals, however, did not oppose this proposal. Instead, they recommended that FTA require the certified transit safety professional's certification to be current. Several commenters noted that States do not certify professional engineers in system safety, although one commenter noted that the Board of Certified Safety Professionals 1993-1994 Directory listed 200 Safety Professionals certified in system safety.

One commenter who opposed this proposal nevertheless recommended that FTA require safety professionals to complete FTA's Rail System Safety Course. Another commenter recommended that a peer group develop guidelines concerning the experience and training for transit safety professionals, which a transit agency could adopt. Other commenters objected to the proposal stating that such a training requirement would be too expensive.

FTA Response. In response to the overwhelming comments opposed to this proposal, FTA has removed the Certified Transit Safety Professional provision from the rule. We do, however, urge the States to develop their own criteria to ensure that both the transit and oversight agencies are using qualified professionals under this rule to ensure the safe operation of rail fixed guideway systems. In this regard, we recommend that safety professionals, at a minimum, have transit safety experience and complete the courses at the Transportation Safety Institute (TSI) sponsored by FTA applicable to rail transit systems. TSI offers the following

courses: System Safety, Accident Investigation, System Security, and Emergency Management. FTA has provided training assistance to the transit industry in safety since 1976, and this program will be a major contribution to State Safety Oversight. Moreover, we urge States to require safety employees to be certified by the Board of Certified Safety Professionals, the World Safety Organization, or other comparable organization; safety professionals should possess a certain level of experience as well.

III. Section-by-Section Analysis

Please note that issues addressed in the Section-by-Section Analysis may also be discussed in the Discussion of the Comments.

Subpart A—General Provisions

A. Purpose. (§ 659.1)

This section explains that FTA is implementing the requirements of 49 U.S.C. § 5330, which requires a State to establish an agency to oversee the safety of rail fixed guideway systems. This rule directs the oversight agency to develop a system safety program standard and to require the transit agency to develop a system safety program plan that complies with the system safety program standard. In addition, the oversight agency must conduct safety reviews and investigations and ensure that the transit agency has developed and implemented a system safety program plan that complies with this rule and is effective.

B. Scope. (§ 659.3)

This section explains that the rule applies only to States with rail fixed guideway systems that are not regulated by the FRA.

C. Definitions. (§ 659.5)

1. Accident

An accident triggers an investigation by the oversight agency or its agent, and is defined as an event that occurs when the rail fixed guideway system is in revenue service and an individual dies or is injured and immediately receives medical treatment away from the scene; or a collision, derailment, or fire results in \$100,000 in property damage.

Injuries, deaths, or property damage that occur when the rail fixed guideway system is not in revenue service are excluded from the definition. Hence, under the rule, the oversight agency or its agent is not required to investigate these events, but may do so under its own authority.

An "individual" means anyone, including a passenger, trespasser, employee, or other bystander.

2. APTA Guidelines

The "APTA Guidelines" means the "Manual for the Development of Rail Transit System Safety Program Plans" published by the American Public Transit Association on August 20, 1991.

3. Contractor

A "contractor" means an entity that performs tasks required under this part on behalf of the oversight or transit agency. A transit agency may not be a contractor for an oversight agency.

4. FTA

The "FTA" means the Federal Transit Administration, an agency of the United States Department of Transportation.

5. Hazardous Condition

"Hazardous Condition" means a condition that may endanger human life or property. It encompasses "unacceptable hazardous conditions," defined below.

6. Investigation

"Investigation" means the process used to determine the probable cause of the "accident" or "unacceptable hazardous condition." It includes a review by the oversight agency of the transit agency's determination of the probable cause of an "accident" or "unacceptable hazardous condition."

An "investigation" may be conducted by the oversight agency itself or by some other entity acting on its behalf, or the investigation may be conducted by the transit agency. If the oversight agency chooses the latter method it must, at a minimum, review and approve the transit agency's findings of probable cause of the "accident" or "unacceptable hazardous condition."

7. Oversight Agency

The agency designated by the State or affected States to implement the requirements of this part.

8. Rail Fixed Guideway System

"Rail fixed guideway system" means any light, heavy, or rapid rail system, monorail, inclined plane, funicular, trolley, or automated guideway that is included in FTA's calculation of fixed guideway route miles or receives funding under FTA's formula program for urbanized areas and is not regulated by the Federal Railroad Administration.

9. Safety

"Safety" means freedom from danger; it includes freedom from unintentional as well as intentional acts.

10. Safety Review

"Safety review" means a comprehensive review by the oversight agency of the transit agency's safety practices. It includes an analysis by the oversight agency of the efficacy of the transit agency's system safety program plan and a determination of whether the system safety program plan must be modified, changed, or updated. The safety review must be conducted at the rail fixed guideway system.

11. Security

"Security" means freedom from intentional danger. Intentional danger includes criminal acts such as muggings, rapes, robberies, or terrorists acts, such as bombings, releases of poisonous gases, or kidnappings.

12. System Safety Program Plan

"System safety program plan" means the written document developed by the transit agency in accordance with the requirements of the oversight agency's system safety program standard.

13. System Safety Program Standard

"System safety program standard" means the document developed by the oversight agency that complies, at a minimum, with the APTA Guidelines and requires the rail fixed guideway system to address the personal security of its passengers and employees. It may contain more requirements than the APTA Guidelines. The transit agency must comply with this document when it develops its system safety program plan.

14. Transit Agency

"Transit agency" means the entity operating the rail fixed guideway system.

15. Unacceptable Hazardous Condition

An "unacceptable hazardous condition" is a particular kind of hazardous condition determined by using the Hazard Resolution Matrix contained in the APTA Guidelines at checklist number 7.

D. Withholding of Funds for Non-Compliance. (§ 659.7)

This section is taken from section 5330, which authorizes FTA to withhold Federal funding from a State or an urbanized area in the State. In particular, FTA is authorized to withhold up to five percent of an affected urbanized area's apportionment if the State, in the opinion of FTA, is not in compliance or making adequate efforts to comply with the rule. The sanctions for non-compliance do not begin until September 30, 1997. In the event of non-compliance with the rule,

the Administrator may withhold funds until the State comes into compliance.

Subpart B—The Role of the State

A. Designation of Oversight Agency. (§ 659.21)

This section directs the State to select an agency to oversee the rail fixed guideway system and prohibits the State from selecting the transit agency to perform this role. Paragraph (a) concerns rail fixed guideway systems that operate within only one State. In these instances, the State must designate a State agency to implement the rule. If the State chooses, this paragraph allows the State to designate an oversight agency for each rail fixed guideway system within the State. For instance, a State may wish to designate one agency for an historical trolley system and another for the remaining systems within the State. The rule is flexible in this regard and is written to accommodate those States that have established an oversight program under State law.

For those States that have not established an oversight program and have more than one rail fixed guideway system within the State, we recommend that the State designate only one agency to implement the rule. This would save resources and ensure the consistent application of the rule.

Paragraph (b) is directed to States that jointly operate a multi-State rail fixed guideway system. Although we recommend that the affected States designate a single oversight agency, this paragraph allows them to designate more than one agency, other than the transit agency, to implement the rule. Moreover, this paragraph recognizes that a single oversight agency designated by the affected States will not be an agency of any particular State.

B. Confidential Accident Reports. (§ 659.23)

This section permits the State to require the oversight agency to keep investigation reports confidential in civil litigation.

Subpart C—The Oversight Agency's Role

A. The System Safety Program Standard. (§ 659.31)

This section directs the oversight agency to develop a system safety program standard that complies, at a minimum, with the American Public Transit Association's "Manual for the Development of Rail Transit System Safety Program Plans" (APTA Guidelines) available from the American

Public Transit Association, 1201 New York Avenue, N.W., Washington, D.C. 20005-3917 or Office of Safety and Security, Federal Transit Administration, 400 Seventh Street, S.W., Washington, D.C. 20590, and requires the transit agency to address the personal security of its passengers and employees.

As discussed above, because the APTA Guidelines were derived from MIL-STD 882B, we believe that existing oversight agencies that have used MIL-STD 882B or its successor MIL-STD 882C to create their oversight programs should meet, if not exceed, the APTA Guidelines, although we recommend that these existing oversight agencies review their programs in this regard.

This section further directs the oversight agency to develop a standard that would require the transit agency to address the personal security of its passengers and employees. In this regard, FTA has neither developed specifications nor adopted a standard for the oversight agency to follow. Instead, we have published, independently, two "how to" documents to be used by both the oversight and transit agencies in developing security standards and procedures. These documents, "Transit Security Procedures Guide" and "Transit System Security Program Planning Guide," are available free of charge from the Office of Safety and Security, Federal Transit Administration, at the address noted above. Although the use of these documents is not mandated under the rule, we recommend strongly that every affected State and transit agency obtain copies and review them. As noted above, FTA also offers several courses on security through TSI. Moreover, we suggest that the oversight agency require the transit agency to address such criminal acts as terrorist activities and "street crime" such as muggings, rapes, drug dealings, etc.

This section also allows the oversight agency to create a program that is more stringent than that required under the APTA Guidelines, although we urge those agencies not to adopt FRA-type regulations.

B. System Safety Program Plans. (§ 659.33)

This section establishes January 1, 1997, as the deadline for the implementation of the system safety program plan and requires the oversight agency to have initially reviewed and approved it before that date. It further establishes January 1, 1998, as the implementation date for the security provisions of the system safety program

plan. It also requires the oversight agency to direct the transit agency to update the system safety program plan as necessary. The oversight agency may decide that it is necessary for a system safety program plan to be updated at certain intervals, or it may make a determination based on accident statistics or results from safety audits or reviews, for example. Should the oversight agency make such a determination, this section directs it to again review and approve the transit agency's updated system safety program plan.

This section allows the oversight agency to determine whether the security provisions of the system safety program plan should be publicly available. FTA recommends strongly that the oversight agency prohibit the transit agency from publicly disclosing the security portions of the system safety program plan under any circumstance.

C. Transit Agency Annual Audit Reports. (§ 659.35)

Checklist number 9 of the APTA Guidelines requires the transit agency to draft a report summarizing the findings of its internal safety audit. This section of the rule requires the annual submission of that report to the oversight agency for its review.

D. Safety Reviews. (§ 659.37)

At least every three years, the oversight agency must conduct an on-site safety review of the transit agency's implementation of its system safety program plan. After this review has been completed, the oversight agency must issue a report detailing its findings and recommendations, its analysis of the system safety program plan, and its determination whether the safety program plan should be updated or changed.

E. Transit Agency Report on Accidents and Unacceptable Hazardous Conditions. (§ 659.39)

To investigate "accidents" and "unacceptable hazardous conditions" as required by section 5330, the oversight agency must know about them. This section directs the oversight agency to require the transit agency to report "accidents" and "unacceptable hazardous conditions" within the time specified by the oversight agency.

F. Investigations. (§ 659.41)

As discussed above in the Discussion of the Comments, the oversight agency is not required to conduct the investigation itself, but may do so through another entity such as a

contractor or even the transit agency. The oversight agency, however, must decide how it is going to conduct an investigation and establish the procedures it or the entity acting on its behalf will use.

There are numerous ways the oversight agency may comply with this requirement. For instance, the oversight agency may establish one set of procedures to investigate accidents and another to investigate unacceptable hazardous conditions. The oversight agency may use a contractor, such as the APTA Panel of Inquiry, to investigate certain kinds of accidents and its own staff to investigate others.

The rule is intentionally flexible to allow the oversight agency to adapt an oversight program to the needs of the rail fixed guideway systems within the State's jurisdiction.

G. Corrective Actions. (§ 659.43)

Section 659.41 requires the oversight agency to investigate "unacceptable hazardous conditions." This section directs the oversight agency to require the transit agency to develop a corrective action plan to eliminate, minimize, or control investigated hazardous conditions in accordance with the approved corrective action plan and within the time period specified by the oversight agency.

H. Oversight Agency Report to the Federal Transit Administration. (§ 659.45)

This section requires three kinds of reports: initial, annual, and periodic. The initial submission contains information that will not change frequently, such as the name and address of the oversight agency and the transit agencies it oversees, a copy of the system safety program standard, and a description of the oversight agency's procedures for conducting investigations and ensuring that the transit agency has undertaken appropriate corrective actions. This report must be updated only when some of the information within it changes.

The annual submission describes the activities of the oversight agency for the previous twelve months, including any determinations by the oversight agency of the probable cause of "accidents" and "unacceptable hazardous conditions," if it can do so and protect the confidentiality of investigation reports. This section allows an oversight agency required to submit annual reports to the State to submit the same report to FTA, if it contains all the necessary information.

Last, this section allows FTA to periodically ask the oversight agency to

submit certain kinds of information such as the status reports on "accidents," "hazardous conditions," and corrective action plans. These reports must be submitted only upon FTA's request.

I. Use of Contractors. (§ 659.47)

This section expressly allows the oversight or transit agency to use contractors to perform certain tasks required under the rule. The agencies may use a contractor to perform some or all of these tasks. For instance, an oversight agency may use a contractor to conduct only accident investigations, while another may use a contractor solely to conduct safety reviews. A transit agency may not be a contractor for the oversight agency, however.

J. Certification of Compliance. (§ 659.49)

This section requires the oversight agency to initially certify before January 1, 1997, that it has complied with the rule. Thereafter, the oversight agency is required to certify annually that it is in compliance with the rule.

IV. Economic Analysis

FTA has evaluated the industry-wide costs and benefits of the rule, "Rail Fixed Guideway Systems; State Safety Oversight," which requires a State to develop, through an oversight agency, a program to oversee the safety of rail fixed guideway systems. At least 19 States will be required to create an oversight agency that must:

- Develop a System Safety Program Standard which includes provisions addressing security.
- Approve the transit agency's initial system safety program plan.
- Conduct safety reviews.
- Establish investigation procedures.
- Investigate accidents and unacceptable hazardous conditions.
- Ensure the transit agency complies with the oversight agency's system safety program standard.
- Review corrective action plans.
- Report to FTA.

At least 33 transit agencies must:

- Develop a System Safety Program Plan and update it, as necessary.
- Prepare annual audit reports.
- Conduct safety audits.
- Classify hazardous conditions according to the APTA Hazard Resolution Matrix.

- Report accidents and unacceptable hazardous conditions to the oversight agency.
- Prepare corrective action plans.
- Handle hazardous conditions according to approved corrective action plans.
- Maintain safety data.

Generally, in analyzing the costs of this rule, the Regulatory Evaluation considered only those activities required by the rule. For those States and transit agencies that have already established a program similar to the one required by the rule, the Regulatory Evaluation considered only those activities necessary to bring these programs into compliance with the rule. Year One costs are estimated to be approximately \$336,000, the lowest for any single year. This is because the costs incurred in Year One are generally limited to activities of the oversight agencies and the FTA. Total costs for the first ten years are estimated to be approximately \$9.1 million.

The estimated benefits of the rule are assumed to take full effect in the third year of implementation, 1998. Therefore, the estimated fatalities and injuries averted are based on an eight-year period. For this period there would be 16 fatalities and 1,528 injuries averted. Based on the Department's Willingness to Pay Threshold, the total benefit of the rule is approximately \$107 million over a ten-year period.

V. Regulatory Process Matters

A. Executive Order 12866

FTA has evaluated the costs and benefits to the States of creating an oversight program to oversee the safety of rail fixed guideway systems and has determined that this rule is a major rule under Executive Order 12866 because it affects State and local governments.

B. Departmental Significance

This proposed rule is a "significant regulation" under the Department's Regulatory Policies and Procedures, because it changes an important Departmental policy. That policy change requires the States to oversee the safety of rail fixed guideway systems, something the Federal government has never before required.

C. Regulatory Flexibility Act

In accordance with 5 U.S.C. 603(a), FTA has evaluated the effects of this proposed rule on small entities. Based on this evaluation, FTA hereby certifies that this action will not have a significant economic impact on a substantial number of small entities because the affected transit agencies will in most cases be large.

D. Paperwork Reduction Act

The information collection requirements in this rule have been reviewed and approved by the Office of Management and Budget under OMB #2132-0558.

E. Executive Order 12612

We have reviewed this rule under the requirements of Executive order 12612 on Federalism. FTA has determined that since this rule has significant Federalism implications it warrants a Federalism assessment. We note, however, that this rulemaking is mandated by 49 U.S.C. 5330, which requires a State to create an oversight agency to oversee the safety of rail fixed guideway systems.

In considering the Federalism implications of the proposed rule, FTA has focused on several key provisions of Executive order 12612.

Necessity for action. This rule is mandated by law, which requires that rail fixed guideway systems be subject to State oversight. Approximately twenty-one States have rail fixed guideway systems operating within their jurisdictions. Of those, only five States have established a State oversight program.

Consultation with State and local governments. FTA's mission is to provide financial assistance to mass transportation systems throughout the nation, thus providing grants to State and local governments. Because this rule will affect almost half of the States as well as many local governments, we published an ANPRM on June 25, 1992, at 57 FR 28572, to solicit the views of State and local governments. In addition, we held three public hearings in conjunction with the ANPRM. Also, FTA published an NPRM on December 9, 1993, at 58 FR 64855, on which numerous State and local governmental agencies commented. Moreover, we held a public hearing on the NPRM on March 8, 1994, in conjunction with an American Public Transit Association conference, thus allowing more State and local agencies to participate in the development of this rule. In short, we actively sought the views and comments of the affected States.

Need for Federal action. This rule responds to a Congressional mandate but is designed to give a State maximum flexibility in designing its own oversight program.

Authority. The statutory authority for this rule is discussed elsewhere in this preamble.

Pre-emption. This rule does not, as such, pre-empt State or local law. There may be instances in which a State or local agency faces a conflict between compliance with the rule and State and local requirements. Because compliance with the rule is a condition of Federal financial assistance, State and local governments have the option of not

seeking the Federal funds if they choose not to comply with this rule.

F. National Environmental Policy Act

FTA has determined that this rule has no environmental implications. Its purpose is to create a State oversight program designed to oversee the safety of rail fixed guideway systems.

G. Energy Impact Implications

This regulation does not affect the use of energy because it creates a State oversight program designed to oversee the safety of rail fixed guideway systems.

List of Subjects in 49 CFR Part 659

Grant programs—transportation, Incorporation by reference, Mass transportation, Reporting and recordkeeping requirements, Safety, Security, and Transportation.

Accordingly, for the reasons cited above, the agency amends title 49 of the Code of Federal Regulations by adding a new part 659, to read as follows:

PART 659—RAIL FIXED GUIDEWAY SYSTEMS; STATE SAFETY OVERSIGHT**Subpart A—General Provisions****Sec.**

659.1 Purpose.

659.3 Scope.

659.5 Definitions.

659.7 Withholding of funds for non-compliance.

Subpart B—The Role of the State

659.21 Designation of oversight agency.

659.23 Confidential investigation reports.

Subpart C—The Oversight Agency's Role

659.31 The system safety program standard.

659.33 System safety program plans.

659.35 Transit agency annual audit reports.

659.37 Safety reviews.

659.39 Transit agency report on accidents and unacceptable hazardous conditions.

659.41 Investigations.

659.43 Corrective actions.

659.45 Oversight agency report to the Federal Transit Administration.

659.47 Use of contractors.

659.49 Certification of compliance.

Appendix to Part 659—Sample Certification of Compliance.

Authority: 49 U.S.C. § 5330.

Subpart A—General Provisions**§ 659.1 Purpose.**

This part implements 49 U.S.C. 5330 by requiring a State to oversee the safety of rail fixed guideway systems through a designated oversight agency.

§ 659.3 Scope.

This part applies to a State that has within its boundaries a rail fixed

guideway system not regulated by the Federal Railroad Administration (FRA).

§ 659.5 Definitions.

As used in this part—

Accident means any event involving the revenue service operation of a rail fixed guideway system if as a result:

(1) An individual dies;

(2) An individual suffers bodily injury and immediately receives medical treatment away from the scene of the accident; or

(3) A collision, derailment, or fire causes property damage in excess of \$100,000.

APTA Guidelines means the American Public Transit Association's "Manual for the Development of Rail Transit System Safety Program Plans," published on August 20, 1991.

Contractor means an entity that performs tasks required by this part on behalf of the oversight or transit agency. The transit agency may not be a contractor for the oversight agency.

FTA means the Federal Transit Administration, an agency within the U.S. Department of Transportation.

Hazardous condition means a condition that may endanger human life or property. It includes unacceptable hazardous conditions.

Investigation means a process to determine the probable cause of an accident or an unacceptable hazardous condition; it may involve no more than a review and approval of the transit agency's determination of the probable cause of an accident or unacceptable hazardous condition.

Oversight agency means the entity, other than the transit agency, designated by the State or several States to implement this part.

Rail fixed guideway system means any light, heavy, or rapid rail system, monorail, inclined plane, funicular, trolley, or automated guideway that is:

(1) Included in FTA's calculation of fixed guideway route miles or receives funding under FTA's formula program for urbanized areas (49 U.S.C. 5336); and

(2) Not regulated by the Federal Railroad Administration.

Safety means freedom from danger.

Safety review means a formal, comprehensive, on-site examination by the oversight agency of a transit agency's safety practices to determine whether they comply with the policies and procedures required under the transit agency's system safety program plan.

Security means freedom from intentional danger.

System safety program plan means a document adopted by the transit agency

detailing its safety policies, objectives, responsibilities, and procedures.

System safety program standard means the standard developed and adopted by the State oversight agency which, at a minimum, complies with the APTA Guidelines and which addresses personal security.

Transit agency means an entity operating a rail fixed guideway system.

Unacceptable hazardous condition means a hazardous condition determined to be an unacceptable hazardous condition using the APTA Guidelines' Hazard Resolution Matrix (APTA Guidelines, checklist number 7).

§ 659.7 Withholding of funds for non-compliance.

The Administrator of the FTA may withhold up to five percent of the amount required to be apportioned for use in any State or affected urbanized area in such State under FTA's formula program for urbanized areas for any fiscal year beginning after September 30, 1997, if the State in the previous fiscal year has not met the requirements of this part and the Administrator determines that the State is not making adequate efforts to comply with this part.

Subpart B—The Role of the State

§ 659.21 Designation of oversight agency.

(a) For a transit agency or agencies operating within a single State, the State must designate an agency of the State, other than a transit agency, to serve as the oversight agency and to implement the requirements of this part.

(b) For a transit agency operating a system within more than one State, those States may designate a single entity, other than the transit agency, to implement the requirements of this part.

§ 659.23 Confidential investigation reports.

The State may prohibit an investigation report that may be prepared by the oversight agency from being admitted into evidence or used in a civil action for damages resulting from a matter mentioned in the report.

Subpart C—The Oversight Agency's Role

§ 659.31 The system safety program standard.

(a) The oversight agency must develop and adopt a system safety program standard that, at a minimum—

(1) Complies with the American Public Transit Association's "Manual for the Development of Rail Transit System Safety Program Plans" (APTA Guidelines) published on August 20,

1991, hereby incorporated by reference; and

(2) Requires the transit agency to address the personal security of its passengers and employees.

(b) The APTA Guidelines specify procedures for developing a system safety program plan, generally discuss the principles of system safety, and specifically address certain issues critical to the safe operation of a rail fixed guideway system.

(c) The incorporation by reference of the APTA Guidelines has been approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of the APTA Guidelines may be obtained from the American Public Transit Association, 1201 New York Avenue, N.W., Washington D.C. 20005-3917, (202) 893-4000. The Guidelines may be inspected at, and are available from the Federal Transit Administration, Office of Safety and Security, 400 7th Street, S.W., Washington, D.C. 20590, and at the Office of the Federal Register, 800 North Capitol Street, N.W., Washington, D.C.

§ 659.33 System safety program plans.

(a) Except as provided in § 659.33(b), the oversight agency must require the transit agency to—

(1) Implement, beginning on January 1, 1997, a system safety program plan conforming to the oversight agency's system safety program standard; and

(2) Approve in writing before January 1, 1997, the transit agency's system safety program plan.

(b) The oversight agency must require the transit agency to—

(1) Implement, beginning on January 1, 1998, the security portions of its system safety program plan; and

(2) Approve in writing before January 1, 1998, the security portions of the transit agency's system safety program plan.

(c) After December 31, 1996, the oversight agency must review and approve, in writing, the transit agency's system safety program plan, as necessary, and require the transit agency to update its system safety program plan, as necessary.

(d) The oversight agency may prohibit a transit agency from publicly disclosing the security aspects of the system safety program plan.

§ 659.35 Transit agency annual audit reports.

The oversight agency must—

(a) Require that the transit agency submit, annually, a copy of the annual safety audit report prepared by the transit agency as a result of the Internal

Safety Audit Process (APTA Guidelines, checklist number 9); and

(b) Review the annual safety audit reports prepared by the transit agency.

§ 659.37 Safety reviews.

At least every three years the oversight agency must conduct an on-site safety review of the transit agency's implementation of its system safety program plan and prepare and issue a report containing findings and recommendations resulting from that review, which, at a minimum, must include an analysis of the efficacy of the system safety program plan and a determination of whether it should be updated.

§ 659.39 Transit agency report on accidents and unacceptable hazardous conditions.

The oversight agency must require that the transit agency report accidents and unacceptable hazardous conditions to the oversight agency within a specified period of time.

§ 659.41 Investigations.

The oversight agency must—

(a) Establish procedures to investigate accidents and unacceptable hazardous conditions.

(b) Unless the National Transportation Safety Board has investigated or will investigate an accident, the oversight agency must investigate accidents and unacceptable hazardous conditions occurring at a transit agency under its jurisdiction.

§ 659.43 Corrective actions.

The oversight agency must require the transit agency to minimize, control, correct, or eliminate any investigated hazardous condition within a time period specified by and in accordance with a corrective action plan approved by the oversight agency.

§ 659.45 Oversight agency report to the Federal Transit Administration.

(a) *Initial submissions.* Before January 1, 1997, the oversight agency must submit to FTA the following information, which must be updated as necessary:

(1) The name and address of the oversight agency;

(2) The name(s) and address(es) of the transit agency or agencies subject to the oversight agency's jurisdiction under this part; and

(3) A written description of the oversight agency's oversight program including the following information:

(i) A copy of its system safety program standard;

(ii) Its procedures or process for reviewing and approving the transit agency's system safety program plan;

(iii) Its investigatory procedures; and
(iv) Its procedures for ensuring that appropriate corrective actions have been taken by the transit agency to correct, eliminate, minimize, or control investigated hazardous conditions.

(b) *Annual submissions.* Before January 1 of each year, the oversight agency must submit to FTA a publicly available annual report summarizing its oversight activities for the preceding twelve months, including a description of the most common probable causal factors of accidents and unacceptable hazardous conditions.

(c) *Periodic submissions.* Status reports of accidents, hazardous conditions, and corrective action plans must be forwarded to the FTA upon request.

(d) *Addresses.* Reports and annual summaries must be sent to: Federal Transit Administration, Office of Safety and Security, 400 7th Street, S.W., Washington, D.C. 20590.

§ 659.47 Use of contractors.

(a) The oversight agency may use a contractor to—

(1) Develop a system safety program standard;

(2) Review system safety program plans;

(3) Review annual audit reports;

(4) Conduct safety reviews;

(5) Prepare safety review findings;

(6) Establish investigation procedures;

(7) Conduct investigations;

(8) Review corrective action plans;

and/or

(9) Prepare initial or annual submissions to FTA.

(b) The oversight agency may allow a transit agency to use a contractor to—

(1) Develop or update a system safety program plan;

(2) Prepare annual audit reports; and/or

(3) Develop a corrective action plan.

§ 659.49 Certification of compliance.

(a) Before January 1, 1997, and annually thereafter, the oversight agency must certify to the FTA that it has complied with the requirements of this part. Each certification shall comply with the applicable sample certification provided in the appendix to this part.

Each certification shall be sent to: Federal Transit Administration, Office of Safety and Security, 400 7th Street, S.W., Washington, D.C. 20590.

(b) Each certification must be signed by an official authorized by the oversight agency and must comply with the applicable sample certification provided in the appendix to this part.

Appendix to Part 659—Sample Certification of Compliance

This appendix contains an example of certification language.

I, (name), (title), certify that (name of the oversight agency) has implemented a State oversight program that meets the requirements of 49 CFR part 659 and further certify that I have no conflict of interest with any rail fixed guideway system overseen as a result of 49 CFR part 659, nor does (name of the oversight agency) and its contractors.

Issued: December 18, 1995.

Gordon J. Linton,

Administrator.

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