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State Safety Oversight Program Annual Report 2002

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The Federal Transit Administration's (FTA) State Safety Oversight Rule (49 CFR Part 659) requires oversight for all rail transit agencies in revenue operation after January 1, 1997. This report summarizes activities performed to implement the State Safety Oversight Program during Calendar Year 2001. This report is a compilation and analysis of rail fixed guideway system accident statistics. Information provided by State Oversight Agencies documenting the safety and security performance of the rail transit industry in 2001 is presented, including a discussion of the probable causes of accidents and unacceptable hazardous conditions.

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Preface

Safety requirements for the Federal Transit Administration's (FTA) State Safety Oversight Rule (49 CFR Part 659) went into effect January 1, 1997. Over the past six years, rail transit safety oversight in the United States has been transformed. In 1997, there were six designated State Oversight Agencies (SOAs) overseeing the operations of 12 rail fixed guideway systems (RFGS). By the end of 2002, there were 22 designated SOAs implementing Part 659 requirements for 37 RFGS. Anticipating "New Start" systems beginning revenue service before 2007, six new agencies have already assumed oversight roles and begun coordinating with FTA and the new start transit agencies.

A primary objective of FTA's State Safety Oversight (SSO) Program is to create a nationwide infrastructure that provides rail transit with effective safety and security monitoring and evaluation. Information presented in this *State Safety Oversight Program Annual Report for 2002* demonstrates the success of this program, not only in documenting the activities performed by rail transit agencies that address safety and security issues, but also in promoting an operating culture more attuned to safety and security concerns. FTA, SOAs, and RFGS can use this information to quantify the reasons for transit accidents, leading to the identification of safety and security deficiencies and their ultimate resolution. In this way, all involved parties can more effectively work toward the goal of eliminating transit-related deaths, injuries, and property damage.

The State Safety Oversight Rule affects many different types of rail transit operations, including heavy rail, light rail, cable cars, inclined planes, and automated guideways. Every attempt has been made to standardize safety performance measures across a series of service indicators to support industry-based assessments of aggregate data. However, the range of operating requirements and the importance of local operating conditions limit the utility of individual agency comparisons to the industry baselines and averages contained in this report. SOAs and RFGS are advised to use caution in their application of these measures.

Note that unless indicated otherwise, "2002" refers to data for calendar year 2002.

Acknowledgements

The *State Safety Oversight Program Annual Report for 2002* represents the cooperative efforts of many people. For their guidance and technical direction, the authors give special thanks to Mr. Hiram J. Walker of the Federal Transit Administration's (FTA) Office of Program Management; Mr. Harry Saporta, Mr. Jerry Fisher, Mr. Roy Field, Ms. Vicki Bellet, and Ms. Amy Jernigan of FTA's Office of Safety and Security; the State Oversight Agencies, who implement the State Safety Oversight Program and provide the data, procedures, and policies upon which this report is largely based; and the American Public Transportation Association (APTA), FTA's National Transit Database Program, the Transportation Research Board, and the National Transportation Safety Board, who all provided additional data to support State reports and analysis. Finally, the authors wish to thank Mr. James Harrison, Mr. Robert Adduci, and Mr. Jerry Powers of the Volpe National Transportation Systems Center for their invaluable contributions of statistical data, insights, and suggestions. Their combined efforts greatly improved the content of this report.

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List of Exhibits

Executive Summary

Analysis of the 2002 data submitted to FTA by SOAs reveal improvements in many areas of rail transit safety and challenges in other areas.

Service Data

- All modes of rail transit agencies affected by 49 CFR Part 659 generate just under three billion annual unlinked passenger trips, accounting for approximately 30% of all trips taken on public transportation.
- In 2002, 37 transit agencies provided approximately 2,988,325,600 passenger trips, a slight decrease of 0.14% from 2001. Many factors contributed to this ridership slip, including recent economic factors affecting transit agencies nationwide.
- Light rail transit reported an increase in annual passenger trips, despite the small ridership decline in heavy rail and other rail modes. With the planned initiation of revenue service at eight new light rail systems over the next four years, the light rail mode is expected to continue this trend of growth.

Annual Unlinked Passenger Trips: 1999 to 2002

				2002
Heavy Rail	2,609,453,900	2,604,328,600	2,656,231,300	**2,650,694,300**
Light Rail	278,102,600	298,372,100	315,725,820	**317,601,400**
Other*	19,375,800	19,769,400	20,458,080	**20,029,900**
Total	**2,906,932,300**	**2,922,470,100**	**2,992,415,200**	**2,988,325,600**

**includes automated guideways, inclined planes, monorails, and cable cars*

Safety Data

- In 2002, rail transit agencies reported 3,004 incidents across all modes that met the 49 CFR Part 659.5 definition of accident; an increase of approximately 1% from the 2,975 accidents reported in 2001.
- The 3,004 accidents resulted in 2,966 injuries, a 6% decrease from the 2001 total of 3,169, and a 12% decrease from 2000 total of 3,371.
- Heavy rail service recorded a decrease in the accident rate in 2002 for the second straight year to 9.65 accidents per 10 M passenger trips.
- Light rail service recorded a 45% increase in the accident rate from 9.63 accidents per 10 M passenger trips in 2001 to 13.92 in 2002. A 55% increase in reported single-person incidents such as slips, trips and falls and medical emergencies contributed to this increase.

- Other rail modes, such as funiculars, automated guideways, and cable cars, recorded on average only two accidents per 10 M passenger trips, the lowest rate in the last four years.

Accidents by Mode: 1999 to 2002

Mode	1999	2000	2001	2002
Heavy Rail	2,279	2,933	2,663	**2,558**
Light Rail	340	242	304	**442**
Other	8	17	8	**4**
All Modes	**2,627**	**3,192**	**2,975**	**3,004**

Accidents by Mode: 1999 to 2002 (per 10M Passenger Trips)

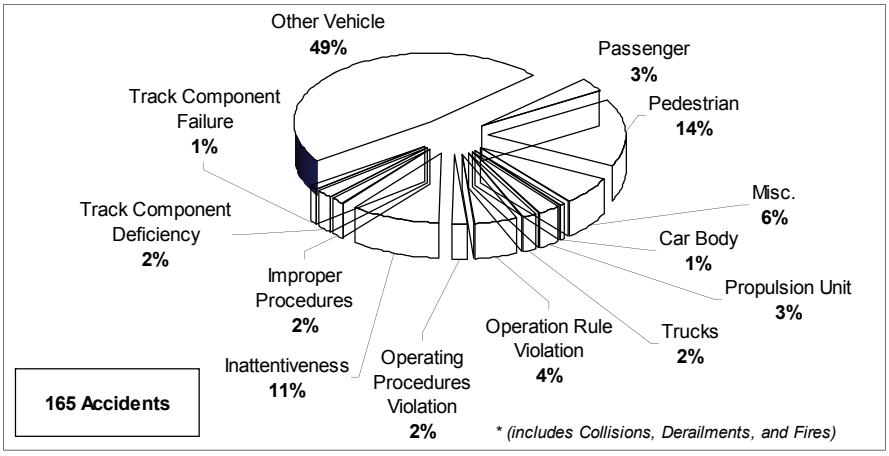
Mode	1999	2000	2001	2002
Heavy Rail	8.73	11.26	10.03	**9.65**
Light Rail	12.23	8.11	9.63	**13.92**
Other	4.13	8.60	3.91	**2.00**
All Modes	**10.23**	**10.92**	**8.78**	**10.05**

Causal Data

- The percentage of reported accidents* listing "Other Vehicle" as the probable cause rose from 36% in 2001 to 48% in 2002.
- "Pedestrian" was the probable cause of 22% of the accidents* reported in 2001 but dropped to 16% in 2002, just slightly higher than the reported 2000 level of 14%.
- "Inattentiveness" was the probable cause in 10% of 2002 accidents,* a slight increase from 2001 when it accounted for 8% of reported accidents.*

** includes only Collisions, Derailments, and Fires, and not "Other" accidents*

Determined Probable Causes of Reported Accidents*: 2002



Introduction

The *State Safety Oversight Program Annual Report for 2002* prepared by the Federal Transit Administration's (FTA) Office of Safety and Security documents the activities and performance of State Oversight Agencies (SOAs) and the rail fixed guideway systems (RFGS) within their jurisdictions for calendar year 2002. Results from this analysis will assist reporting organizations in developing management structures and work programs to effectively plan, implement, and evaluate safety and security-related programs for passenger service.

The *State Safety Oversight Program Annual Report* is an evolving document. Last year's edition introduced a multi-year analysis of safety data, providing visible trends in reported accidents, fatalities, injuries, and probable causes. This year's report presents the rail transit community with a four-year comparison of reported data and an analysis milestone, and enhances the industry's ability to address both 49 CFR Part 659 requirements and basic safety and security performance levels. FTA hopes this trend will continue with each year of data collection, making the report more beneficial to all players.

The State Safety Oversight (SSO) Rule affects many different types of rail transit operations, including heavy rail, light rail, cable cars, inclined planes, and automated guideways. FTA has made every attempt to standardize safety performance measures across a series of service indicators to support industry-based assessments of aggregate data. However, the range of operating requirements and the importance of local operating conditions limit the utility of individual agency comparisons to the industry baselines and averages contained in this report. For this reason, SOAs and RFGS should use caution when applying these measures.

Organization of this Report

- *State Safety Oversight Overview*—provides an overview of the States and RFGS affected by 49 CFR Part 659, includes information on upcoming additions to the SSO community, and outlines the requirements of Part 659.
- *Service Data*—summarizes and analyzes 2002 daily and annual ridership data and contrasts the totals with data from 1999, 2000, and 2001.
- *Safety Data*—summarizes and analyzes 2002 safety data, such as accidents, fatalities, injuries, rail grade crossing incidents, and probable causes, and compares findings to 1999, 2000, and 2001 data.
- *Appendix A*—National Transportation Safety Board (NTSB) Recommendations—summarizes recent NTSB recommendations relating to rail transit modes.
- *Appendix B*—Event Data Recorder Study—summarizes an FTA assessment of event recorder usage on board rail transit vehicles.
- *Appendix C*—contains the *2002 Annual Reporting Template.*

Data Sources

FTA used the following data sources in compiling this report:

- **2002 Annual Reports**. The FTA's State Safety Oversight Rule (49 CFR Part 659.45) requires that by March 15 of each year, SOAs must submit to FTA an annual report summarizing oversight activities for the preceding twelve months and describing the most probable causal factors of accidents and unacceptable hazardous conditions. Prior to 1999, causal data collected for the annual report were descriptive in nature and not quantitative. As a response to congressional concern and National Transit Safety Board (NTSB) recommendations, in 1999 FTA developed the Annual Reporting Template to facilitate the collection of causal data in a format that could be quantified at year's end. FTA has continued to use this template for collecting annual report data (see Appendix C).
- **2002 National Transit Database Safety and Security Reports**. Over the last decade, rail transit systems reported first safety—then later security—data directly to FTA. All rail transit agencies receiving direct federal financial assistance under FTA's formula grant program must report these data annually to remain eligible for federal funds. In addition to safety and security-related data, rail transit agency service data reported to the National Transit Database (NTD) are also used assist in the standardization of safety and security data into rates for modal comparisons and trend analysis.
- **2002 American Public Transportation Association Transit Statistics**. The American Public Transportation Association (APTA) Information Center maintains a collection of reports and studies published by organizations such as the Transit Cooperative Research Program (TCRP), Transportation Research Board (TRB), FTA, and individual transit agencies.
- **2002 Audit Program**. The State Safety Oversight Audit Program provides FTA with the opportunity to identify the requirements of Part 659 that have been most difficult for SOAs to implement. Further, it supports communication with the States that results in the greater sharing of technical information, the solicitation of best practices, and the development of activities that promote an increased coordination between all stakeholders responsible for ensuring that system safety and security objectives are being identified and met each year. Finally, information gathered from audits supports FTA's initiative to provide technical assistance to States and the rail transit industry through guidelines, handbooks, training, newsletters, and other technical outreach mediums.

Acronyms and Glossary

This report uses the following acronyms to refer to key participants in the State Safety Oversight Program:

- APTA – American Public Transportation Association
- DOT – United States Department of Transportation
- FRA – Federal Railroad Administration

- FTA – Federal Transit Administration
- ISTEA – Intermodal Surface Transportation and Efficiency Act (of 1991)
- NTD – National Transit Database
- NTSB – National Transportation Safety Board
- RFGS – Rail Fixed Guideway System, as defined in 49 CFR Part 659.5 (also referred to as rail transit agency or rail transit system)
- SOA – State Safety Oversight Agency, designated to implement 49 CFR Part 659 requirements (also referred to as oversight agency)
- SSO – State Safety Oversight
- SSPP - System Safety Program Plan
- TEA-21 – Transportation Equity Act for the 21st Century
- TEA-3 – Transportation Equity Act (3rd iteration)

State Safety Oversight Overview

Program Background

In response to congressional concern over the potential for catastrophic accidents and security incidents on rail transit systems, the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) added Section 28 to the Federal Transit Act (codified at 49 U.S.C. Section 5330). This section required FTA to issue a Rule creating the first state-managed oversight program for rail transit safety and security.

FTA published *Rail Fixed Guideway Systems; State Safety Oversight* on December 27, 1995 (codified at 49 CFR Part 659), subsequently referred to as the State Safety Oversight Rule or Part 659. The rule mandated FTA requirements for improving the safety and security of RFGS. Only those states with RFGS meeting the following definition must comply with the FTA State Safety Oversight Rule.

> "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 (FRA)." (**§659.5**)

The State Safety Oversight (SSO) Program emphasizes using a *systems approach* to address safety and security, and promoting the use of management and engineering principles to identify and resolve safety hazards and security vulnerabilities. Through ongoing implementation of system safety and security programs monitored by SOAs, the rail transit industry is now performing formalized assessments to balance hazards and controls, which ultimately will ensure the maximum protection for passengers, employees, system property, and the environment within the limits of available resources.

Ultimately, establishing and evaluating baseline safety and security performance measures will support oversight and industry programs that:

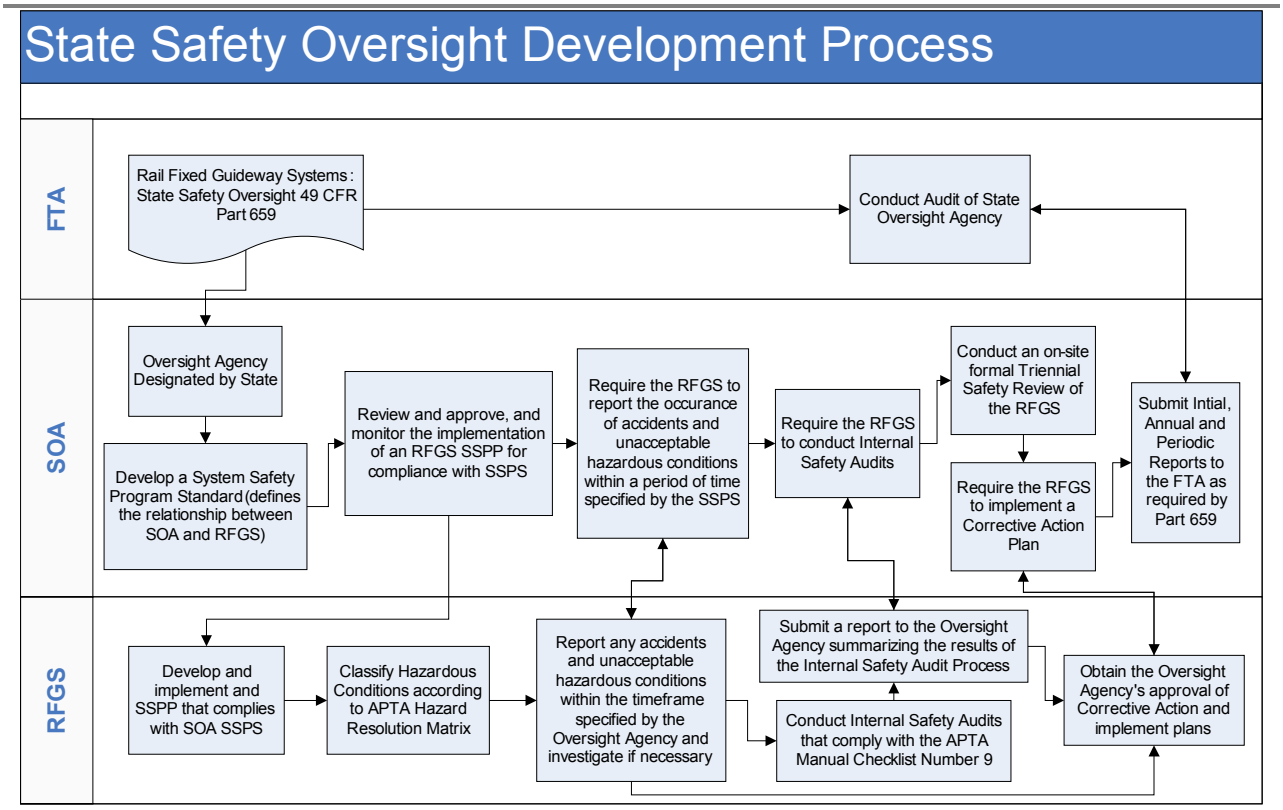
- Establish and ensure compliance with rail transit agency safety and security strategies, objectives, and standards.
- Encourage early integration of safety, security, reliability, maintainability, and quality assurance into rail transit operations.
- Improve methodologies for risk identification and assessment and make recommendations for risk mitigation and acceptance.
- Investigate, analyze, and recommend critical safety and security decisions.
- Sponsor the innovation and rapid transfer of safety, security, reliability, and maintainability; and quality assurance technologies, processes, and techniques for improving system performance.

SSO Program Development

Exhibit 1 illustrates the State Safety Oversight development process and the roles assumed by participating agencies.

EXHIBIT 1

State Safety Oversight Development Process



FTA's Final Rule for State Safety Oversight requires each State with an RFGS within its borders to designate an Oversight Agency with sufficient legal authority to comply with the minimum requirements established in Part 659. Specifying operational details is beyond the scope of Part 659; each SOA must determine the legal, financial, and procedural mechanisms for providing oversight.

FTA's State Safety Oversight Program outlines seven functions that SOAs must perform to be in compliance with the Final SSO rule:

- Oversight Agency Designation and Authority (§659.21)
- Oversight Agency Program Management (§659.47, §659.23, §659.31, and §659.45)
- System Safety/Security Program Standard Preparation and Adoption and RFGS System Safety/Security Program Plan Review and Approval Process (§659.31 and §659.33)

- Accident/Unacceptable Hazardous Conditions Investigations and Corrective Actions (§659.39, §659.41, and §659.43)
- Three-year Safety Reviews (§659.37)
- Requiring and Reviewing RFGS Internal Safety Audit Process Reporting (§659.35)
- Oversight Agency Certification and Reporting to FTA (§659.45 and §659.49).

The State, SOA, and RFGS take on individual responsibilities and work with the other entities to ensure the effective implementation of the State Safety Oversight Program.

- The State designates the Oversight Agency.
- The SOA develops requirements and programs to comply with the FTA's State Safety Oversight Program.
- The RFGS complies with the program developed by the SOA.

The State

The primary responsibility of the State is to designate an Oversight Agency (or agencies) to oversee the safety of the rail transit systems operating within its borders. When a rail system operates within one state only, the designated entity must be an agency of the state. When a rail system operates in more than one state, the affected states may designate a single entity to oversee the system. In neither case can the state designate the rail transit system as the Oversight Agency.

The Oversight Agency

Part 659 requires the designated State Oversight Agency to perform seven distinct functions that constitute the core of FTA's State Safety Oversight Rule. The Oversight Agency must:

- **Develop a System Safety Program Standard (Program Standard)**. This written document defines the relationship between the Oversight Agency and the rail transit system and guides the rail transit system in developing its System Safety Program Plan (SSPP).
    - The Program Standard must, at a minimum, comply with APTA's *Manual for the Development of Rail Transit System Safety Program Plans* (*APTA Manual*) and include specific provisions addressing the personal security of passengers and employees.
- **Require, review and approve, and monitor the implementation of an SSPP that complies with the Oversight Agency's program standard at each rail transit system**. By January 1, 1997, the Oversight Agency must review and approve, in writing, the rail transit system's SSPP. The security provisions of the SSPP, however, do not have to be approved initially by the Oversight Agency until January 1, 1998. After the initial approvals, the Oversight Agency must review the rail transit system's SSPP as necessary and determine whether it should be updated.

- **Require each rail transit system 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 events in accordance with established procedures. The Oversight Agency may conduct its own investigation, use a contractor to conduct an investigation, or review and approve the investigation conducted by the rail transit system or the NTSB, or use a combination of these methods.
- **Require the rail transit system to implement a Corrective Action Plan**. The Oversight Agency must require the rail transit system to minimize, control, correct, or eliminate, hazardous conditions identified during investigations, in accordance with a Corrective Action Plan drafted by the rail transit system and approved by the Oversight Agency.
- **Conduct on-site visits at each rail transit system at a minimum of every three years to perform a formal Safety Review**. In a Safety Review, the Oversight Agency must assess whether the rail transit system's actual safety and security practices and procedures comply with its SSPP. Once this review is completed, the Oversight Agency must prepare a report containing its findings and recommendations, an analysis of the effectiveness of the rail transit system's SSPP, and a determination on whether the SSPP should be updated.
- **Require the rail transit system to conduct safety audits according to the Internal Safety Audit Process detailed in the APTA Manual (Checklist Number 9).** The Oversight Agency must also require the rail transit system to compile and submit an Annual Audit Report for review.
- **Report to FTA**. The Oversight Agency must submit an Initial Submission, an Annual Submission, and a Periodic Submission to FTA.

The Rail Transit System

While the requirements in Part 659 are directed at the states and the Oversight Agencies, the rail transit agencies play an important role in the State Safety Oversight Program. To comply with Part 659, the Oversight Agency must require each rail transit system within its jurisdiction to perform at a minimum the following activities:

- Develop an SSPP that complies with the Oversight Agency's Program Standard.
- Classify hazardous conditions according to the APTA Manual Hazard Resolution Matrix.
- Report any accident or unacceptable hazardous condition within the time frame specified by the Oversight Agency.
- Obtain the Oversight Agency's approval of and implement a Corrective Action Plan that minimizes, controls, corrects, or eliminates the particular unacceptable hazardous condition.
- Conduct safety audits that comply with the Internal Safety Audit Process, APTA Manual (Checklist Number 9).
- Draft and submit to the Oversight Agency a report summarizing the results of the safety audit process.

If a State has not met these requirements or has not made adequate efforts to comply with them, the Secretary of the U.S. Department of Transportation may withhold up to five percent of a fiscal year's apportionment under the FTA's formula program for urbanized areas (formerly Section 9) attributable to the State or an affected urbanized area in the State.

SSO Community

EXHIBIT 2

Affected State Safety Oversight Community: 2002

FTA Region	State	Agency	RFGS	Mode
1	MA	Department of Telecommunication & Energy (DTE)	Massachusetts Bay Transit Authority (MBTA)	HR, LR
2	NJ	New Jersey Department of Transportation (NJDOT)	Hudson-Bergen Light Rail System (HBLRS)	LR
			New Jersey Transit (NJT)	LR
			Port Authority Transit Corporation (PATCO)	HR
	NY	Public Transportation Safety Board (PTSB)	New York City Transit (MTA/NYC)	HR
			Niagara Frontier Transit Authority (NFTA)	LR
3	DC/VA/MD	Tri-State Oversight Committee (TOC)	Washington Metropolitan Area Transit Authority (WMATA)	HR
	MD	Maryland Department of Transportation (MDOT)	Maryland Transit Administration (MTA-MD)	HR, LR
	PA	Pennsylvania Department of Transportation (PennDOT)	Southeastern Pennsylvania Transit Authority (SEPTA)	HR, LR
			Port Authority of Allegheny County (PAAC)	LR, IP, IP
			Cambria County Transit Authority (CCTA)	IP
4	FL	Florida Department of Transportation (FDOT)	Metro-Dade Transit Authority (MDTA)	HR, AG
			Jacksonville Transportation Authority (JTA)	AG
			Hillsborough Area Regional Transit (HART)	LR
	GA	Georgia Department of Transportation (GDOT)	Metropolitan Atlanta Rapid Transit Authority (MARTA)	HR
	TN	Tennessee Department of Transportation (TDOT)	Chattanooga Area Rapid Transit Authority (CARTA)	IP
			Memphis Area Transit Authority (MATA)	LR
5	IL	Regional Transit Authority (RTA)	Chicago Transit Authority (CTA)	HR
	MI	Michigan Department of Consumer & Industry Services (CIS)	Detroit People Mover (DPM)	AG
			Detroit Downtown Trolley (DDOT)	LR
	OH	Ohio Department of Transportation (ODOT)	Greater Cleveland Regional Transit Authority (GCRTA)	HR, LR
	WI	Wisconsin Department of Transportation (WisDOT)	Kenosha Transit (KT)	LR
6	LA	Louisiana Department of Transportation and Development (DOTD)	New Orleans Regional Transit Authority (NORTA)	LR
	TX	Texas Department of Transportation (TxDOT)	Galveston Island Transit (GIT)	LR
			Dallas Area Rapid Transit (DART)	LR
7	IL	St. Clair County Transit District (SCCTD)	Bi-State Development Agency (BSDA)	LR
	MO	Missouri Motor Carrier and Rail Safety (MCRS)		
8	CO	Colorado Public Utilities Commission (CoPUC)	Denver Regional Transit District (RTD)	LR
	UT	Utah Department of Transportation (UDOT)	Utah Transit Authority (UTA)	LR
9	CA	California Public Utilities Commission (CPUC)	Bay Area Rapid Transit (BART)	HR
			Los Angeles County Metropolitan Transportation Authority (LACMTA)	HR, LR
			San Francisco Municipal Railway (MUNI)	LR, LR, CC
			San Diego Trolley, Inc. (SDTI)	LR
			Sacramento Regional Transit District (SRTD)	LR
			Santa Clara Valley Transit Authority (SCVTA)	LR
10	OR	Oregon Department of Transportation (ODOT)	Portland Tri-Met (Tri-Met)	LR
	WA	Washington Department of Transportation (WDOT)	King County Metro (WFSC)	LR
			Seattle Center Monorail (S Mon)	AG

[1]*HR: Heavy Rail, LR: Light Rail, IP: Inclined Plane, AG: Automated Guideway, CC: Cable Car*

Designation Statistics

By 2002, States had designated 22 SOAs to implement Part 659 requirements. Thirty-seven rail transit agencies operated:

- Twelve heavy rail systems,
- Twenty-six light rail systems, and
- Nine other rail systems (four automated guideway/monorail systems, four inclined plane systems and one cable car system).

SOAs have a variety of legal authorities, including safety responsibilities that exceed FTA minimum requirements. As shown in Exhibit 3, the majority of SOAs are divisions of State Departments of Transportation or Public Utilities Commissions, empowered by enabling legislation or gubernatorial order to implement Part 659 regulations.

EXHIBIT 3

Oversight Agency Designations: 2002

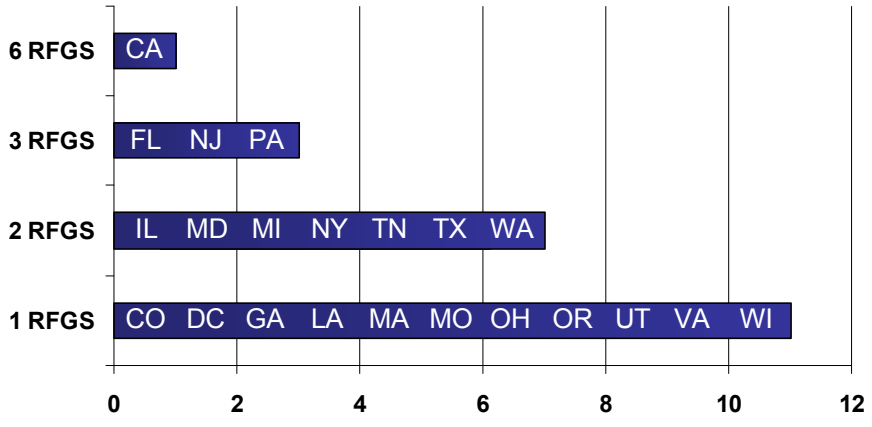
	Number
Department of Transportation	13
Utilities Commission or Regulator	3
Regional or County Transportation Authority	2
Multi-state Oversight Committee	1
Consumer Industry & Services	1
Transportation Safety Board	2
Total	**22**

Exhibit 4 lists states and the number of RFGS within their jurisdictions.

EXHIBIT 4

Number of RFGS in Affected States: 2002

			6 RFGS
CO, DC, GA, LA, MA, MO, OH, OR, UT, VA, WI	IL, MD, NY, TN, TX, WA, MI	FL, NJ, PA	CA
			1



Personnel Allocation

Eleven states have designated at least 1.0 full-time equivalent (FTE) to implement 49 CFR Part 659 requirements and eight states have designated less than 0.5 FTE. The level of resources varies according to the number and operations of the RFGS. Although both of these statistics imply increases in FTE from 2001 levels, the average FTE reported in 2002 decreased from 2001. Exhibit 5 presents the allocation of personnel to implement 49 CFR Part 659 requirements in the years 2001 and 2002.

EXHIBIT 5

Personnel Allocation: 2002

SOA Resource Allocation	# of SOAs	Avg. FTE per 2001	**2002**
Total - SOAs	22	1.55	**1.45**
SOAs with more than 1 RFGS	11	2.38	**2.08**
SOAs with 1 RFGS	11	0.76	**0.81**

[1] *Eight SOAs designated 0.5 FTE or less*

Recent and Upcoming Additions

In 2002, the Hillsborough Area Regional Transit Authority in Tampa, Florida initiated revenue service on its 2.3 mile TECO Line streetcar system, linking Ybor City with downtown Tampa. This addition to the rail transit SSO community, overseen by the Florida Department of Transportation, brought the total number of rail transit agencies to 37.

Between 2002 and the end of 2006, FTA expects that 10 additional New Start transit agencies will initiate revenue service. Consequently, six states have designated new oversight agencies to provide safety oversight and meet Part 659 requirements during this period. Exhibit 6 on the following page depicts the recent and upcoming transit agency additions to the state safety oversight community and the designated oversight agencies.

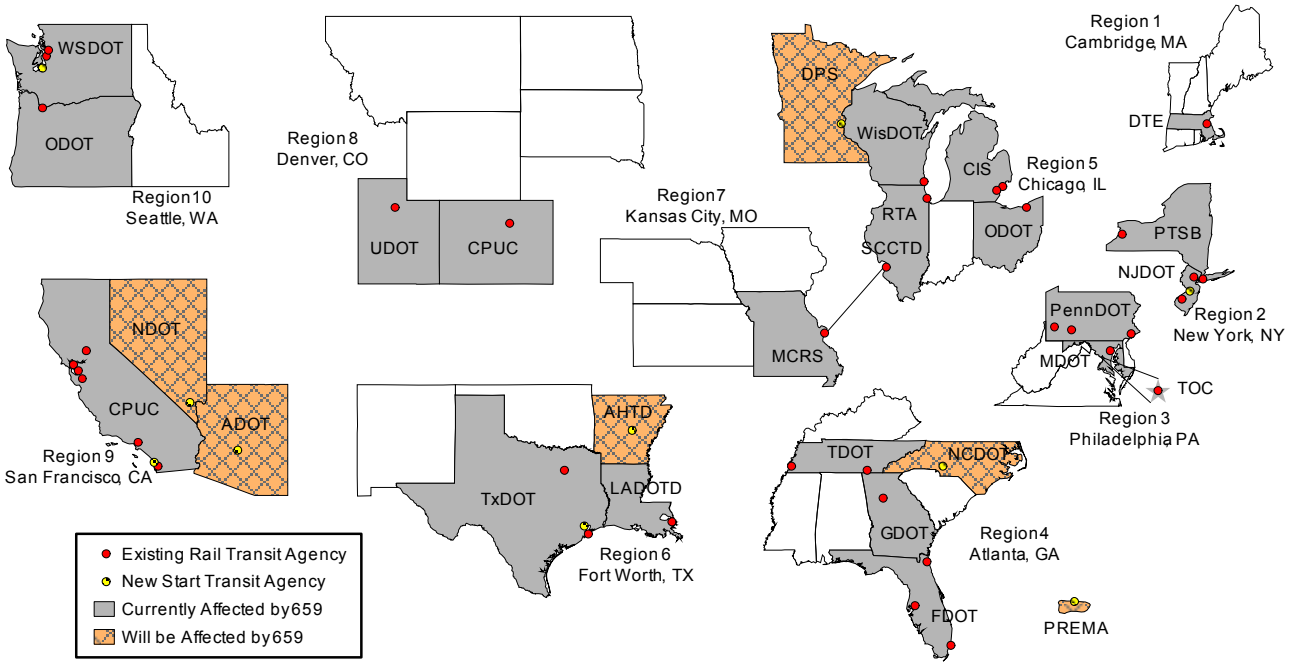
EXHIBIT 6

Upcoming Additions to the SSO Community: 2002 to 2006

				SOA
Tacoma, WA	Tacoma Link Light Rail	8/2003	2,000	Washington State Department of Transportation (WSDOT)
Houston, TX	Houston METRORail	1/2004	40,000	Texas Department of Transportation (TxDOT)
Camden, NJ	NJ Transit River Line	3/2004	8,500	
Las Vegas, NV	Las Vegas Resort Corridor Fixed Guideway	3/2004	38,800	
Minneapolis, MN	Metro Transit Hiawatha Corridor LRT	4/2004	19,300	**Minnesota Department of Public Safety/State Patrol (DPS)**
San Juan, PR	Tren Urbano	6/2004	113,300	**Puerto Rico State Emergency and Disaster Management Agency (PREMA)**
Little Rock, AK	Central Arkansas Transit Authority River Rail Project	9/2004	1,000	**Arkansas State Highway and Transportation Department (AHTD)**
San Diego, CA	North County Transit District Sprinter	12/2005	16,000	California Public Utilities Commission (CPUC)
Charlotte, NC	Charlotte Area Transit System South Corridor	Fall 2006	21,100	**North Carolina Department of Transportation, Rail Division (NCDOT)**
Phoenix, AZ	Regional Public Transportation Authority East Valley Corridor	12/2006	48,000	**Arizona Department of Transportation (ADOT)**

[1]projected

***BOLD* = New Oversight Agency**



Service Data

Rail Transit modes provided approximately 3 billion passenger trips in 2002, roughly 30% of all public transportation passenger trips (APTA). For the first time since 1998, rail transit ridership in 2002 declined from the previous year. Despite this decrease, further growth is still expected throughout the decade as substantial increases in Federal funding under TEA-21 translate into operational service.

While there were many reasons for this ridership decline, one main cause was the economic downturn that affected not only rail transit but much of the transportation industry around the nation. Over the past two years there have been significant reductions in funding at State and local levels for many transit systems. These cuts have hurt public transportation service output, forcing modes such as bus to reduce routes in many regions.

Modal Distinctions

For analysis purposes, the State Safety Oversight Program organizes agency service data into three modal categories.

- *Heavy Rail* – metros, subways, rapid rail, usually has multiple-car trains on fixed, exclusive rights of way, is characterized by high speed and rapid acceleration, and often uses sophisticated signaling systems.
- *Light Rail* – lightweight passenger rail cars traveling singly or in short two-car trains on a fixed right of way, usually not separated from on-street traffic for much of the way. Trains usually are electrically powered.
- *Other Rail* – includes inclined planes/funiculars, automated guideways, and cable cars.

Heavy Rail

Nationwide, 12 heavy rail systems annually account for between eight and nine times more passenger trips than light rail service. The ridership difference is due in part to the way the systems were designed and integrated into their respective infrastructures. Heavy rail systems are generally older than their light rail counterparts – except for the restored historic trolleys that are considered light rail – and were developed around the needs of an urban transit system.

Cities such as New York, Chicago, and Boston are home to older heavy rail systems and are good examples of this dense transit development that has grown with the expansion of urban transit needs. The ridership difference can also be attributed in part to the extremely high ridership totals of MTA-NYC. New York City's heavy rail system alone was responsible for 60% of all rail transit ridership in 2002.

Light Rail

Even though the Nation's 26 light rail systems currently provide only a fraction of the level of ridership provided by heavy rail service, the growth in light rail transit ridership is unmatched

across the industry. As development around U.S. cities has spread, planning organizations have sought commuting options to eliminate traffic woes caused by increasing sprawl. Light rail transit offers the ability to connect outlying areas to urban centers in a cost-effective manner and for this reason, growing municipalities are increasingly turning to light rail.

In recent years, there have been major expansions of light rail systems at transit agencies such as Bi-State Development Agency (BSDA) in St. Louis, Missouri, the Los Angeles County Metropolitan Transit Authority (LACMTA) in Los Angeles, California, and the Regional Transportation District (RTD) in Denver, Colorado, in addition to the initiation of revenue service at the Utah Transit Authority (UTA) in Salt Lake City, Utah. These developments have helped to increase ridership totals over the past five years and are a large reason why light rail was the only mode of rail transit that did not experience a ridership decline in 2002. This growth is expected to continue as FTA anticipates the initiation of revenue service for eight new light rail transit systems before 2007.

Other Rail

The other rail systems included in the State Safety Oversight Program include four automated guideway/monorail systems, four inclined plane or funicular systems, and one cable car system. Although ridership levels for these systems are substantially lower than the heavy rail and light rail modes, the importance of safety oversight and the need for analysis is clear. One of three rail transit accidents after 2000 that prompted an NTSB recommendation was an accident on a funicular system. This accident highlighted the need for adequate safety oversight on all modes of rail transit, regardless of ridership.

Ridership Statistics

An ***Unlinked Passenger Trip*** is a trip on one transit vehicle regardless of the type of fare paid or transfer presented. A passenger is counted each time he/she boards a vehicle even though he/she may be on the same journey from origin to destination.

- The SSO community experienced a decline in annual unlinked passenger trips for the first time since 1998 (APTA).
- Heavy rail service as well as "other" rail service showed a decrease in ridership in 2002 of -0.21% and -2.09%, respectively (Exhibit 9).
- Light rail service still experienced growth in unlinked passenger trips in 2002. Light rail unlinked passenger trips rose by 0.59% from 2001 totals (Exhibit 9).
- All modes still reported a higher number of unlinked passenger trips than were reported in 2000 (Exhibit 9).

EXHIBIT 7

Annual Unlinked Passenger Trips: 2002

RFGS	Mode	Trips	RFGS	Mode	Trips	RFGS	Mode	Trips
MTA/NYC	HR	**1,792,229,600**	**MTA-MD**		**22,279,100**	**GCRTA**		**8,056,300**
WMATA	HR	**246,663,600**		HR	13,947,500		HR	4,950,800
MBTA		**191,638,600**		LR	8,331,600		LR	3,105,500
	HR	125,435,900	**MDT**		**19,103,800**	**SCVTA**	LR	**6,963,500**
	LR	66,202,700		HR	13,932,100	**NFTA**	LR	**5,704,500**
CTA	HR	**152,364,600**		AG	5,171,700	**NORTA**	LR	**4,879,600**
SEPTA		**103,348,900**	**BSDA**	LR	**14,943,200**	**DPM**	AG	**2,186,600**
	HR	85,787,800	**DART**	LR	**14,598,300**	**S Mon**	AG	**2,048,800**
	LR	17,561,100	**RTD**	LR	**10,429,600**	**MATA**	LR	**964,900**
BART	HR	**95,161,000**	**UTA**	LR	**10,202,100**	**JTA**	AG	**739,300**
MARTA	HR	**77,406,600**	**PATCO**	HR	**9,288,300**	**CARTA**	IP	**412,200**
LACMTA		**64,258,200**	**SRTD**	LR	**8,879,700**	**WFSC**	LR	**366,800**
	HR	33,526,500	**PAAC**		**8,722,000**	**CCTA**	IP	**85,100**
	LR	30,731,700		LR	7,526,200	**HART**	LR	**75,100**
MUNI		**55,412,100**		IP	853,500	**GIT**	LR	**60,000**
	LR	47,221,700		IP	342,300	**KT**	LR	**46,900**
	CC	8,190,400	**NJT**		**8,265,600**	**DDOT**	LR	**31,700**
Tri-Met	LR	**25,665,800**		LR	4,692,400			
SDTI	LR	**24,843,600**		LR	3,573,200	**TOTAL**		**2,988,325,600**

EXHIBIT 8

Annual Unlinked Passenger Trips by Mode: 1999 to 2002

				2002
Heavy Rail	2,609,453,900	2,604,328,600	2,656,231,300	2,650,694,300
Light Rail	278,102,600	298,372,100	315,725,820	317,601,400
Other*	19,375,800	19,769,400	20,458,080	20,029,900
Total	**2,906,932,300**	**2,922,470,100**	**2,992,415,200**	**2,988,325,600**

**includes automated guideways, inclined planes, and cable cars*

EXHIBIT 9

Changes in Annual Unlinked Passenger Trips by Mode

			2001-'02
Heavy Rail	1.58%	1.78%	-0.21%
Light Rail	14.20%	6.44%	0.59%
Other*	3.38%	1.32%	-2.09%
Total	**2.80%**	**2.25%**	**-0.14%**

**includes automated guideways, inclined planes, and cable cars*

EXHIBIT 10

Heavy Rail Unlimited Passenger Trips: 2002

MTANYC	NY	**1,792,229,600**
WMATA	DC	**246,663,600**
CTA	IL	**152,364,600**
MBTA	MA	**125,435,900**
BART	CA	**95,161,000**
SEPTA	PA	**85,787,800**
MARTA	GA	**77,406,600**
LACMTA	CA	**33,526,500**
MTA-MD	MD	**13,947,500**
MDT	FL	**13,932,100**
PATCO	NJ	**9,288,300**
GCRTA	OH	**4,950,800**
Heavy Rail Total		**2,650,694,300**

EXHIBIT 11

Other Rail Annual Unlinked Passenger Trips: 2002

MUNI	CA	**8,190,400**
MDT	FL	**5,171,700**
DPM	MI	**2,186,600**
S Mon	WA	**2,048,800**
PAAC	PA	**853,500**
JTA	FL	**739,300**
CARTA	TN	**412,200**
PAAC	PA	**342,300**
CCTA	PA	**85,100**
Other Rail Total		**20,029,900**

EXHIBIT 12

Light Rail Annual Unlinked Passenger Trips: 2002

MBTA	MA	**66,202,700**
MUNI	CA	**47,221,700**
LACMTA	CA	**30,731,700**
Tri-Met	OR	**25,665,800**
SDTI	CA	**24,843,600**
SEPTA	PA	**17,561,100**
BSDA	MO	**14,943,200**
DART	TX	**14,598,300**
RTD	CO	**10,429,600**
UTA	UT	**10,202,100**
SRTD	CA	**8,879,700**
MTA-MD	MD	**8,331,600**
PAAC	PA	**7,526,200**
SCVTA	CA	**6,963,500**
NFTA	NY	**5,704,500**
NORTA	LA	**4,879,600**
NJT	NJ	**4,692,400**
NJT	NJ	**3,573,200**
GCRTA	OH	**3,105,500**
MATA	TN	**964,900**
WFSC	WA	**366,800**
HART	FL	**75,100**
GIT	TX	**60,000**
KT	WI	**46,900**
DDOT	MI	**31,700**
Light Rail Total		**317,601,400**

- A comparison with 2001 service data reveals a decrease of annual passenger trips for heavy rail and other rail services. Light rail service, on the other hand, recorded a small increase of 0.59% in its ridership (passenger trips). Seven out of 12 heavy rail systems in service experienced declines in unlinked passenger trips in 2002. Among the agencies realizing the largest declines in heavy rail ridership were LACMTA (-15.4%), GCRTA (-11.2%), and PATCO (-7.5%) (See Exhibit 13 below).

EXHIBIT 13

Annual Unlinked Passenger Trips: 2001 to 2002

			% Decline
LACMTA	39,636,500	33,526,500	**-**
GCRTA	5,576,100	4,950,800	**-11.21%**
PATCO	10,038,200	9,288,300	**-7.47%**

Safety Data

Rail transit reports less than 6% of all public transportation's accidents, while providing over 30% of all public transportation's passenger trips. This low ratio of accidents to provided service is unmatched in public transportation and provides the public with a high level of confidence in the safety of rail transit service. Compared to other modes of public transit, rail transit service stands out as the safest public transit option.

Accident Categories

This section analyzes FTA-reportable rail transit accident totals reported by transit agencies to their SOAs. Analysis focuses not only on mode distinctions in collected data but also on trends by accident type. Accident data are grouped into four categories:

> ***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.

- Collision (includes rail grade crossing incidents)
- Derailment
- Fire
- "Other" (includes single-person events such as suicides, trespassing, assault, and slips, trips, and falls in the station).

"Other" accidents make up the majority of FTA-reportable accidents due to the fact that transit agencies are required to report any accident in which "an individual suffers bodily injury and immediately receives medical treatment away from the scene." The added safeguards of some transit agencies can attribute to the inflation of this statistic. In New York City, for example, the transit system operates its own staffed first-aid stations that are required to report an incident if any medical treatment is administered. As a result of this diligence, the transit agency could report an incident that may easily go unreported at another transit agency. By making convenient medical attention available to passengers, transit systems can increase the reporting of "Other" accidents.

Many of the "Other" accidents reported are due to negligence on the part of a passenger. Some events cannot be realistically prevented by a transit agency. Nonetheless, the collection of these data can be very important to the safety of all rail transit passengers. For example, collection of slip, trip, and fall data has led to large scale studies of stairwells and escalators, prompting modifications to the escalator technology and proving that valuable steps can be taken toward improving safety through the analysis of reported "Other" accident data.

Reported Safety Data

Data in this section is organized into the following subsections:

- Industry-wide Totals
- Heavy Rail Data
- Light Rail Data
- Other Rail Data
- Modal Comparisons
- Causal Data

Industry-wide Totals

- In 2002, RFGS reported 3,004 incidents that met the FTA's definition of accident, an increase of less than 1% from the 2,975 accidents in 2001 and a decrease of 6% from the 3,192 accidents in 2000 (Exhibits 14 and 15).
- The collision accident rate increased for the second straight year in 2002, reaching a standardized rate of 0.49 collisions per 10 million passenger trips, an 11% increase from 2001 and a 17% increase from 2000 (Exhibit 16).
- Derailments have declined over the past three years. The 12 derailments reported in 2002 still exceed the six reported derailments in 1999 (Exhibit 14).
- In 2002, "Other" accidents represented 95% of reported accidents with 9.50 single-person incidents reported per 10M passenger trips (Exhibit 17).
- "Other" accidents increased slightly in 2002 from 2001, a change of less than 1%. However, increased reporting of single person events over the past four years has resulted in a larger increase since 1999 (+16%) (Exhibit 15).

EXHIBIT 14

Reported Accidents by Type: 1999 to 2002

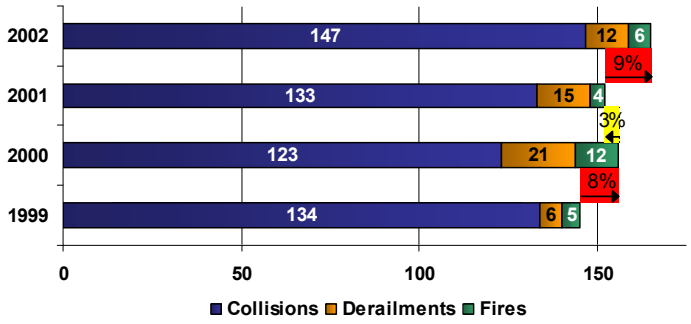


EXHIBIT 15

"Other" Accidents: 1999 to 2002

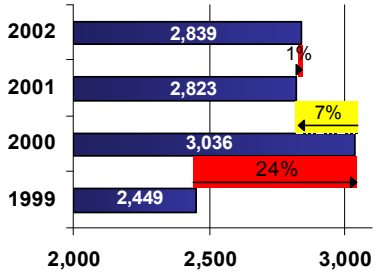


EXHIBIT 16

Accident Rates by Type: 1999 to 2002, per 10M passenger trips

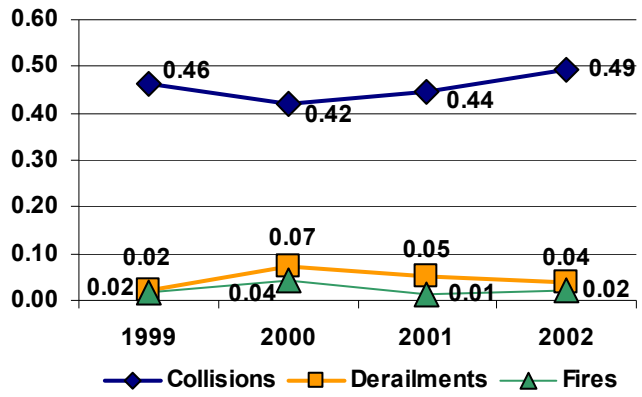
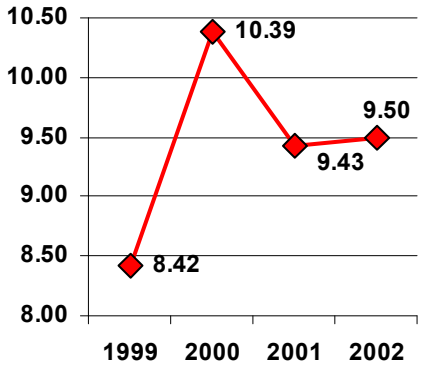


EXHIBIT 17

"Other" Accident Rates: 1999 to 2002, per 10M passenger trips



Fatalities

For this analysis, reported fatalities are divided into two categories, *in-service* and *suicides*. The *suicides* category includes suicides and trespassing-related fatalities. These events fall into the SSO category of "Other" accidents. Most of the analysis in this section focuses on in-service fatalities and does not develop conclusions based upon suicide and trespassing-related deaths.

- In 2002 the fatality rate of 0.09 per 10M passenger trips was the lowest rate in three years (Exhibit 20).
- 2002 continued the trend of decreasing fatalities that was established in 2001 (Exhibit 20).
- The non-suicide fatality figure in 2001 of 36 fell to 26 in 2002. This is a 28% decrease from 2001 and a 37% decrease from 41 fatalities in 2000 (Exhibit 19). The fatality rate fell to 0.09 in 2002 from 0.12 in 2001 and 0.14 in 2000 (Exhibit 20).

EXHIBIT 18

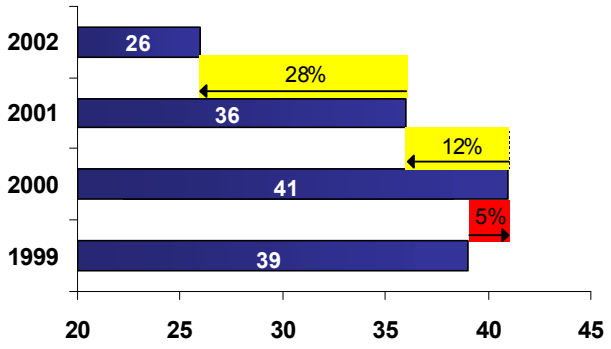
Fatalities by Transportation Mode

		2002
General Aviation	595	576
Highway	41,945	42,815
Railroad	512	596
Commercial Ship	137	76
Recreational Boating	701	750
Pipeline	38	10
Rail Transit	**41***	**26***

**Excludes suicides and trespassing-related deaths*
Source: Bureau of Transportation Statistics

EXHIBIT 19

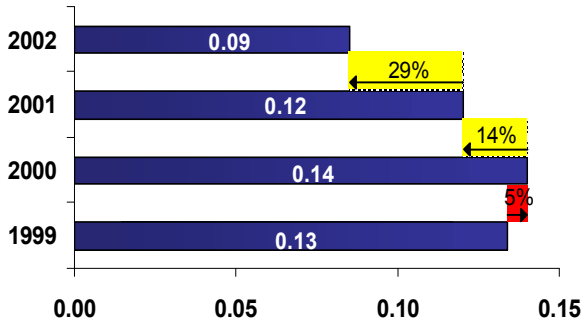
Reported Fatalities*: 1999 to 2002



** excluding suicides and trespassing-related deaths*

EXHIBIT 20

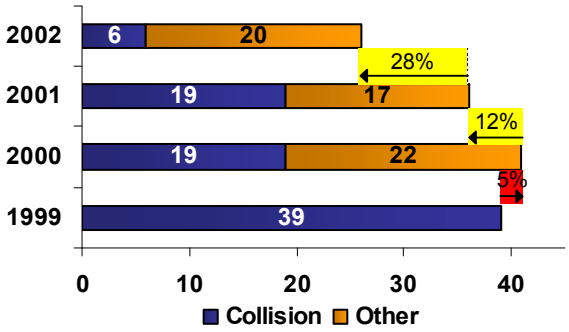
Fatality Rates*: 1999 to 2002



** excluding suicides and trespassing-related deaths*

EXHIBIT 21

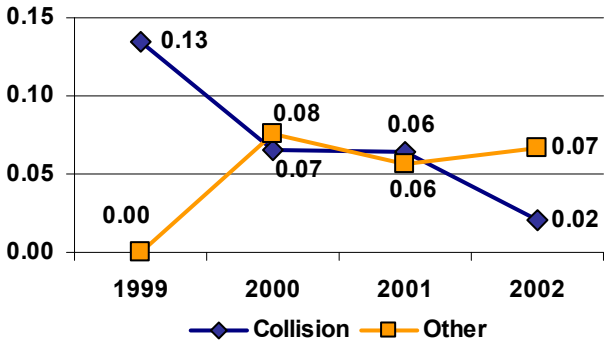
Reported Fatalities* by Type: 1999 to 2002



** excluding suicides and trespassing-related deaths*

EXHIBIT 22

Fatality Rates* by Type: 1999 to 2002



** excluding suicides and trespassing-related deaths*

Injuries

- For the second straight year, reported injuries declined. The 2002 total of 2,966 is a 6% decline from the 2001 total of 3,169 and a 12% decline from the 2000 total of 3,371 (Exhibit 23).
- In 2002, rail transit averaged less than 10 injuries per 10M passenger trips for the first time since 1999 (Exhibit 24).
- Injuries from collisions fell by 40% in 2002 from a four-year-high of 273 injuries in 2001, a year in which a single collision required medical attention for 118 individuals (Exhibit 25).
- The large increase in injuries reported in 2000 from 1999 can be attributed to the 22% increase in the reporting of "Other" accidents that year. (Exhibit 26)
- Over the past four years, rail transit has averaged 200 annual injuries from collisions (Exhibit 27).

- Derailment-related injuries decreased 20% from 2001, remaining well below the 119 injury level in 2000 (Exhibit 27).
- Injuries due to fires increased to eight in 2002 from two in 2001, still remaining well below the fire-injury totals of 20 in 2000 and 61 in 1999 (Exhibit 27).

EXHIBIT 23

Reported Injuries: 1999 to 2002

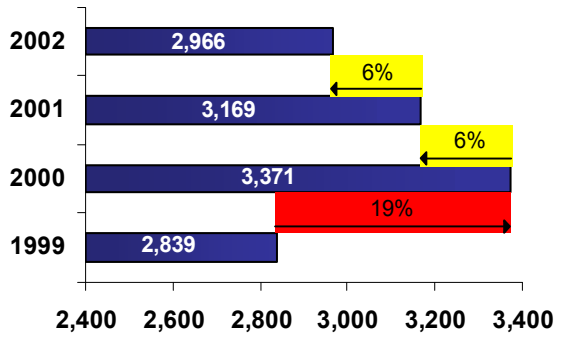


EXHIBIT 24

Injury Rates: 1999 to 2002

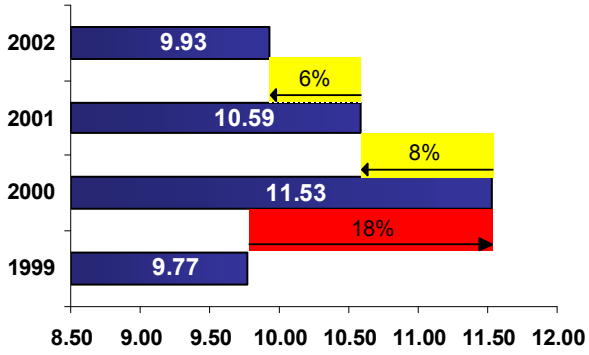


EXHIBIT 25

Reported Injuries by Type: 1999 to 2002

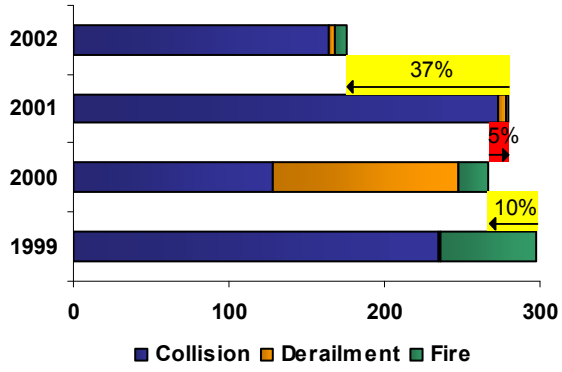
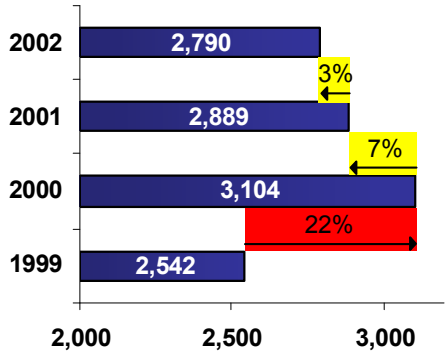


EXHIBIT 26

Reported Injuries due to "Other" Accidents: 1999 to 2002



See Exhibit 27 for injury totals

EXHIBIT 27

Reported Injuries by Type and Injury Rates per 10M passenger trips: 1999 to 2002

Accident Type	1999	2000	2001	2002
Collision	235	128	273	**164**
	0.81	0.44	0.91	**0.55**
Derailment	1	119	5	**4**
	0.00	0.41	0.02	**0.01**
Fire	61	20	2	**8**
	0.21	0.07	0.01	**0.03**
Other	2,542	3,104	2,889	**2,790**
	8.74	10.62	9.65	**9.34**

Heavy Rail

- The heavy rail collision rate has declined every year for the past three years. The 2002 rate of 0.05 collisions/10M passenger trips is a 58% decline from 0.12 collisions/10M passenger trips in 1999 (Exhibits 30 and 32).

Heavy rail includes metros, subways and rapid rail; usually has multiple-car trains on fixed, exclusive rights of way; is characterized by high speed and rapid acceleration; and often uses sophisticated signaling systems.

- All types of heavy rail accidents have decreased in 2002: collisions by 46%, derailments by 20%, fires by 50%, other accidents by 3% (Exhibits 28 and 29).
- The total number of accidents in all accident categories for 2002 fell below the category total mean over the past four years (Exhibits 28 and 29).
- There was only one fire in 2002, continuing the downward trend in fires (Exhibit 28).

EXHIBIT 28

Heavy Rail Accidents by Type: 1999 to 2002

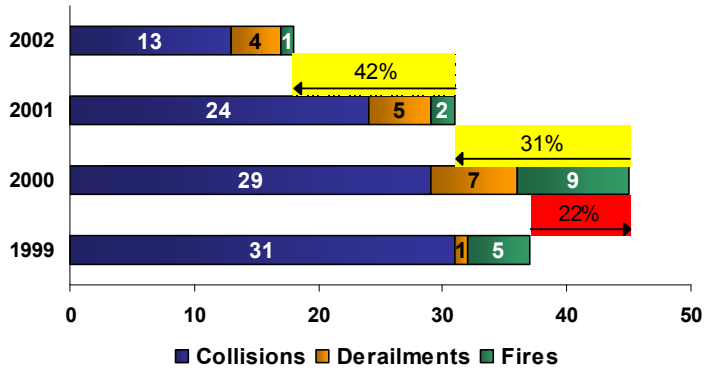


EXHIBIT 29

Heavy Rail "Other" Accidents: 1999 to 2002

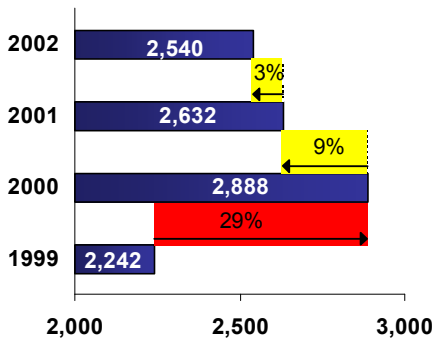


EXHIBIT 30

Heavy Rail Accidents by Type: 1999 to 2002 per 10M passenger trips

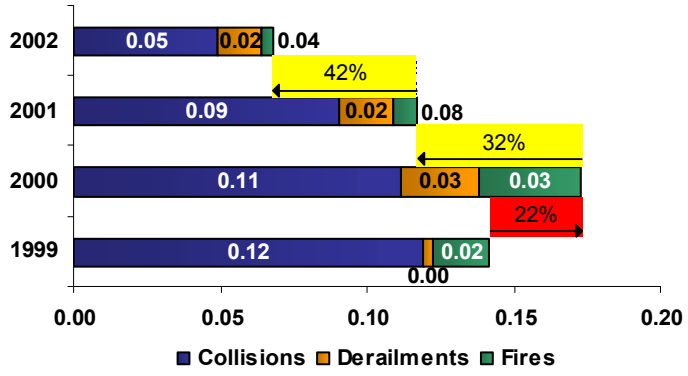


EXHIBIT 31

Heavy Rail "Other" Accidents: 1999 to 2002 per 10M passenger trips

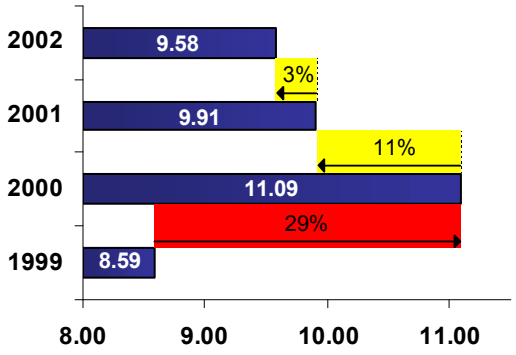
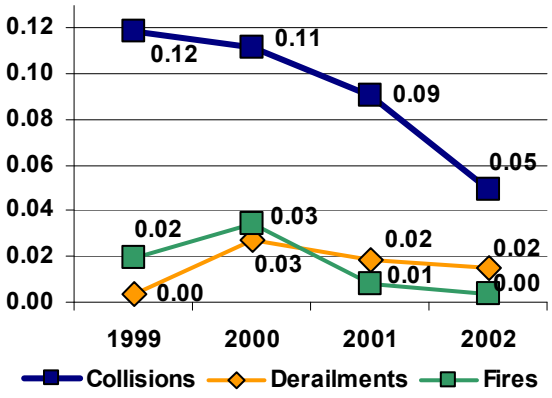


EXHIBIT 32

Heavy Rail Accidents by Type: 1999 to 2002 per 10M passenger trips



Fatalities

- In 2002 there were no heavy rail fatalities resulting from collisions. For the past three years the fatality rate has decreased, averaging 7.67 collision fatalities per year (Exhibits 35 and 36).
- There were no heavy rail fatalities due to derailments or fires over the last four years (Exhibits 35 and 36).

EXHIBIT 33

HR Fatalities Table: 2002

Mode	Fatalities In-service	Suicides*	Total
Heavy Rail	**20**	**59**	**79**
Light Rail	6	9	15
Other	0	0	0
All Modes	**26**	**68**	**94**

** Includes suicides and trespassing-related deaths*

EXHIBIT 34

Heavy Rail Fatalities: 2002

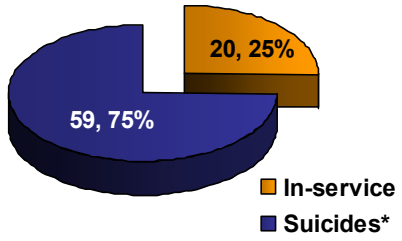
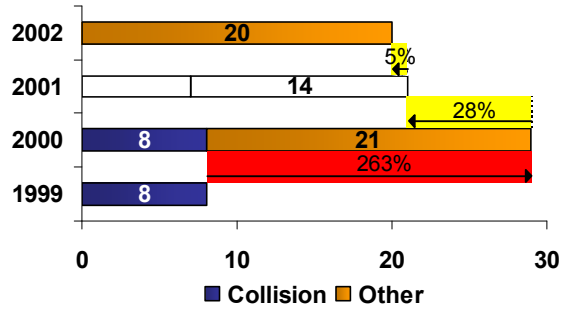


EXHIBIT 35

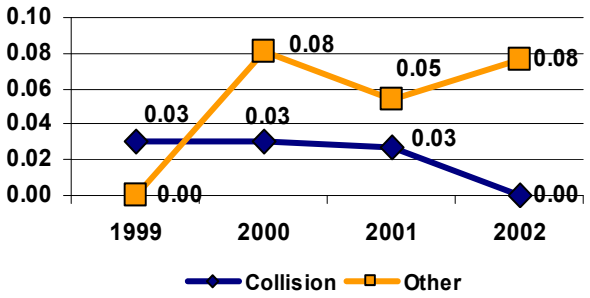
Heavy Rail Fatalities* by Accident Type: 1999 to 2002



** excluding suicides and trespassing-related deaths*

EXHIBIT 36

Heavy Rail Fatalities* by Accident Type: 1999 to 2002 per 10M passenger trips



Injuries

- Heavy rail's collision injury rate of 0.06 injuries/10M passenger trips in 2002 was lower than in 2001 when two collisions caused 136 injuries, an injury rate of 0.62 injuries/10M passenger trips (Exhibit 39).
- The 15 injuries in 2002 is the lowest total in the past four years; a decline of 53% from 1999 and a 32% fall from 2000 (Exhibit 37).
- Heavy rail service reported no injuries due to derailments in 2002 (Exhibit 37).
- Injuries caused by "Other" accidents for heavy rail service declined for the second straight year to 2,498, a 16% decrease from 2,964 in 2000, and a 7% decrease from 2,681 in 2001 (Exhibit 38).

EXHIBIT 37

Heavy Rail Injuries by Accident Type: 1999 to 2002

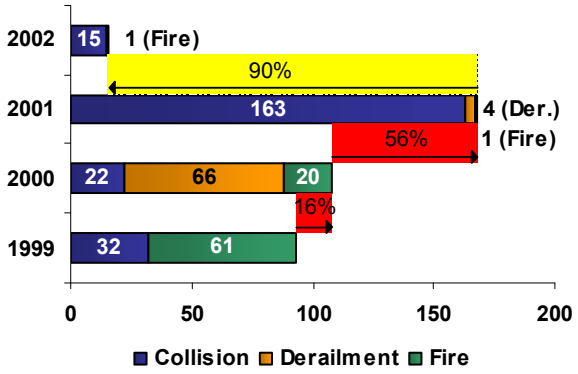


EXHIBIT 38

Heavy Rail Injuries due to "Other" Accidents: 1999 to 2002

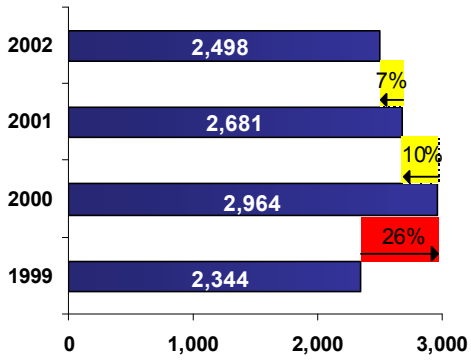
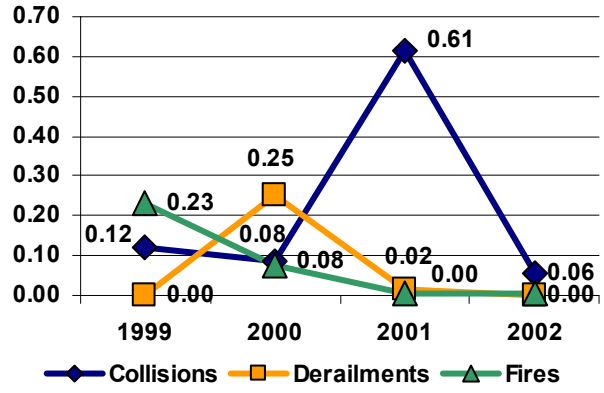


EXHIBIT 39

Heavy Rail Injuries by Type: 1999 to 2002 per 10M passenger trips



Light Rail

Light rail includes lightweight passenger rail cars traveling singly or in short two-car trains on a fixed right of way, usually not separated from on-street traffic for much of the way. Trains are usually electrically powered.

- The collision rate increased in 2001 and 2002. The rate of 4.22 injuries/10M passenger trips with 134 collisions in 2002 is a 29% increase from 2001 of 3.26 injuries/10M passenger trips with 103 collisions; and a 43% increase from 2000 of 2.95 injuries/10M passenger trips with 88 collisions (Exhibits 40 and 42).
- The number of derailments decreased in 2001 and 2002. In 2001 there were 10 derailments, a decrease of 29%; and in 2002 there were 8 derailments, a decrease of 43% from 2000 (Exhibit 40).
- The total number of derailments in 2002 is 60% higher than the 4-year low of five derailments in 1999 (Exhibit 40).
- Light rail "Other" accidents increased by 38% in 2001 and 56% in 2002 (Exhibit 41).

EXHIBIT 40

Light Rail Accidents by Type: 1999 to 2002

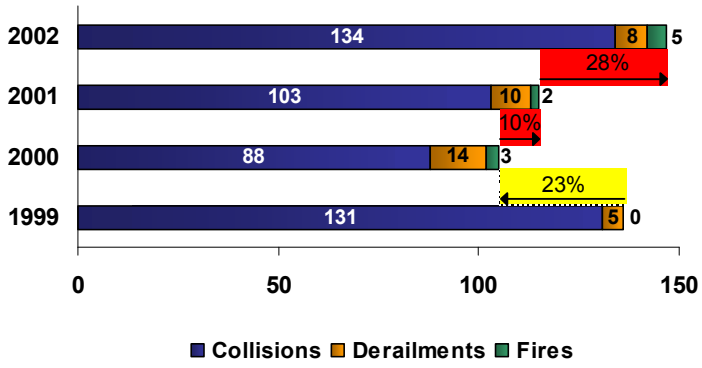


EXHIBIT 41

Light Rail "Other" Accidents: 1999 to 2002

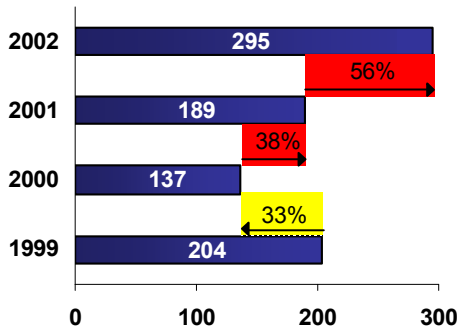


EXHIBIT 42

Light Rail Accidents by Type: 1999 to 2002 per 10M passenger trips

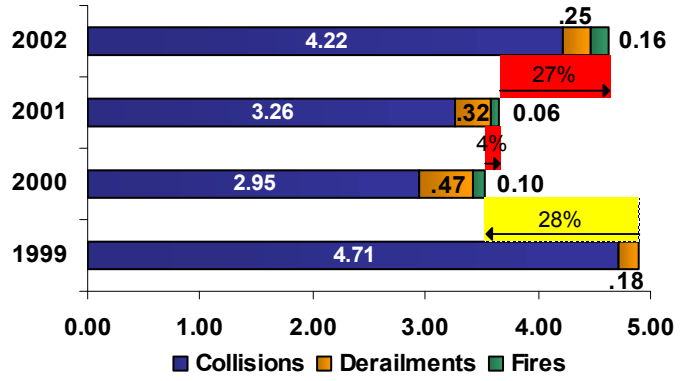


EXHIBIT 43

Light Rail "Other" Accidents: 1999 to 2002 per 10M passenger trips

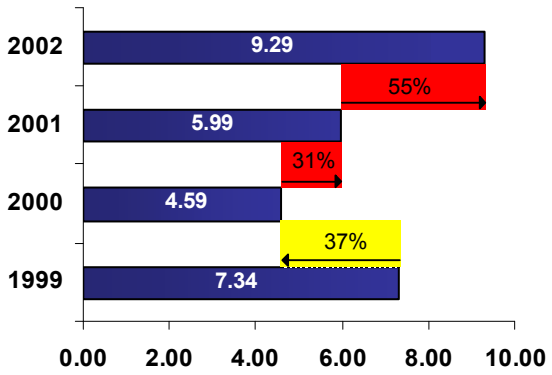


EXHIBIT 44

Light Rail Collisions and "Other" Accidents: 1999 to 2002 per 10M passenger trips

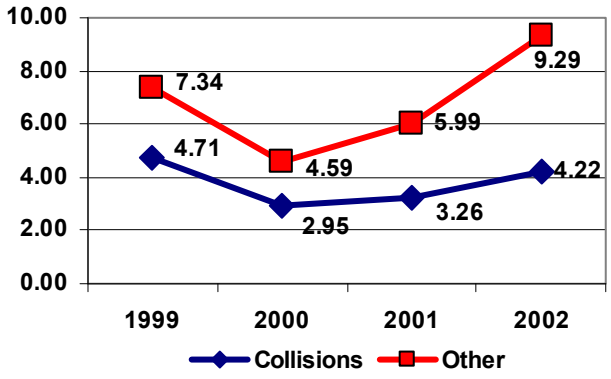
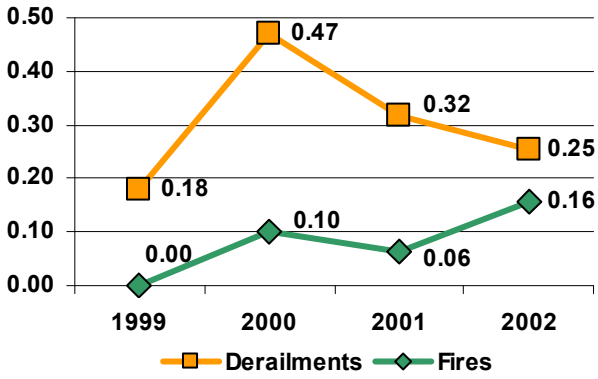


EXHIBIT 45

Light Rail Derailments and Fires: 1999 to 2002 per 10M passenger trips



Fatalities

- Total "in-service" fatalities for light rail service decreased 60% from 2001 (Exhibit 48).
- There were six collision fatalities for light rail service in 2002; a 50% decrease from 2001 and a 79% decrease from 1999 (Exhibit 48).
- There were no light rail in-service fatalities caused by "Other" accidents in 2002 (Exhibit 46).
- There were no light rail fatalities caused by derailments or fires over the last four years (Exhibit 48).

EXHIBIT 46

Light Rail Fatalities Table: 2002

Mode	Fatalities In-service	Suicides*	Total
Heavy Rail	20	59	79
Light Rail	**6**	**9**	**15**
Other	0	0	0
All Modes	**26**	**68**	**94**

** Includes suicides and trespassing-related deaths*

EXHIBIT 47

Light Rail Fatalities: 2002

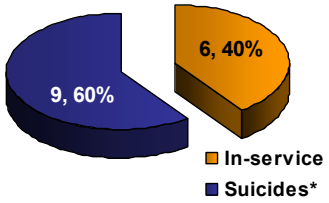
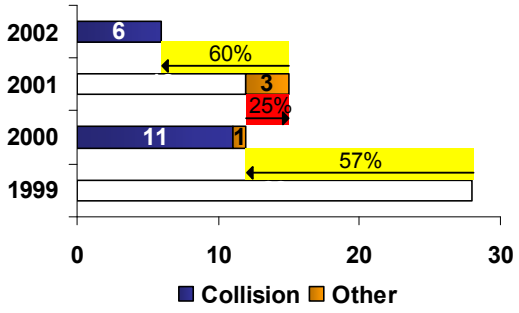


EXHIBIT 48

Light Rail Fatalities* by Type: 1999 to 2002



**excluding suicides and trespassing-related deaths*

Injuries

- Even though light rail service collision injuries increased for the second straight year in 2002 to 149; this nunber is still 19% lower than 1999, when there were 183 injuries (Exhibit 49).
- In 2002 fires caused seven injuries (Exhibit 49).
- The number of injuries caused by "Other" accidents increased substantially in 2002. This 40% increase reflects an increasing diligence in the reporting of single-person accidents (Exhibit 50).
- The 2002 collision injury rate rose to 4.69, up 41% from the 2001 rate of 3.33. The 2002 rate is still 29% lower than the 1999 rate of 6.58 (Exhibit 51).

EXHIBIT 49

Light Rail Injuries by Accident Type: 1999 to 2002

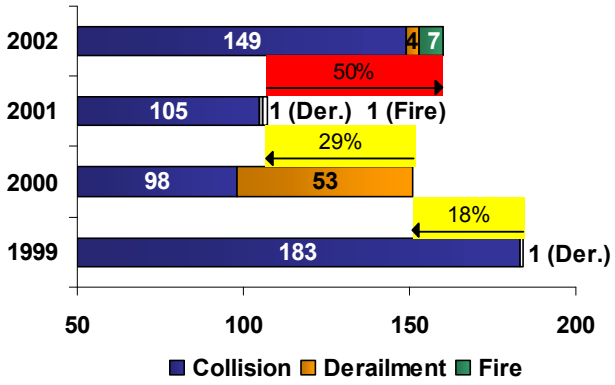


EXHIBIT 50

Light Rail Injuries due to "Other" Accidents: 1999 to 2002

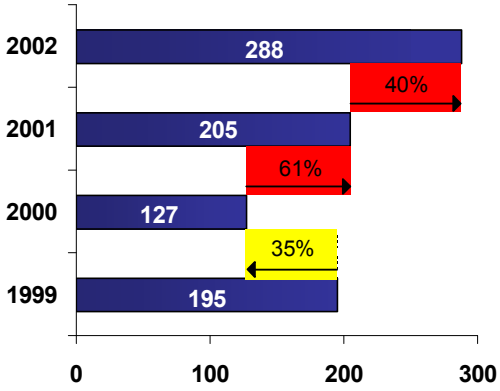
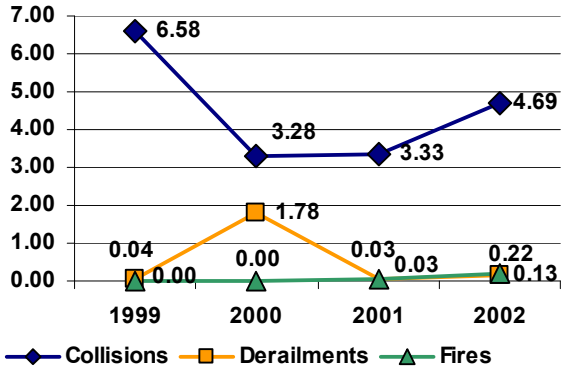


EXHIBIT 51

Light Rail Injuries by Type: 1999 to 2002 per 10M passenger trips



Rail Grade Crossings

> ***Rail Grade Crossing*** means an intersection of highway roads, railroad tracks, or dedicated transit rail tracks that run either parallel or across mixed traffic situations with motor vehicles, light rail, commuter rail, heavy rail, trolleybus, or pedestrian traffic.

Unlike heavy rail systems, which operate largely within exclusive right-of-ways, the majority of light rail transit systems operate portions of their systems within exclusive right-of-ways on city streets, in mixed traffic, within median strips in city streets, and in pedestrian malls. This situation frequently results in numerous, roadway-light rail grade crossings. In some cases, light rail systems share grade crossings with mainline railroads.

Over the past four years, FTA's annual reporting process has collected rail grade crossing accident data. These data reveal declines in rail grade crossing accident rates, injury rates, and fatality rates. Exhibit 52 illustrates the decreasing rates from 1999 to 2002. Rail grade crossing injury rates have decreased by 30% and rail grade crossing fatality rates fallen by 80% over the past four years.

- Rail grade crossing accidents on light rail service increased in 2002, after decreasing in 2000 and 2001. The 2002 rail grade crossing accident rate of 2.30 accidents per 10M passenger trips is still slightly lower than the 1999 rate of 2.34 per 10M passenger trips (Exhibit 54).
- In 2002, light rail service reported 4 fatalities, a rate of 0.13 fatalities per 10M passenger trip, resulting from rail grade crossing accidents. This figure is within the range established in 2000 and 2001 and is 78% lower than the fatality total in 1999 of 18 deaths, a rate of 0.65 per 10M passenger trips (Exhibits 53 and 54).
- Light rail service injuries at rail grade crossings increased over the past three years, from a four-year low in 2000 of 50 injuries (1.71/10M passenger trips) to 75 in 2002 (2.36/ 10M passenger trips); an increase of 36%. The 2002 injury rate of 2.36 per 10M passenger trips is still well below the 1999 injury rate of 3.38 per 10M passenger trips (Exhibits 53 and 54).

EXHIBIT 52

Light Rail Grade Crossing Rates per 10M passenger Trips: 1999 to 2002

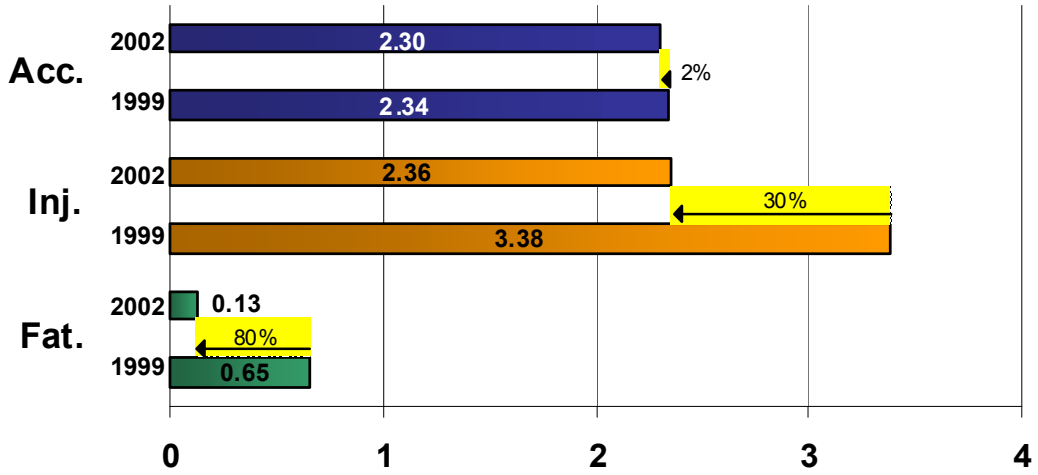


EXHIBIT 53

Rail Grade Crossing Statistics: 1999 to 2002

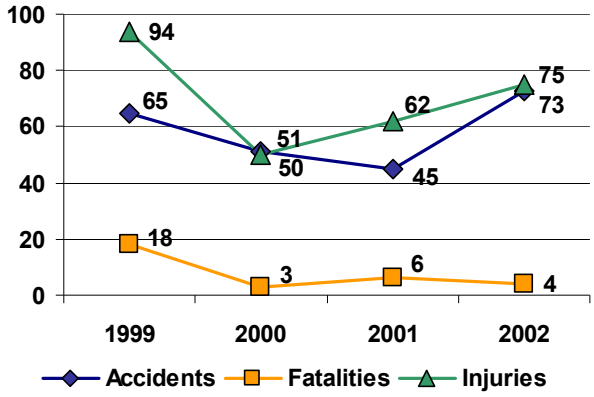
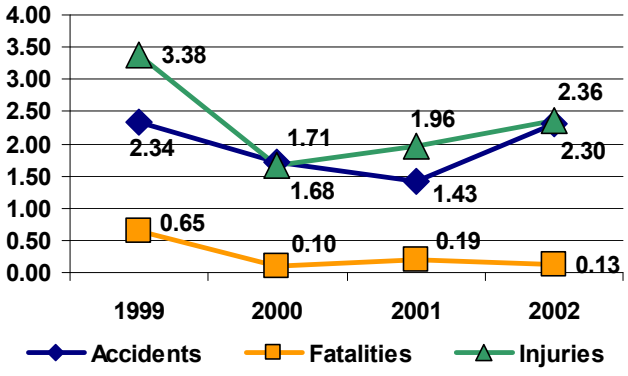


EXHIBIT 54

Rail Grade Crossing Statistics: 1999 to 2002 per 10M passenger trips



For reporting purposes FTA classifies rail grade crossings into three groups:

- *Protected* – A rail grade crossing equipped with urban traffic control devices. These devices could include gates, signals, signs, bells and other warning indicators.
- *Traffic Controlled* – An intersection of street and light rail tracks, located in a mixed traffic roadway, where the light rail vehicle follows vehicular traffic lights to govern movement through the intersection.
- *Unprotected* – An intersection of street and light rail tracks, located in a mixed traffic roadway, where the light rail vehicle does not use traffic lights or other traffic-control devices to guide movement through the intersection.

The following exhibits summarize accidents, fatalities and injuries for light rail systems at rail grade crossings *by type of crossing* in 2001 and 2002.

- In 2001 and 2002, the majority of accidents and injuries occurred at traffic-controlled crossings (Exhibits 55 and 57).
- In 2002 accidents at all crossing types increased; 36% at protected crossings, 55% at traffic-controlled crossings, and 50% at unprotected street-running grade crossings (Exhibit 55).
- Injuries at protected crossings increased by 58% in 2002 and traffic-controlled crossing injuries increased by 13% (Exhibit 57).
- There were no in-service fatalities at unprotected street-running grade crossings in 2001 and 2002 (Exhibit 56).

EXHIBIT 55

RGX Accidents by Crossing Type: 2001, 2002

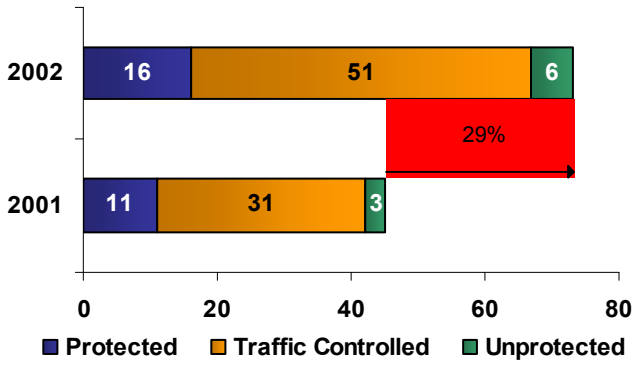


EXHIBIT 56

RGX Fatalities by Crossing Type: 2001, 2002

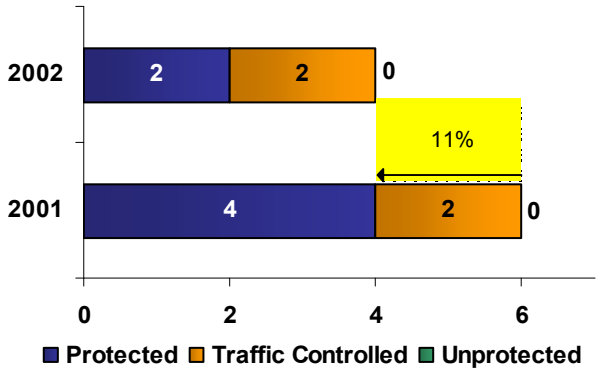
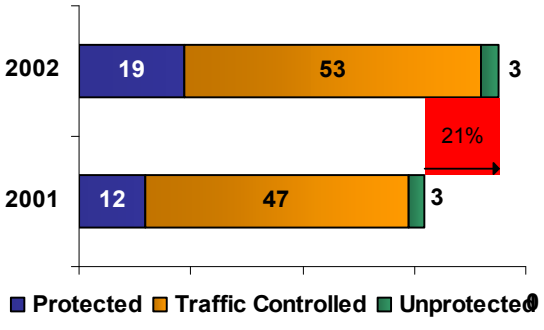


EXHIBIT 57

RGX Injuries by Crossing Type: 2001, 2002



Other Rail

Other Rail systems included in the State Safety Oversight Program include four automated guideway/monorail systems, four inclined plane or funicular systems, and one cable car system.

- In 2002, other rail service only observed "Other" accidents, and did not experience any reportable collisions, derailments, or fires.
- Other rail service has not experienced a single derailment or fire during the past four years.
- Accidents reported by other rail agencies have decreased dramatically in each of the past two years. The 2002 total of four is 76% lower than the 17 reported in 2000.

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EXHIBIT 58

Other Rail Accidents by Type: 1999 to 2002

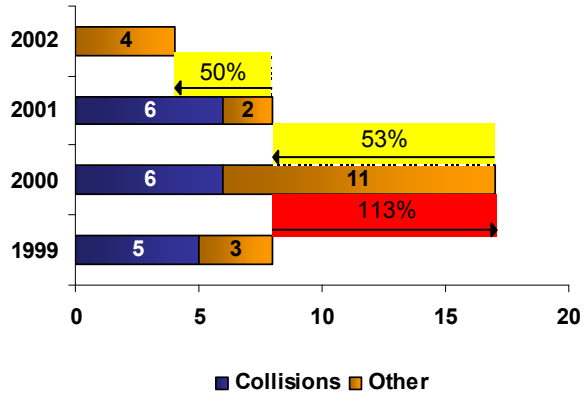
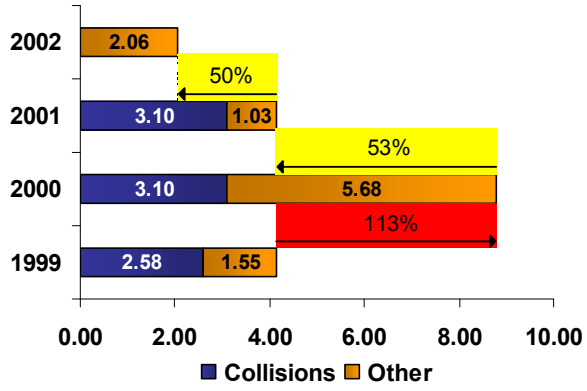


EXHIBIT 59

Other Rail Accidents by Type: 1999 to 2002 per 10M passenger trips



Modal Comparisons

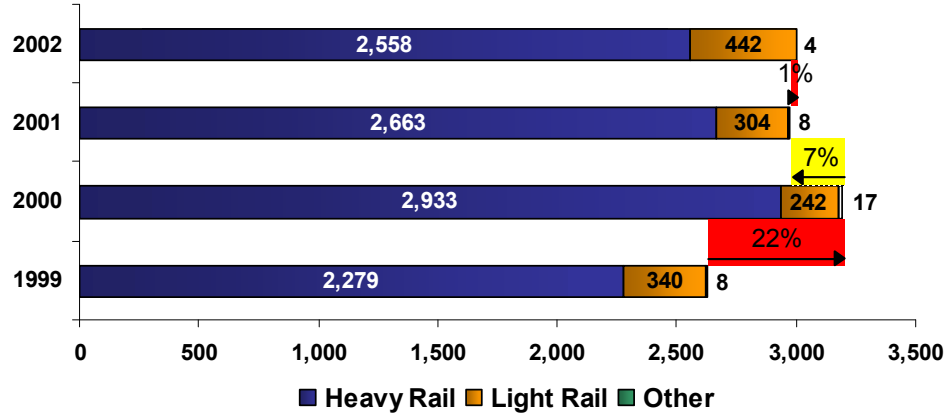
Accidents

- In 2002, light rail service accidents continued to increase. There were 442 accidents; a 45% increase from 304 in 2001, and an increase of 83% from 242 accidents in 2000. The accident rate also increased to a rate of 13.92/10M passenger trips in 2002 from a rate of 9.63/10M passenger trips in 2001 (Exhibits 60 and 61).
- In 2002, heavy rail accidents continued to decline. There were 2,558 accidents, a 4% decrease from 2,663 in 2001, and a decrease of 13% from 2,933 accidents in 2000. The accident rate also decreased to a rate of 9.65/10M passenger trips in 2002 from a rate of 10.03/10M passenger trips in 2001. Despite the decline in accidents, the 2002 heavy rail accident total is 12% higher than 1999 when there were 2,279 accidents and a rate of 8.73/10M passenger trips (Exhibits 60 and 61).

- Modal comparisons of accident figures standardized by passenger trips reveal a higher rate of accidents on light rail service than heavy rail service for the first time since 1999 (Exhibit 61).
- There were four "other" rail service (inclined plane, funicular, people mover, cable car) accidents in 2002; the lowest number in four years (Exhibit 60).

EXHIBIT 60

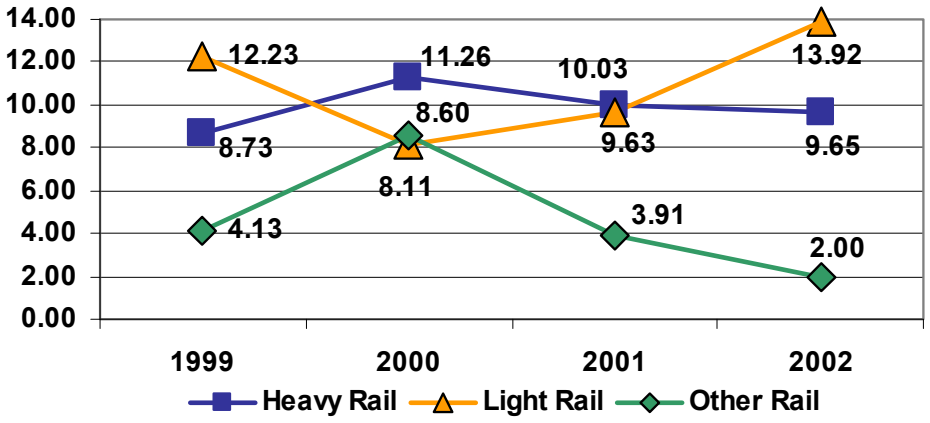
Reported Accidents by Mode: 1999 to 2002



	1999	2000	2001	2002
Total Accidents	2,627	3,192	2,975	3,004

EXHIBIT 61

Reported Accident Rates by Mode: 1999 to 2002 per 10M passenger trips



- Collisions make up 30% of all accidents reported for light rail service and less than 1% of all accidents reported for heavy rail service.
- Standardizing accidents by passenger trips reveals a much higher accident rate for light rail than heavy rail for all categories of accident (Exhibit 63).
- There are four reportable accidents for light rail service for every 10M passenger trips in 2002 (Exhibit 63).
- 67% of the reported accidents for light rail service in 2002 are classified as "Other" accidents, an increase over the previous year of 62% (Exhibit 64).
- As in 2001, over 99% of heavy rail accidents are classified "Other" in 2002 (Exhibit 64).
- All four reported accidents for "other" rail service (inclined plane, monorail/automated guideway, cable car) are classified as "Other" (Exhibit 64).

EXHIBIT 62

Reported Accidents by Mode: 2002

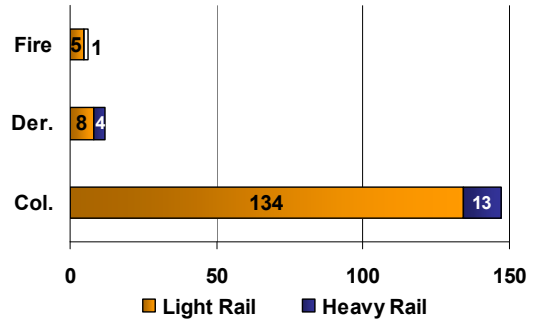


EXHIBIT 63

Reported Accidents by Mode: 2002 per 10M passenger trips

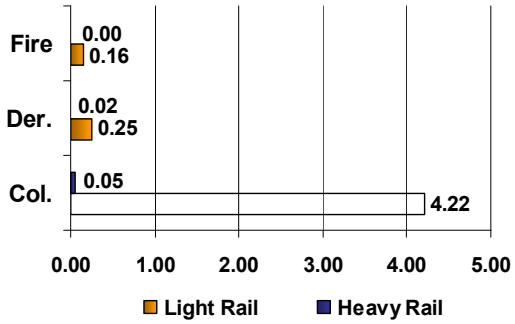
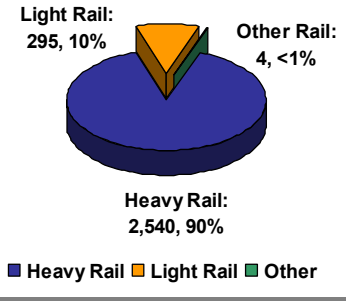


EXHIBIT 64

"Other" Accidents by Mode: 2002



Fatalities

- In 2002 there were 94 fatalities resulting from reportable accidents across all modes (Exhibit 65).
- 73% of all reported fatalities, 68 deaths, were suicides or trespassing-related events (Exhibit 65).
- 75% of heavy rail reported fatalities, 59 deaths, were suicides/trespassing-related (Exhibit 65).
- 60% of light rail fatalities were suicides or trespassing-related (Exhibit 65).
- Heavy rail service observed no fatalities due to collisions in 2002 after having averaged 7.67 collision fatalities per year since 1999 (Exhibits 35 and 36). All heavy rail fatalities in 2002 were due to "Other" accidents (Exhibit 35).
- Light rail service also experienced a decrease in fatalities. The six reported fatalities in 2002 represent a 50% decline from the 12 fatalities in 2001 and a 79% decline from the 28 fatalities in 1999 (Exhibit 66).
- There were no heavy rail or light rail fatalities caused by derailments or fires over the last four years.
- Heavy rail service reported a decrease of in-service fatalities in 2002. A 5% decrease in fatalities was recorded for the year, a drop from 21 to 20 fatalities (Exhibit 66).
- The light rail fatality rate of 0.19 per 10M passenger trips is the lowest rate reported for the mode in four years (Exhibit 67).
- The other rail category reported no fatalities for the third consecutive year after a fatality rate of 1.55 fatalities per 10M passenger trips, three deaths, in 1999 (Exhibits 66 and 67).
- The 2002 light rail fatality level stayed well below its 1999 mark, but heavy rail fatality rate figures have been higher over the past three years than the level of 0.03 fatalities per 10M passenger trips established in 1999.
- Modal comparisons after standardizing by passenger trips vary from the modal comparisons of the totals in Exhibit 66 due to heavy rail's much larger ridership.

EXHIBIT 65

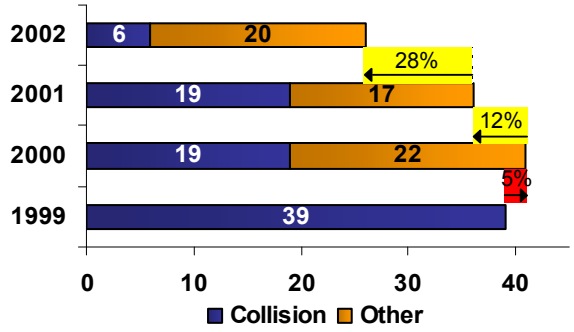
Fatalities, All Modes: 2002

	Fatalities		
Heavy Rail	20	59	79
Light Rail	6	9	15
Other	0	0	0
			94

** Includes suicides and trespassing-related deaths*

EXHIBIT 66

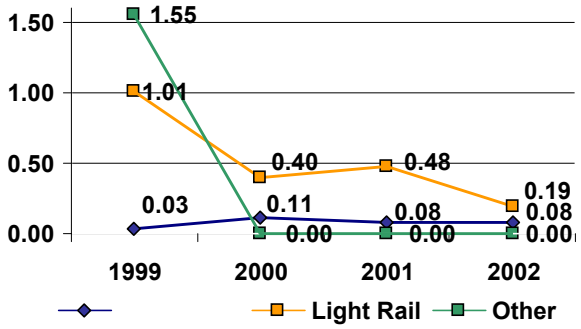
Reported Fatalities* by Mode: 1999 to 2002



** excluding suicides and trespassing-related deaths*

EXHIBIT 67

Fatality Rates* by Mode: 1999 to 2002



** excluding suicides and trespassing-related deaths*

Injuries

- In 2002, heavy rail injuries decreased for the second consecutive year from 2,849 in 2001 to 2,514, a 12% decrease; and from 3,072 in 2000, an 18% decrease (Exhibit 68).
- The light rail injury total increased for the second consecutive year to 448; a 44% increase from 312 in 2001 and a 61% increase from 278 in 2000 (Exhibit 68).
- In 2002 the light rail injury rate of 14.11 injuries/10M passenger trips was higher than the heavy rail injury rate of 9.48. This trend is the opposite of 2000 and 2001 figures, when heavy rail reported more injuries per passenger trip (Exhibit 69).
- The other rail injury rate for 2002 was 2.00 per 10M passenger trips. This is the lowest injury rate reported in the last four years (Exhibit 69).
- In 2002, light rail transit agencies reported that 33% of injuries were collision-related (149) (Exhibit 70). The cause for approximately 75% of these collisions was either "other vehicle" or "pedestrian" (Exhibit 73).
- Heavy rail service reported 2,498 injuries that were the result of "Other" accidents in 2002 (Exhibit 71). This total represents over 99% of all injuries reported by heavy rail service.

EXHIBIT 68

Reported Injuries by Mode: 1999 to 2002

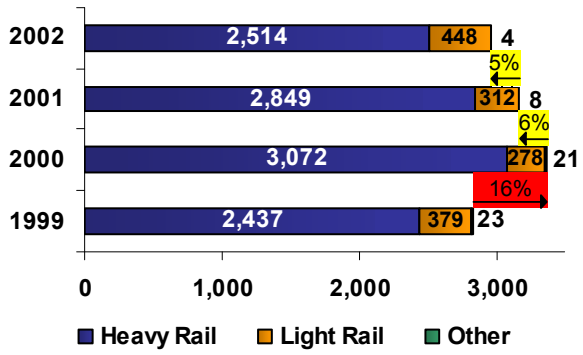


EXHIBIT 69

Injury Rates by Mode: 1999 to 2002 per 10M passenger trips

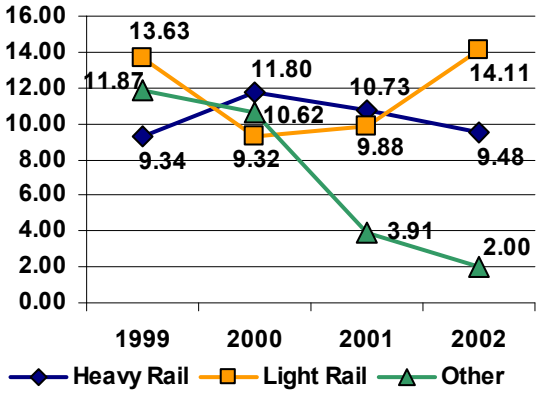


EXHIBIT 70

Reported Injuries by Accident Type and Mode: 2002

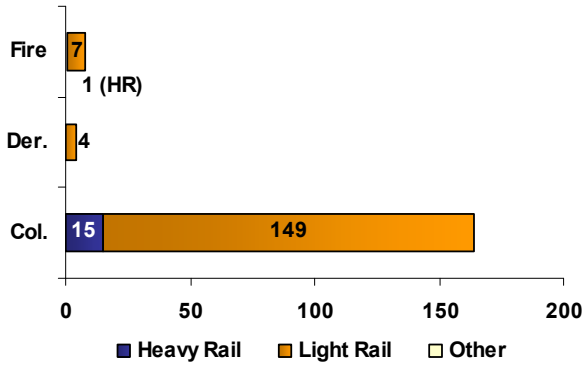
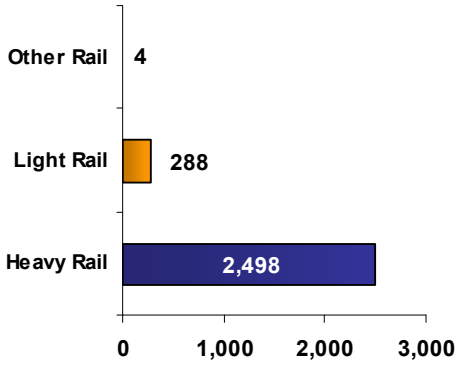


EXHIBIT 71

Reported Injuries due to "Other" Accidents by Mode: 2002

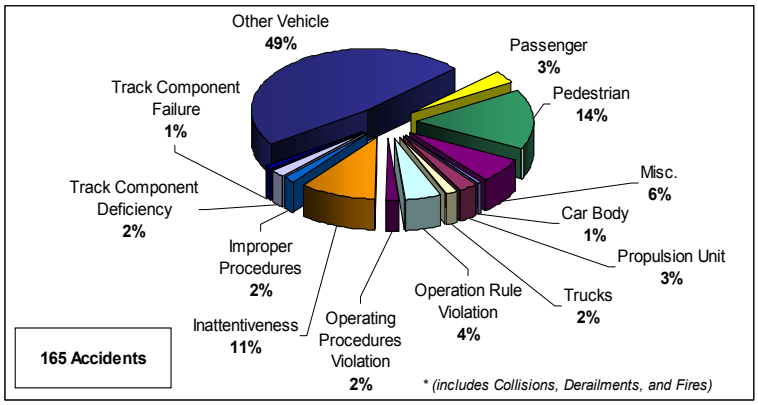


Probable Cause

Exhibit 72 illustrates probable causes for all 165 reported Collisions, Derailments, and Fires.

EXHIBIT 72

Determined Probable Causes of Reported Accidents*: 2002



- Accidents caused by Other Vehicles increased from 36% in 2001 to 49% in 2002.
- Accidents caused by Pedestrians decreased from 22% in 2001 to 14% in 2002.
- Pedestrians or Other Vehicles caused 63% of total accidents (102), compared to 58% in 2001 (83 accidents), and 49% in 2000 (86 accidents).
- Accidents caused by Operating Rule Violation or Operating Procedures Violation decreased to 6% in 2002 from 11% in 2001.

Exhibit 73 is a more detailed analysis of probable causes of the 165 reported collisions, derailments, and fires in 2002, broken down by heavy rail and light rail.

EXHIBIT 73

Determined Probable Causes of Reported Collisions, Derailments, and Fires: 2002

Probable Cause	HR Collisions	HR Derailments	HR Fire	LR Collisions	LR Derailments	LR Fire
Car Equipment Failure						
Car Body	0%	0%	**100%**	0%	0%	0%
Propulsion Unit	0%	0%	0%	0%	**13%**	**60%**
Trucks	0%	0%	0%	**2%**	0%	0%
Human Failure						
Operating Rule Violation	**15%**	0%	0%	**3%**	**25%**	0%
Operating Procedures Violations	**15%**	0%	0%	0%	**13%**	0%
Drug/Alcohol Violation	0%	0%	0%	0%	0%	0%
Fatigue	0%	0%	0%	0%	0%	0%
Inattentiveness	**15%**	**25%**	0%	**10%**	**13%**	0%
Operations						
Crowd Control	0%	0%	0%	0%	0%	0%
Improper Procedures	**23%**	0%	0%	0%	0%	0%
Track						
Track Component Deficiency	**8%**	**50%**	0%	0%	0%	0%
Track Component Failure	0%	**25%**	0%	0%	13%	0%
Signal						
Signal Component Deficiency	0%	0%	0%	0%	0%	0%
Signal Component Failure	0%	0%	0%	0%	0%	0%
Cable						
Cable Component Deficiency	0%	0%	0%	0%	0%	0%
Cable Component Failure	0%	0%	0%	0%	0%	0%
Other Vehicle	**15%**	0%	0%	**57%**	0%	0%
Passenger	0%	0%	0%	**4%**	0%	0%
Pedestrian	0%	0%	0%	**19%**	0%	0%
Miscellaneous	**8%**	0%	0%	**4%**	**25%**	**40%**
Total Accidents	**13**	**4**	**1**	**134**	**8**	**5**

- Inattentiveness caused 10% of all accidents; a slight increase from 8% in 2001.
- Pedestrians and Other Vehicles caused 77% of all light rail collisions (100 accidents) in 2002, an increase from 71% (96 accidents) in 2001.
- Human Failure (includes Operating Rule Violations, Operating Procedures Violations, and Inattentiveness) caused 45% of all heavy rail collisions (six accidents).
- Improper Procedures caused 23% of heavy rail collisions (three accidents).
- Propulsion Units caused 60% (3 accidents) of light rail fires in 2002.
- The following probable causes were not reported in 2002:
  - Drug/Alcohol Violation
  - Fatigue
  - Crowd Control

- Signals (Deficiency and Failure)
- Cables (Deficiency and Failure)

- "Other" accidents account for 95% of all accidents reported to FTA in 2002. Exhibit 74 lists "Other" accident probable causes by mode.

EXHIBIT 74

Fatalities and Injuries due to "Other" Accidents by Mode: 2002

					Other Rail	
						2, 50%
Slips, Trips, and Falls in Station	**3, 3%**	**1721, 69%**	0, 0%	**106, 37%**	0, 0%	0, 0%
						1, 25%
Car Door Injuries	0, 0%	**51, 2%**	0, 0%	**35, 12%**	0, 0%	0, 0%
						0, 0%
Homicides/Assaults	0, 0%	0, 0%	0, 0%	**1, <1%**	0, 0%	0, 0%
						1, 25%
Other	**26, 29%**	**611, 24%**	0, 0%	**37, 13%**	0, 0%	0, 0%
						4

National Transportation Safety Board Recommendations

The National Transportation Safety Board (NTSB) is an independent Federal agency charged by Congress with investigating transportation accidents, determining their probable cause, and making recommendations to prevent similar accidents from occurring. NTSB provides information to the public, urging organizations to take action on their safety recommendations. These recommendations are of interest to the entire transit industry as they are designed to prevent accidents and save lives.

The NTSB has issued more than 11,600 recommendations to more than 2,200 recipients across all transportation modes. Although NTSB has no regulatory or enforcement powers, its reputation for impartiality and thoroughness has allowed it to shape transportation safety improvements, with transportation decision makers adopting more than 80% of NTSB recommendations.

In recent years, NTSB has made recommendations based on events relating to heavy rail, light rail and "other" rail service. The following summaries highlight the Board's investigations of accidents involving these rail transit modes and describe the conclusions of the NTSB investigation teams.

Chicago Transit Authority – Heavy Rail

Overview

During a two month period in 2001 there were two similar rear-end collisions between moving and standing heavy rail Chicago Transit Authority (CTA) trains. The first accident resulted in 18 injuries and the second collision resulted in 118 injuries.

Conclusions

In both events the NTSB determined that train operator's failure to comply with established operational procedures directly caused the accidents. Contributing causes were deficiencies in the transit agency's managerial approach to ensuring train operators were in operational compliance.

In researching the second accident, NTSB observed that some CTA trains have the ability to preserve a small amount of vehicle performance data that can be accessed by accident investigators. The Safety Board concluded that these data loggers do not save and provide sufficient information to accident investigators and that without sufficient data recording capabilities, the transit agency could not provide the basis for a thorough analysis of operator action and train performance before an accident. Without this mechanism, transit agencies are at a disadvantage in ensuring that train operators comply with operational rules.

Recommendations

The recommendations encouraged the incorporation of event data recorder into transit systems and prompted an FTA inquiry into the industry-wide usage of data recorders on board rail transit vehicles. Refer to Appendix B: *Event Data Recorder Study*.

For more information, refer to NTSB recommendations R-02-18 through R-02-22 at http://www.ntsb.gov/Recs/letters/letters.htm#Railroad.

Maryland Transit Administration – Light Rail

Overview

The Mass Transit Administration of Maryland (MTA-MD) light rail system experienced two accidents in which light rail trains failed to stop at the track terminus at BWI airport, colliding with the hydraulic bumping post and sending the front of the train upward. Both accidents resulted in a total of 35 injuries.

Conclusions

In both events operators failed to stop the vehicle at the appropriate location. In the first accident investigators determined the operator was under the influence of prescription medication that impaired his performance. In the second accident the train operator was suffering from a previously undiagnosed obstructive sleep apnea. Both operators had been on extended sick leave days prior to their accidents.

NTSB's investigation revealed deficiencies in MTA's employee rules and instructions, in that employees were not specifically required to report prescription or over-the-counter medication.

Recommendations

In recommendations R-01-25 through R-01-28, NTSB pointed out MTA-MD left the decision to operate LRV trains up to the operators and had no way of knowing whether or not an employee was taking medication when they resumed work. Physical conditions of operators or anyone who executes safety-sensitive duties is of utmost interest to the transit system management. NTSB recommended rail transit systems require all employees in safety-sensitive positions to inform the transit system about their use of over-the-counter and prescription medications, so qualified medical personnel can determine if an operator is fit for duty.

For more information, refer to NTSB recommendations R-01-25 through R-01-28 at http://www.ntsb.gov/Recs/letters/letters.htm#Railroad.

Angels Flight Funicular Railway – Other Rail

Overview

On February 1, 2001, the two cars of the Angels Flight Funicular Railway (Angels Flight) collided in downtown Los Angeles, California. The accident resulted in seven injuries and one fatality among the 20 passengers aboard the two cars and injuries to a pedestrian. Although this system is not one of the funiculars of the SSO Program, the NTSB findings are valuable lessons learned to the four similar systems that are part of the Program.

Conclusions

NTSB determined that the probable cause of this accident was the improper design and construction of the Angels Flight funicular drive and the failure of oversight to ensure that the railway system conformed to initial safety design specifications and known funicular safety standards.

Recommendations

NTSB recommendations R-03-14 through R-03-20 refer to issues surrounding the design and operation of funicular systems, such as insufficient safety oversight that can result, as it did in this case, in inadequate emergency braking systems and the lack adequate ingress and egress areas for emergency operators.

For more information, refer to NTSB recommendations R-03-14 through R-03-20 at http://www.ntsb.gov/Recs/letters/letters.htm#Railroad.

Event Data Recorder Study

Background

Event Data Recorders (EDRs) are becoming more common onboard heavy rail and light rail transit lines around the country. Similar to the devices known as "black boxes" on airplanes, EDRs decode and record information from critical systems of a rail transit vehicle, such as vehicle velocity, brake timing and pressure, and signal data. EDRs provide accident investigators with an invaluable tool in determining causal or contributing factors in an accident.

As the rail transit community strives to continually improve safety, analysts must be able to accurately determine accident causes so that transit agencies can make appropriate changes to existing systems. This kind of information is only available through the research of hard data from a large database of accident scenarios.

Scope

In response to an NTSB recommendation relating to the investigation of two Chicago Transit Authority (CTA) collisions, the FTA conducted an Event Data Recorder Study to assess the use and planned incorporation of EDRs on rail transit vehicles. The study included all transit agencies included in the State Safety Oversight (SSO) Program with systems currently in revenue service and two new start systems, for a total of 28 light rail systems and 12 heavy rail systems. Due to the nature of their operation, monorails, people movers, inclined plane systems, and cable cars were not included in the study.

FTA asked rail transit agency safety personnel three questions:

Results

- *Forty-four percent of responding agencies currently use EDRs on at least one of their rail lines*. The percentage of heavy rail EDR usage is higher than the percentage for light rail lines (Exhibit 75).
- *Sixty-three percent of all transit agencies said they would install EDRs during an overhaul of existing vehicles and 66% of agencies would install EDRs on newly procured rail vehicles.* A higher percentage of heavy rail systems would mandate EDRs during vehicle refurbishment and new vehicle procurement,

compared to light rail systems. Both new start light rail systems would install EDRs on their vehicles.

- *Sixty-three percent of all transit agencies said they would install EDRs during an overhaul of existing vehicles and 66% of agencies would install EDRs on newly procured rail vehicles.* A higher percentage of heavy rail systems would mandate EDRs during vehicle refurbishment and new vehicle procurement, compared to light rail systems. Both new start light rail systems would install EDRs on their vehicles.
- *Several agencies would not require EDRs on overhauled vehicles or new vehicles.* Of these 13 agencies (operating 11 light rail and three heavy rail lines), the most prevalent concern voiced by safety managers was financial constraint.
- *Agencies that implement EDRs unanimously praised EDRs for the crucial investigation data provided.*

EXHIBIT 75

Industry EDR Implementation

			Procure*
All	43.9%	63.4%	65.9%
Heavy	53.8%	69.2%	76.9%
Light	39.3%	60.7%	60.7%

**Includes agencies that currently use EDRs*

EDR Standard

A working group at the Institute of Electrical Engineers (IEEE) has developed a standard for EDRs on rail vehicles.

IEEE Std 1482.1, *IEEE Standard for Rail Transit Vehicle Event Recorders*, discusses functional characteristics, required inputs, and crash survival characteristics, and is available online to IEEE subscribers at http://standards.ieee.org/.

2002 Annual Reporting Template

1. State Safety Oversight Contact Information

Please complete Tables 1 and 2 **if there have been changes** in your agency's contact information since last year's reporting period or if you are a new agency.

TABLE 1 – STATE CONTACT INFORMATION	
Name of Agency:	**Name of Safety Contact:**
Title:	Mailing Address: Physical Address (if different from mailing address):
Phone: **Fax:** **E-Mail:**	

TABLE 2 – RFGS CONTACT INFORMATION					
Name of Agency (acronym)	**Safety Contact**	**Mailing Address**	**Phone Number**	**Fax Number**	**E-Mail**
Name of Agency	**Security Contact**	**Mailing Address**	**Phone Number**	**Fax Number**	**E-Mail**

2. State Safety Oversight Program Resources

TABLE 3 – PROGRAM RESOURCES	
Personnel Resources	**Response**
What was the Level of Effort (LOE) devoted by your State Safety Oversight Agency, in terms of Full-time Equivalents (FTEs), to implementing 49 CFR Part 659 requirements in 2002?	*Please specify to the nearest decimal place. For example, one FTE is 1.0; one-and-a-half FTEs is 1.5; two-and-a-quarter FTEs is 2.25, etc.* _____ FTE(s)
In 2002, did your Agency use contractors to support implementation of your Program?	*Please circle appropriate answer*: Yes No
If your Agency used contractors in 2002, what functions did they perform?	*Please list activities performed by consultants*:

3. State Safety Oversight Program Documentation

If your agency made revisions to its Program Standard (Safety and/or Security sections) or adopted a new Program Standard during Calendar Year 2002, please provide the date of the current version. Also, in the space below, please provide dates of the current versions of the System Safety Program Plan and Security Plan of the RFGS(s) in your jurisdiction.

4. FTA Reportable Accidents

In the tables below, please provide the total number of accidents, fatalities, and injuries only for each RFGS in your jurisdiction.

TABLE 4 – CALENDAR YEAR 2002 FTA REPORTABLE ACCIDENTS					
RFGS and Mode	**Collisions**	**Derailments**	**Rail Grade Crossing Incidents**	**Fires**	**Other**

TABLE 5 - CALENDAR YEAR 2002 FTA REPORTABLE FATALITIES					
RFGS and Mode	**Collisions**	**Derailments**	**Rail Grade Crossing Incidents**	**Fires**	**Other**

TABLE 6 - CALENDAR YEAR 2002 FTA REPORTABLE INJURIES					
RFGS and Mode	**Collisions**	**Derailments**	**Rail Grade Crossing Incidents**	**Fires**	**Other**

5. Rail Grade Crossing Incidents

Please indicate the total number of rail grade crossing accidents for each RFGS in your jurisdiction by type of grade crossing and include the total number of impacts (i.e., fatalities and injuries).

TABLE 7 LOCATION OF FTA-REPORTABLE RAIL GRADE CROSSING ACCIDENTS					
RFGS and Mode	Protected Rail Grade Crossing	Traffic-Controlled Rail Grade Crossing	Unprotected Street-Running Grade Crossing	Total Fatalities	Total Injuries

Protected Rail Grade Crossing – A rail grade crossing equipped with urban traffic control devices. These devices could include gates, signals, signs, bells and other warning indicators.

Traffic-Controlled Rail Grade Crossing – An intersection of street and light rail tracks, located in a mixed traffic roadway, where the light rail vehicle follows vehicular traffic lights to govern movement through the intersection.

Unprotected Street-Running Grade Crossing – An intersection of street and light rail tracks, located in a mixed traffic roadway, where the light rail vehicle does not use traffic lights or other traffic-control devices to guide movement through the intersection.

6. Probable Cause

For each probable cause table, please provide the total of number of accidents associated with each probable cause type. Each accident should only be accounted for once in this table.

TABLE 8: PROBABLE CAUSE OF FTA REPORTABLE ACCIDENTS

NOTE: Please complete one table for each RFGS mode of service. For example, if an RFGS provides both heavy and light rail service, please complete one table for the agency's heavy rail service and one for the agency's light rail service.

Name of RFGS and Mode: _____

Cause Type	Collisions	Derailments	Rail Grade Crossing Incidents	Fires
Car Equipment Failure				
Body (including doors, frame, stairs)				
Propulsion Unit (power unit failure)				
Trucks (wheel/brake failure)				
Human Failure				
Operating Rule Violation				
Operating Procedures Violations				
Drug/Alcohol Violation				
Fatigue				
Inattentiveness				
Operations				
Crowd Control				
Improper Procedures				
Track				
Track Component Deficiency				
Track Component Failure				
Signal				
Signal Component Deficiency				
Signal Component Failure				
Cable				
Cable Component Deficiency				
Cable Component Failure				
Other Vehicle				
Passenger				
Pedestrian				
Miscellaneous (specify)				

For each probable cause table, please provide the total of number of accidents associated with each probable cause type. Each accident should only be accounted for once in this table.

TABLE 9: PROBABLE CAUSE – OTHER FTA REPORTABLE ACCIDENTS				
NOTE: Please complete one table for each RFGS mode of service. For example, if an RFGS provides both heavy and light rail service, please complete one table for the agency's heavy rail service and one for the agency's light rail service.				
Name of RFGS and Mode: _____				
Category of Cause		**RFGS**	**Fatalities**	**Injuries**
Suicides				
Suicide Attempts				
Slips, Trips and Falls in Station				
Boarding/Deboarding Train				
Car Door Injury				
Escalators/Stairwells				
Homicides				
Assaults				
Trespassing				
Other – Please Specify				
Other – Please Specify				
Other – Please Specify				

7. Unacceptable Hazardous Conditions

TABLE 10: NUMBER OF UNACCEPTABLE HAZARDOUS CONDITIONS AND PROBABLE CAUSES		
RFGS and Mode	**Number of FTA-Reportable Unacceptable Hazardous Conditions in 2002**	**Identified Probable Cause**

Please provide the total number of FTA-reportable unacceptable hazardous conditions and the associated probable cause.

8. State Safety Oversight Program Administration and Corrective Actions

TABLE 11: SSO PROGRAM ADMINISTRATION			
Did your agency conduct a 3-Year Safety Review of any RFGS within your jurisdiction in Calendar Year 2002?		*Yes*	*No*
If "yes," for which RFGS did your Agency conduct this Review?	Please list:		
Did your agency receive an Annual Report from each RFGS within your jurisdiction describing the Internal Safety Audit Process conducted in 2002?		*Yes*	*No*
If "no," please explain why this report was not received.	Explanation:		

Please describe your agency's method for reviewing, approving, and tracking corrective action plans.

TABLE 12: CORRECTIVE ACTION PLANS RESULTING FROM ACCIDENT AND UNACCEPTABLE HAZARDOUS CONDITIONS INVESTIGATIONS			
RFGS	**Number of CAPs Your Agency Required for 2002 FTA-Reportable Accidents**	**Number of CAPs Received/Approved**	**Number of CAPs Implemented to Completion**

TABLE 13: CORRECTIVE ACTION PLANS RESULTING FROM THREE YEAR SAFETY REVIEWS			
RFGS	**Number of CAPs Your Agency Required for 2002 Resulting From 3-Year Safety Reviews**	**Number of CAPs Received/Approved**	**Notes**

TABLE 14: CORRECTIVE ACTION PLANS RESULTING FROM INTERNAL SAFETY AUDIT PROCESS			
RFGS	**Number of CAPs Your Agency Required For 2002 Resulting From ISAP**	**Number of CAPs Received/approved**	**Notes**