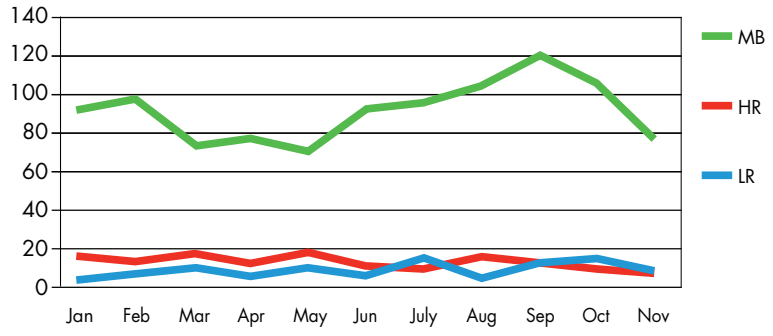
NATIONAL TRANSIT DATABASE
SAFETY & SECURITY NEWSLETTER

FALL 2007 VOLUME 4 ISSUE 1

SNAPSHOT

National Transit Database (NTD) data between January and November 2006 indicate much greater monthly fluctuations in incident levels for the motor bus (MB) mode compared with the heavy-rail (HR) and light-rail (LR) modes. The lowest number of major incidents (70) for MB was posted in May, while the highest (120) occurred in September. LR saw a decrease in the total number of major incidents and a narrower range of monthly variability than in previous years. A high of 18 incidents was recorded in both March and May, while a low of four incidents was posted in November. HR maintained its trends of previous years, with a low of three major incidents in both January and August and a high of 14 in July. December data were omitted as they have not yet been finalized.

Snapshot—Major Incidents by Mode 2006



Fourth Anniversary of New NTD Electronic Data Format

We are approaching the fourth anniversary of the newly revised NTD data system. At that time, NTD transitioned from the old Form 405 to a web-based online reporting system that is filled in immediately for major incidents and quarterly for non-major incidents. The online system was enhanced to allow entry of causal data for both types of incidents. Thresholds were adjusted to correspond to other data repositories and regulatory frameworks.

The online reporting system provides better information for problem identification, research, and technical assistance priorities and metrics to ensure that FTA and the industry are meeting performance goals and objectives. It also helps to bring the NTD Safety and Security Module to full maturity, in line with FTA's focus on post-9/11 security efforts.

Each year, the reporting forms are enhanced and streamlined as stakeholders and FTA gain more experience and respond to grantees. The transition to electronic NTD reporting has led to more accurate, timely reporting; identification of causal factors; and, with several years of data now available, the nascent ability to detect trends.

Key components of NTD's value are grantee reporting and attention to quality. Additional fields (with pulldown

Continued on page 2

Inside This Issue

menus to capture more detail) and additional incident detail forms have been provided to help identify and describe such characteristics as vehicle type, collision type, and location. However, these fields have their limits, which is why text description fields have been added.

Text description fields allow agencies to provide more "subjective" information that can more clearly identify causes, faults, and other characteristics not otherwise captured in the pulldown menu selections. This means that, in large measure, the grantee can play a key role in the quality of NTD data.

NTD Data Used to Identify and Focus Track-Worker Protection and Maintenance Oversight Efforts

Between October 2005 and April 2007, the NTD, as well as Federal Railroad Administration (FRA) data pertaining to commuter railroad operations, indicated a threefold increase in the numbers of rail- and transit-worker fatalities (11) and injuries (more than 12). Safety data reported by transit agencies to the NTD and FRA's Railroad Accident and Incident Reporting System (RAIRS) showed an increasing trend of track-worker fatalities. Technical assistance materials and recommendations for actions to avoid future incidents were provided.

These incidents, though confined to a few systems, point to a danger that could affect all systems. The reasons for the incidents included failure to notify dispatchers and operators of work-crew locations, to establish work-site clearance plans, and to conduct on-site safety briefings, as well as high rates of speed by operators.

This information triggered a response from FTA, in partnership with the transit industry, to address worker protection issues through a coordinated program, Technical Assistance, Training and Outreach and Research. The response, articulated in a "Dear Colleague" letter written by FTA Administrator James Simpson on May 8, 2007, can be found on the FTA Office of Safety and Security web site, http://www.transit-safety.volpe.dot.gov/Safety/sso/DearColleague/2007-05-08/HTML/default.asp.

As the NTD matures, there will be more such problem-solving and industry response, which will in turn provide greater value for the "data dollar."

Special Note to Section 5307 Agencies with UZA Populations Under 200,000, Commencing in 2007 Reporting Period

Prior to the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), only urbanized areas with populations of 200,000 or more needed to report data to the NTD. With the passage of SAFETEA-LU, NTD data for urbanized areas with populations below 200,000 have also been used in determining the allocation of Federal transit funding. This affects UZAs to which the Small Transit Intensive Cities (STIC) formula applies: that is, they have a population of less than 200,000 and they must operate at a level of service equal to or above the industry's average level for all UZAs with a population of at least 200,000 but not more than 999,999, in one or more of six performance categories:

1. Passenger miles traveled per vehicle revenue mile
2. Passenger miles traveled per vehicle revenue hour
3. Vehicle revenue miles per capita
4. Vehicle revenue hours per capita
5. Passenger miles traveled per capita
6. Passengers per capita

For more details, go to
http://www.ntdprogram.gov/ntdprogram/safety.htm
or check with your FTA Regional Office.

New NTD Web Site

http://www.ntdprogram.gov/ntdprogram/

The new NTD web site consolidates and updates previous sites hosted by FTA and NTD contractors. Now, any bookmark pointed to previously separate sites will redirect you to the new, unified site, where you will find:

New NTD Web Site

- What is the NTD?
- Reporting Manuals
- Annual Reporting
- Monthly Reporting
- Safety and Security Reporting
- Rural Reporting
- Data, Publications and Reference Materials
- NTD Glossary
- NTD Reference Materials
- Access to NTD Data
- NTD Resources
- FTA/NTD Presentations, Announcements and Updates
- NTD Feedback
- Seminars and Training
- Transit Agency Listing by Region and Other External Links

Once you get to the new site, update your bookmarks because this will be the only URL that you will need.

Safety and Security data are not presented on this web site because the information needs to be aggregated. Data for specific systems must be handled by FTA's Office of Public Affairs (TCA) and Congressional Relations in order to protect data integrity.

Changes to State Safety Oversight (SSO) for Rail Fixed Guideway Systems

The NTD does not exist in isolation. In addition to the intrinsic value of the data it provides, its utility is further enhanced in relation to other programs and data collection activities, such as the Government Performance Reporting Act (GPRA), the Program Assessment Rating Tool (PART), grant-making, and regulatory efforts. Over time, more such linkages will be formed.

Recently, the State Safety Oversight (SSO) for Rail Fixed Guideway Systems regulations in 49 CFR 659 was revised to more closely correlate with NTD threshold levels. The goal is to incorporate NTD reporting as a more integral part of the SSO program's overall safety approach. SSO's annual reporting process entails other qualitative and quantitative "causal" data. By creating a link with the NTD, additional insight can be obtained both in the SSO area and for the industry at large.

SSO regulations require that causal data be reported on an annual basis by all SSO Oversight Agencies (OAs). In April 2005, SSO regulations were adjusted to require reporting thresholds that match those of the NTD. This reduced the burden on OAs by providing them with access to the NTD to supplement their own reporting activities and by facilitating better validation and accuracy of reported data. The result has been a win-win situation for all.

Public Web Site for FTA Office of Safety and Security Reduces Lag Time in Annual Report Publishing

Hard-copy annual reports are subject to lag times prior to publication. NTD data must be consolidated and processed, quality checks must be performed, and the data must then be aggregated and presented. All of this requires that the books first be officially closed on the reporting year. Delays of one year or more until

Continued on page 6

production and printing are typical.
To facilitate more timely access for the Safety and Security community, we continue to explore and implement electronic distribution in order to:

- Lessen the demand for hard copies
- Allow data to be available instantly, thereby bridging the lag time
- Provide more utility to stakeholders

Over time, FTA envisions a totally electronic mode of distribution that will be greatly enhanced and user-friendly.

Transit Safety and Security Statistics Query Screen

Transit Safety and Security Statistics Query Data Chart

Transit Safety and Security Statistics Query Data Grid

Meanwhile, efforts will be made to transmit information as quickly as possible. The web site will be a key channel for data distribution.

Once at http://transit-safety.volpe.dot.gov/Data/Samis.asp, you will have access to aspects of the last 10 years of NTD data. You will be able to specify key aggregations of data, including incidents, fatalities, injuries, collisions (with vehicles, objects, and people), derailments/ buses going off road, personal casualties, fires, property damage, vehicles, vehicle miles, passengers, and passenger miles.

The data are presented in two forms:

- Graphs that track each observed variable over time. The default is the last 10-year period, but you can specify custom time periods as well.

- Data tables that present the same timeframes as the graphs.

In the future, increased querying capability will be developed to allow for more detailed and targeted queries of the information by other data elements, such as incident-type breakouts, victims, and locations.

Focus: Major Incident Causes: Action Description Fields

The NTD is designed to capture a great deal of data about major incidents. This is facilitated by questions and dropdown menu options that appear on the S&S 40 Forms (on pages for both Rail and Non-rail Except Ferry Boat). Information includes details about weather, traffic, lighting, roadway conditions, roadway type, vehicle characteristics, and pedestrian involvement.

Additional breakout data are captured through use of the appropriate detail screens associated with each of the following incident categorizations: collisions, security incidents, evacuations, fires, vehicles leaving the roadway, and incidents that are not otherwise classified (NOC). As on the main reporting page, dropdown menus capture these important details.

FIGURE 1

Description of Field Usage: Examples from Data Sets

Example 1: Duplicate Entry

"Event Description: Bus standing in traffic. Auto moving in same direction left of bus. Right-rear side of auto struck left-front corner of bus. Auto fled scene. Two (2) customers on bus, a woman, age 59, and a man, age 27, claimed various injuries and were removed by ambulance."

"Accident Description: Bus standing in traffic. Auto moving same direction left of bus. Right-rear side of auto struck left-front corner of bus. Auto fled scene. Two (2) customers on bus, a woman, age 59, and a man, age 27, claimed various injuries and were removed by ambulance."

Example 2: Not Enough Information

(a) "Bus was making a left turn and car came on left side to pass it, causing the collision."

(b) "Bus was turning left, and front of auto made contact with right rear of bus."

(c) "Collision in an intersection with both vehicles traveling straight and the automobile coming from the right."

Continued on page 9

This information goes a long way toward helping FTA to determine trends and indicators of problem areas and also toward answering myriad queries from media, researchers, and policy makers. The benefits accrue to FTA, transit agencies, and the industry overall in the form of better metrics, correlations, and causal factor explanations. There is enhanced ability to diagnose areas of safety and security requiring further research, technical assistance, and funding.

In past years, we have observed significant improvement, largely due to increased experience with the new mode of reporting, the pulldown menus, and the detail screens. The reporting forms and data fields have also been refined and improved each year as we progress and learn more. The description forms have been changed and modified as well. Even with these changes, it is useful to discuss past experience with the fields in order to formulate their usage in the present.

Although considerable data are provided by the dropdown menus on the S&S 40 forms and detail screens, there is still room for improvement because the data do not necessarily shed light on the root causes of incidents.

This is where description fields come in. Description fields are where you can enter text of your choosing.
The Main Form S&S-40 contains a description field for intersection controls, right of way (ROW), vehicles involved, and other relevant incident information not provided elsewhere on the form. Each subsidiary form (for each incident categorization) also contains description data fields: one each for collisions, security incidents, evacuations, fires, vehicles leaving the roadway, and incidents that are not other classified (NOC). Qualitative data that shed light on the causes of incidents can be entered in these fields. The objective data captured in the form can be enhanced through "subjective" information, perhaps in the form of an accompanying explanation of who was at fault and why and how the incident occurred.

For the purpose of this article, we will discuss some entries in the description fields from previous data sets. Although these data sets have since been modified (there are now more description fields in different locations), the key underlying possibilities and options for using the fields remain constant.

FIGURE 1 (continued from page 8)

Example 3:
Better: Attribution
"Bus operator was traveling east of Westford St. He stopped after the traffic light to pick up a passenger and was rear-ended by motor vehicle. Driver of motor vehicle ran red light."

Example 4:
Better Still: Environmental Data, Speed, Other Conditions
"The operator was sitting at the RR tracks with his lights flashing. The vehicle rear-ended the bus. The driver of the other vehicle failed to control speed and rear-ended a stopped bus."

Figure 1, "Description of Field Usage: Examples from Data Sets," (beginning on page 8) provides several examples:

- **Example 1: Duplicate Entry.** In this example, the same entry has been made in multiple description fields, representing a wasted chance to have added more information. Note, too, that the attribution is not really clear. Did the front of a bus hit the rear of a car? Who hit whom?

- **Examples 2(a), 2(b), and 2(c): Not Enough Information.** These entries do not shed any additional light on the incident. In Example 2(a), the statement about the bus making a left turn and the car coming on the left to pass, thereby causing the collision, does not explain much. Who hit whom? What was the speed? Where was the impact? Did anyone swerve? Was someone at fault? Who was deemed chargeable in this incident? In Example 2(b), the assertion that the bus turned left and the front of the automobile made contact with the right rear of the bus tells us nothing about why the collision occurred. Did the bus driver slam on the brakes? Was there a traffic violation? Was the other driver going fast? Who had the right of way? Was alcohol involved? In Example 2(c), the statement "both vehicles traveling straight and the automobile coming from the right" leads us to wonder: Were there three vehicles involved? Did one cut off the other? Who was at fault? Who had the right of way? Was there a traffic violation?

- **Example 3: Better.** This example shows attribution. It clarifies the sequence of events (traveling east, stopped for passenger, rear-ended by motor vehicle), who was involved (bus operator traveling east, driver of motor vehicle), and the traffic violations that occurred (motor vehicle operator ran red light).

- **Example 4: Better Still.** This example provides attribution and more data. It tells us exactly where (railroad signal and intersection), what (rear-ended), and why (speeding; car driver failed to stop), as well as the conditions (lights flashing).

The description fields provide both immediate and longer-term benefits. At any time, the user can go back into the database and revise, update, add, or enhance an incident report with data previously entered. In the longer term, more attention can be paid to the effective use of these text fields.

Continued on page 10

FTA Office of Safety and Security Rail Transit Action Plan

Using NTD data and coordinating the SSO for Rail Fixed Guideways annual reporting to provide more causal data, FTA formulated the Rail Transit Safety Action Plan by:

- Examining 10-year trends, using the Non-Major Summary Reporting Module (S&S 50) and the Major Safety and Security Incident Reporting Form (S&S 40) from 2002 to 2005 and SAMIS trend data from 1995 to 2001.

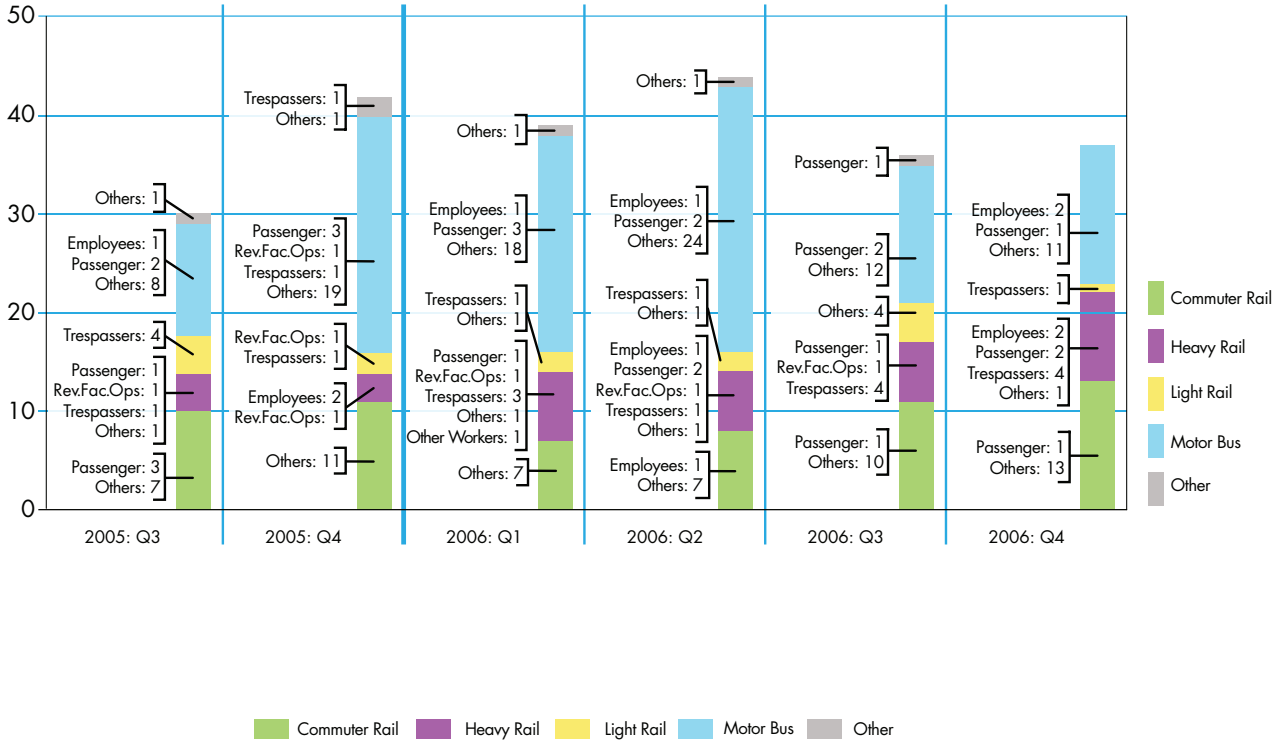
- Conducting an in-depth review of Form S&S 40 for the time period between January 1, 2003, and June 30, 2005; this includes 1,147 incidents, 137 fatalities, 903 injuries, and $8 million in property damage for the LR and HR modes.

- Correlating NTD data with probable-cause reports from SSO Annual Report templates.

On the basis of this analysis, FTA identified the Top 10 Priorities for Rail Safety:

1. Reduce collisions with other vehicles
2. Reduce collisions with pedestrians and trespassers
3. Improve compliance with operating rules
4. Reduce impacts of fatigue on transit workers
5. Reduce unsafe acts by passengers in transit stations
6. Improve safety of transit workers
7. Improve safety for passengers with disabilities
8. Remove debris from tracks and stations
9. Improve emergency response procedures
10. Improve safety data acquisition and analysis

Fatalities (No Suicides)—By Mode



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