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Report to Congress Review of the National Transit Database

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TABLE OF CONTENTS

Executive Summary	i
1. Introduction.....	1-1
1.1 NTD Background	1-1
1.2 NTD History	1-2
1.3 Committee Reports Accompanying the FY 2000 Appropriations Act	1-4
1.4 Other Driving Forces.....	1-6
1.5 Project Goals and Objectives	1-8
2. Approach	2-1
2.1 Stakeholder Input.....	2-2
2.2 TRB/NAS NTD Advisory Committee	2-7
3. Findings	3-1
3.1 Data Applications	3-2
3.2 Data Content.....	3-7
3.3 Safety and Security Data	3-23
3.4 Timeliness of Data.....	3-26
4. Recommendations.....	4-1
4.1 Use Current-Year NTD Data to Support FTA Performance Reporting.....	4-1
4.2 Enhance NTD Safety and Security Data Reporting	4-4
4.3 Implement Enhanced Reporting of Capital Assets.....	4-7
4.4 Tailor Reporting Requirements to Specific Characteristics of Each Mode.....	4-9
4.5 Consolidate Reporting for Directly Operated and Purchased Transportation Services	4-10
4.6 Provide Mechanism for Reporting Additional Transit System Descriptive Information.....	4-11
4.7 Improve Internet-Based NTD Reporting	4-11
4.8 Reduce the Reporting Burden	4-13
4.9 Explore State-Based Reporting of Selected Data Elements for Rural Transit Providers	4-15

Appendices

Appendix A. Summary of the National Transit Database Reporting Process

Appendix B. Listening Sessions Flyer

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EXECUTIVE SUMMARY

At the direction of the U.S. House and Senate Committees on Appropriations, as specified in the Reports to the U.S. Department of Transportation (DOT) FY 2000 Appropriations Act, the Federal Transit Administration (FTA) undertook this evaluation of the National Transit Database (NTD).

FTA conducted extensive outreach to solicit input from NTD stakeholders. Three listening sessions were held to identify problem areas perceived by NTD users and reporters. Individual interviews were conducted with relevant organizations including offices within FTA, other DOT agencies, other Federal agencies, transit agencies, industry associations, state departments of transportation, researchers and consultants. The American Public Transportation Association arranged a two-day meeting of approximately 20 top-level managers to address transit management issues. FTA formed an NTD Advisory Committee to give FTA offices an opportunity to address NTD issues. An appointed committee of academic and industry experts was formed under the auspices of the National Academy of Sciences (NAS)/Transportation Research Board to review the recommendations of the NTD review study.

The NTD serves a diversity of stakeholders each with different data requirements and expectations of the database. The NTD was designed to collect and disseminate uniform public mass transportation financial and operating data for use by all constituencies of the transit industry and is intended to support public investment decisions and to provide information for mass transportation service planning. FTA's greatest NTD challenge is to meet the most vital needs of key stakeholders while minimizing the reporting burden.

Thorough analysis of NTD uses and limitations and the evolving needs of public transit data stakeholders yielded a number of major findings: 1) the need to more closely align data content and collection with data applications, 2) the need to focus on collection of more timely, relevant, and accurate safety and security data, and 3) the need for data to be available in a more timely manner to meet other critical needs.

Several broad recommendations are made to improve the usefulness of data for the diversity of stakeholders and to decrease the burden on transit agencies reporting under NTD:

- **Use Current-Year NTD Data to Support FTA Performance Reporting.** FTA recommends establishment of a formal methodology for obtaining selected NTD data needed to support its performance reporting to Congress under the Government Performance and Results Act (GPRA). Specific recommendations are to: 1) retain the current NTD reporting period, 2) require preliminary data from transit agencies to meet the GPRA reporting schedule, and 3) do not expand the NTD to incorporate other data elements for GPRA reporting.



- **Enhance NTD Safety and Security Data Reporting.** FTA recommends major improvements to NTD safety and security data collection, including: 1) collect causal data on accidents, 2) provide clear, consistent definitions and data standards, 3) improve the timeliness of reporting, 4) supply contextual information to assist in interpreting safety data, and 5) improve data accuracy.
- **Implement Enhanced Reporting of Capital Assets.** FTA recommends development of a capital assets form to summarize the current-dollar investment in transit assets and their condition. This will provide a foundation for estimating annual rehabilitation and replacement needs. Asset information should be updated annually; condition assessments should be updated every three to five years.
- **Tailor Reporting Requirements to Specific Characteristics of Each Mode.** FTA recommends modifying the NTD structure to address the specific data requirements, definitions, data collection mechanisms, and issues associated with different modes of transit services. FTA should work with the transit industry to develop the reporting format and definitions for each mode.
- **Consolidate Reporting of Directly Operated and Purchased Transportation Services.** FTA recommends eliminating the requirement for a separate, complete NTD report from sellers of purchased transportation operating more than 100 vehicles. The transit agency purchasing the service should report the service regardless of the number of vehicles operated.
- **Provide a Mechanism for Reporting System Descriptive Information.** FTA recommends expanding the descriptive information to provide key information necessary for understanding the data and making meaningful peer comparisons, such as transit agency responsibilities if purchasing transportation, responsibility for and deployment of security services, other services.
- **Improve Internet-Based Reporting.** FTA recommends full implementation and expansion of the web-based reporting and distribution structure initiated in the 2000-reporting year. Improvements should be made with respect to data reporting, data access, and reporter training.
- **Reduce Reporting Burden.** FTA recommends elimination of three NTD forms: Operators' Wages, Fringe Benefits, and Transit Agency Employee forms. In addition, methods of relaxing the requirement for annual measurement of passenger miles should be explored.
- **Explore State-Based Reporting of Selected NTD Data Elements for Rural Transit Providers.** FTA recommends exploration of a voluntary reporting mechanism within the NTD to include rural transit data. FTA should work with key stakeholders—the Standing Committee on Public Transportation of the American Association of State Highway and Transportation Officials, the State Affairs Committee of APTA, and the Community Transportation Association of America. By consensus, FTA and the stakeholders should select data items deemed to be readily available in order to minimize the reporting burden.



1. INTRODUCTION

This report presents the findings and recommendations of the evaluation of the Federal Transit Administration (FTA) National Transit Database (NTD), conducted in accordance with the direction of the House and Senate Committees on Appropriations, as specified in the reports to the U.S. Department of Transportation (DOT) FY 2000 Appropriations Act.

1.1 NTD Background

Title 49 U.S.C. 5335(a) sets forth the legislative requirement for the NTD:

Section 5335(a) National Transit Database (1) To help meet the needs of individual mass transportation systems, the United States Government, state and local governments, and the public for information on which to base mass transportation service planning, the Secretary of Transportation shall maintain a reporting system, using uniform categories, to accumulate mass transportation financial and operating information and using a uniform system of accounts. The reporting and uniform systems shall contain appropriate information to help any level of government make a public sector investment decision. The Secretary may request and receive appropriate information from any source.

(a)(2) The Secretary may make a grant under Section 5307 of this title only if the applicant and any person that will receive benefits directly from the grant are subject to the reporting and uniform systems.

Each year, almost 600 transit operators report to FTA on transit activities in more than 400 urbanized areas. Nationally, 85,000 transit vehicles, 7,000 miles of rail track, 2,000 rail stations, and 1,000 maintenance facilities are included in these reports. The NTD, as the repository for this information, serves as the primary tool to support transit operational and financial decision making on a national level. Appendix A summarizes the NTD reporting process, a cooperative effort of the FTA and the transit industry.

As the only comprehensive source of domestic transit data, the NTD supports a number of activities. Congress, FTA, and other federal, state, and local governments use NTD data to guide public investment decisions involving billions of dollars; notably, validated NTD data is used to apportion FTA funding among urbanized areas, according to legislatively-mandated formulas. Further, data is used at various levels of government to guide policy development, to assist in establishing national priorities, and to shape public planning and strategic decisionmaking efforts.



The definition of data elements included in the NTD determines the extent to which the database supports transit systems and federal agencies in making informed decisions. The selection of appropriate data measures and the subsequent quality of information collected by NTD affect the ability to formulate these assessments and, consequently, to form useful and targeted decisions with regard to resources, programs, personnel, technologies, and infrastructure.

On a local level, the NTD summarizes transit industry activity and investment and is a potentially valuable resource for public transit management, planning, policymaking, and other analytical applications. Further, service and infrastructure costs and performance data are used by researchers, transit operators, and planners.

1.2 NTD History

Project FARE

Project FARE (Financial Accounting and Reporting Elements) was initiated in 1972 by the transit industry to examine transit industry accounting practices. In 1976, the FARE study produced a system of accounts and records to provide uniformity, consistency, and accuracy in the accumulation of transit industry data. Project FARE provided the framework for the eventual development and implementation of a national-level database describing transit investment, expenditures, operations, and performance.

Section 15

The Uniform System of Accounts and Records and Reporting System (then Section 15) was first authorized in 1974 by Section 15 of the Urban Mass Transportation Act of 1964, as amended. The system was prescribed in 1977, as called for in the law.

Section 15 initially included a required level of reporting with three increasingly detailed levels of voluntary reporting. The required reporting level included four operating cost functions: vehicle operations, vehicle maintenance, non-vehicle maintenance, and general and administrative costs. The voluntary reporting levels provided additional detail in the financial reporting forms. The most detailed reporting level (A) included 44 distinct functions for reporting operating costs. The most significant difference in the reporting levels was the number of functions provided for reporting operating expenses. While FTA's intent was that the larger systems report the more detailed voluntary data, only transit agencies that had received funds to implement a management information system were obligated to report above the required level.



FTA developed reporting procedures and a data validation process to assess the consistency and reasonableness of the data reported. The first annual NTD (then Section 15) Report was published in May 1981, encompassing data for transit agencies whose fiscal years ended in 1979.

Previous Restructuring of the NTD

FTA undertook a comprehensive formal evaluation of the future of the Section 15 in the late 1980s and early 1990s. The process, which spanned several years, included significant input from the Section 15 Reporting System Advisory Committee to FTA and the American Public Transportation Association (APTA) Section 15 Committee.

Both committees were active in developing recommendations for improving the Section 15 reporting system. The Section 15 Reporting System Advisory Committee submitted a final report to FTA in 1986 documenting its recommendations for improving the Section 15 system. The APTA Section 15 Committee submitted comprehensive recommendations for restructuring the Section 15 system in 1988.

After developing a revised reporting system based on the input from the advisory groups, FTA published an advance notice of proposed rulemaking in the *Federal Register* on August 13, 1990, soliciting comments from the transit industry and interested parties on the recommended changes.

As a result of the evaluation, FTA implemented major structural and procedural changes to improve the database and reduce the burden to reporters for the 1992-reporting year. FTA eliminated voluntary reporting levels, but retained optional reporting of operating costs for four sub-functions within the vehicle operations function. FTA eliminated several forms and implemented optional reporting of some data elements on operating funding, transit agency employees, and transit agency service.

Introduction of Security Data

Congress, state and local governments, the research community, and the private sector recognized the importance of and, consequently, the need for timely and accurate data to assess the state of security within the nation's public transportation infrastructure. As a result, security data was added to the NTD reporting system in 1995. FTA determined that additional statistics were necessary to evaluate transit agency performance in preventing and responding to acts of intentional harm to the transit infrastructure, its passengers, and its employees.

This change reflected two major influences. First, the 1994 Omnibus Anti-Crime legislation reinforced the need to increase security in existing and future transportation systems. Second, FTA's Strategic Plan included a strategy to "maximize security and safety of transit systems for service users," with a primary



goal of improving personal security. To achieve standardization of data to the extent possible, the Federal Bureau of Investigation's (FBI) Uniform Crime Reporting (UCR) system was used to guide the development of security data reporting requirements and definitions. Those grantees serving urbanized areas of more than 200,000 must annually report the incidences of 18 specified criminal offenses by location, type of offense, and transit mode.

Current Initiatives

FTA is currently in the process of implementing Internet-based reporting for the NTD. This enhancement will be available in the summer of 2000 for completing the 2000 NTD report. The system provides a significant enhancement to the system and should result in a reduced reporting burden, as well as improved timeliness in validating and generating the complete database.

1.3 Committee Reports Accompanying the FY 2000 Appropriations Act

Congress requested FTA to undertake this study to identify and implement necessary changes to the NTD. The text from the Senate, House, and Conference Reports accompanying the U.S. Department of Transportation FY 2000 Appropriations Act follows.

Senate Bill (S. Rpt. 106-55, 5/27/99)

Transit Data Base. The Committee is concerned that the Transit Data Base contains data that is unreliable and/or unusable. Transit Data Base information collected from federal grantees, which is used for the purposes of allocating federal formula grants and sharing operational data throughout the industry, is chronically late (published up to three years after receipt) and noticeably error-ridden. It is also apparent to the Committee that the scope of the information collected is insufficient to provide government, industry and academic institutions with useful operating characteristics and performance statistics of transit systems nationwide.

The Committee directs the FTA to initiate a contract with the National Academy of Sciences (NAS) to design a new Transit Data Base, comprised of operational statistics, performance measurements and other financial data necessary to fulfill FTA's responsibilities for distributing formula grants, while providing government, industry, academic institutions, and others with meaningful data for data sharing and benchmark purposes. In designing the new Transit Data Base, special attention should be paid to developing clear instructions for those agencies that must submit data and employing computer-based electronic data storage and access techniques. FTA is directed to execute such an agreement with NAS within 30 days of enactment of the fiscal



year 2000 appropriations bill, using available research funds from the Transit Cooperative Research Program.

FTA shall submit the recommended Transit Data Base design to the House and Senate Committees on Appropriations and to the General Services Administration for review within 180 days of enactment, and subsequent to that review, shall publish the new Transit Data Base design in the Federal Register, and incorporate the new design in the fiscal year 2001 cycle of federal grantee reports.

House Bill (H. Rpt. 106-180, 6/9/99)

In addition, the FTA is directed to undertake a project, in partnership with the transit industry, to identify the common accident causal factors, how to collect data on those factors, and how such information collection might be incorporated into the National Transit Database safety data collection process. Such an effort shall address the concerns raised by the National Transportation Safety Board.¹

Conference Report (H. Rpt. 106-355, 9/30/99)

The conferees direct the FTA to undertake a project, in partnership with the transit industry, to identify the common accident causal factors, how to collect data on those factors, and how such information collection might be incorporated into the National Transit Database safety collection process.

Transit data base. The conferees are aware that state and local governments, transit industry personnel, and academic institutions rely heavily on operational data contained in the transit data base. The publication of this data is not timely, and excludes some performance statistics that may be particularly helpful to all parties. The conferees encourage the FTA to work with the National Academy of Sciences (NAS) to design a new transit data base, comprised of operational and performance measurements and financial data necessary to fulfill FTA's statutory responsibilities in distributing formula grants, while providing meaningful data for state and local governments, transit industry personnel, and academic institutions. Special attention should be paid to developing clear instructions to grantees and employing computer-based electronic data storage and access techniques. The NAS is encouraged to consult with the American Public Transportation Association in developing the new transit data base model.

FTA shall submit the recommended transit data base design to the House and Senate Committees on Appropriations and to the General Services Administration for review by May 31, 2000. FTA



shall utilize existing administrative funds to implement the new transit data base design, and shall utilize the new design in the fiscal year 2001 cycle of federal grantee reports.

1.4 Other Driving Forces

In addition to the congressional mandate, two other factors support the need for evaluating the usefulness of the NTD reporting system: the Government Performance and Results Act (GPRA) and input from the National Transportation Safety Board (NTSB). These factors are discussed below.

The Government Performance and Results Act

GPRA, enacted in 1993, requires federal government agencies to develop five-year strategic plans and to establish goals and measurable performance indicators to assess progress toward achieving these goals. Each agency is required to prepare and submit to Congress an annual performance report for the prior year. The first reports were required by March 31, 2000 and reflected agency performance during calendar year 1999.

In accordance with the requirements of GPRA, DOT developed its strategic goals; FTA subsequently set strategic goals, which support DOT's strategic goals. For each strategic goal, FTA developed specific performance goals and corresponding, measurable performance indicators.

FTA relied on NTD data to support its first *U.S. Department of Transportation Performance Report to Congress*, submitted on March 31, 2000. FTA plans to use the following data elements, obtained through the NTD, to report its performance to Congress:

- Fatalities, injuries, and incidents
- Revenue vehicle hours
- Passenger miles

FTA STRATEGIC GOALS

Safety and Security—Promote the public health and safety by working toward the elimination of transit-related deaths, injuries, property damage and the improvement of personal and property protection.

Mobility and Accessibility—Shape America's future by ensuring a transportation system that is accessible, integrated, efficient, and offers a flexibility of choice.

Economic Growth and Trade—Advance America's economic growth and competitiveness domestically and internationally through efficient and flexible transportation.

Human and Natural Environment—Protect and enhance communities and the natural environment affected by transit.

Quality Organization—Ensure a quality organization that is responsive to employees' needs, empowers its employees, and provides excellence in customer service.



- Boardings/unlinked passenger trips
- Revenue vehicle miles
- Bus fleet accessibility
- Bus and rail fleet size and average age

Although this data is currently collected through the NTD, the NTD system does not produce the data within a timeframe that coincides with FTA's required performance reporting. The intent of GPRA is to report the agency's performance for the calendar year on March 31 of the next year.

National Transportation Safety Board Concerns

Federal, state, and local governments; transit industry personnel; and academic institutions rely on operational data contained in the NTD. To better serve these stakeholders, as well as those agencies supplying and collecting safety data, a requirement that NTD safety data collection procedures be analyzed was included in the congressional mandate that authorized this study.

A fundamental objective of the NTD program, with regard to safety and security, is to provide uniformly collected comprehensive data to allow for assessing the actual and relative safety and security of transit grantees. This data is gathered from recipients or beneficiaries of Urbanized Area Formula funds through the NTD Reporting System, subject to certain stipulations.

There is a sizable body of data, of which NTD information comprises a vital piece, to track general trends in transit safety and security. Significant data limitations remain, however, that hinder informed decisionmaking on safety issues. There is no other centralized repository for nationwide information detailing the implications of accidents or criminal events occurring within the public transportation environment. Therefore, this database is a primary source of information for other key stakeholders, such as local law enforcement, academic institutions, and other federal and state agencies that address issues of security within transit.

This data is not adequately comprehensive, timely, or accurate to appropriately assess the state of industry and agency-level safety and security. FTA accident data contains only the number of fatalities, injuries, and incidents in a given year. Therefore, this data can only be used to establish gross numeric trends of fatalities and injuries that result from non-collisions and from collisions with vehicles, objects, and people. No rural safety or security data is collected at the national level. Clearer definitions of safety and security concepts would improve data accuracy.



One of the central reasons for reassessing currently collected safety and security data was the perceived need, stated in the Congressional committees' requests for the study, for FTA to identify common accident causal factors, which might be incorporated into the NTD. In addition, the House Bill explicitly required that the revision of the NTD *"shall address the concerns raised by the National Transportation Safety Board."* The NTSB has urged that FTA collect information on the underlying causes for accidents, stating that FTA safety data *"are not useable to identify the underlying causes of or contributing factors to [accidents]."*² Finally, DOT's Office of Inspector General (OIG) has recommended that *"FTA (1) take actions to improve the nature of rail transit accident reporting data to provide more complete information regarding the causes of accidents; and (2) analyze the causes of rail transit accidents and fatalities."*³

More inclusive data is needed on factors that contribute to incidents and to an understanding of security trends. A lack of sufficient causal data currently hampers FTA's ability to perform thorough assessments of transit safety and security. Further, no other centralized database exists within FTA to capture these statistics. More important, FTA does not have the statutory authority, under any of its current safety or security directives and programs, to *require* the reporting of this fundamental information. The purpose of accident and incident reports that include all necessary detail is to provide information concerning hazardous conditions on the nation's transit systems. Collecting such information will enable FTA to evaluate the underlying reasons for transit accidents and incidents. As a result, safety and security deficiencies can be identified, and proactive programs can be developed to address those deficiencies. FTA can then more effectively achieve its strategic goal of working toward the elimination of transit-related deaths, injuries, and property damage.

1.5 Project Goals and Objectives

The purpose of this study was to evaluate the current NTD system and to recommend improvements. The goals and objectives for this phase of the study were developed consistent with legislative intent to revise the NTD. The goals and objectives listed below provided the basis for outreach to the industry; further, they will structure the findings of the study and will guide the development of conclusions and recommendations for improvements to the NTD.

The specific goals and objectives of the study were to:

- **Assess the usefulness of the NTD to various constituencies.** The NTD is used for a wide variety of purposes and by numerous constituencies, including FTA, other federal agencies, Congress, state agencies, transit agencies, researchers, and consultants. Each group requires specific data to meet its goals and objectives. The first objective of the study was to identify the needs of these various constituencies and to determine the extent to which the current NTD



satisfies current and future needs. Through an extensive outreach program, the study obtained information on data usefulness; the existence of unmet needs; and specific problems with reporting, definitions, and data access.

- **Balance usefulness of data with reporting burden.** As the various needs for national-level transit data were clarified and potential additions to the NTD were considered, the burden associated with reporting the data will be assessed. FTA's intent is to enhance the usefulness of the database while minimizing the reporting burden to agencies. This burden will be reduced by eliminating specific data or forms, simplifying reporting requirements, clarifying definitions, and improving reporting procedures.
- **Evaluate the NTD safety and security data and reporting system.** A fundamental objective of the NTD program for safety and security is to provide uniformly collected comprehensive data to assess actual and relative safety and security of transit grantees. An underlying goal of this project, therefore, is to assess the current safety reporting system and its effectiveness at documenting accomplishment of FTA's strategic goals and NTSB and OIG recommendations.
- **Improve timeliness of reporting.** A final key objective of the study is to assess the timeliness of the NTD reporting system and to develop recommendations for improvement. A continuing concern with the NTD is that the published data typically is unavailable until the fall of the calendar year following the year in which the data is reported. In addition, to meet its GPRA reporting requirements, FTA needs to obtain specific data currently provided through the NTD in advance of the current NTD reporting schedule.

¹ This language is repeated under Advanced Transportation and Alternative Fueled Vehicle subsection, also under the "Transportation Planning Research" in the House report.

² National Transportation Safety Board, Highway Special Investigation Report: Transit Bus Safety Oversight, NTSB/SIR-98/03, (Washington, D.C.: 1998), p. 16.

³ Office of Inspector General, U.S. DOT, *Report on the State Safety Oversight Program for Rail Fixed-Guideway Systems Report No. TR-1999-071*, (Washington, D.C.: March 12, 1999), p. 4.

2. APPROACH

This document summarizes activities undertaken in the performance of Phase I of the NTD Review; presents findings based on input received from stakeholders regarding reporting forms, manuals, and procedures; and proposes recommendations for revisions to the NTD reporting system.

Phase II will build on findings made in the first phase, with the final objective of creating a database prototype incorporating the recommendations received in Phase I and during subsequent reviews. Final forms, manuals, and procedures will be upgraded to allow for reprogramming of a revised, operational NTD, including final specifications and requirements. In this stage, emphasis will be placed on ways in which the NTD might best leverage the benefits of online reporting. The focus of the proposed Internet-based reporting will be on alternatives that enable FTA to employ state-of-the-art technology for the new reporting system. Phase II is scheduled to be completed by October 2000, with reprogramming (Phase III) completed in FY 2001.

TIMELINE

October 9, 1999	USDOT Appropriations enacted. Committee reports require redesign of NTD
October 28–29, 1999	Initial Transportation Research Board (TRB)/National Academy of Sciences (NAS) discussions
November/December 1999	Project phasing and definition established
January 12, 2000	RFPs issued for Phase I (Content and Conceptual Design) and Optional Phase II (Layout data and new NTD Prototype)
February 9, 2000	FTA Contractor (KPMG Consulting) selected. Phase I initiated
March 1, 2000	Listening session in Chicago
March 15, 2000	Listening session in Washington, D.C. (safety and security focus)
March 29, 2000	Listening session in San Francisco
March 2000	Meetings with transit systems across the nation
April 7–8, 2000	APTA NTD Workshop
April 10–11, 2000	TRB/NAS NTD Advisory Committee
April 14, 25, 2000	FTA NTD Advisory Committee
May 31, 2000	Submission of Phase I report by FTA Administrator to House and Senate Committees on Appropriation and GSA
Summer 2000	Phase II initiated. Comments on Phase I report received from Congress and outside groups
October 2000	Phase II completed
FY 2001	Phase III (Reprogramming of database on new relational database) initiated and completed

2.1 Stakeholder Input

During March and April 2000, input was received from those stakeholders who use NTD data and those who are responsible for reporting information to the database. Gathering of input was accomplished via listening sessions, agency interviews, researcher interviews, and meetings with an APTA-sponsored workshop of transit managers, the TRB/NAS NTD Advisory Committee, and the FTA NTD Advisory Committee. A list of contacts made during the outreach portion of this study is included on the next page.

Contacts in Outreach

- Transit Operators
- Purchased Transportation/ Vanpool Operators
- State Departments of Transportation
- Federal Agencies
- U. S. Department of Transportation
- Interest Groups
- Consultants
- Universities

Listening Sessions

Listening sessions were held in Chicago, Washington D.C., and San Francisco in March 2000. The objective of the listening sessions was to identify problem areas perceived by NTD users and reporters and to use their feedback in evaluating, analyzing, and developing findings and recommendations. The session held in Washington emphasized issues related to safety and security data.

The listening sessions were initially publicized through an industry-wide mass mailing flyer sent to transit properties, government agencies, research and educational institutions, and consultants (see Appendix B). Valuable information was received as a result of these sessions, during which participants discussed data strengths and weaknesses, definitions, reporting forms, reporting software, and annual reports, as well as safety and security data.

FTA assembled several substantial databases of industry contacts to use as an initial basis for contacting possible listening session attendees. The NTD review listening session flyer served to describe the project objectives and to direct stakeholder suggestions and concerns to the review team.

Listening sessions preceded or followed NTD training seminars held at two of the three session locations. The NTD seminars provide detailed instruction to transit agencies in order to facilitate understanding of reporting requirements and to provide instruction in compiling the annual NTD report. Therefore, listening sessions included attendance by transit agency employees who currently manage data reporting and input. Consequently, listening session feedback included a number of detailed, working-level recommendations.

Outreach Participants

Transit Operators

- Alameda-Contra Costa Transit District
- Altamont Commuter Express
- Access Services/Los Angeles
- City of Arlington, Texas
- Bay Area Rapid Transit District
- Central Contra Costa Transit Authority
- Chapel Hill Transit
- Chicago Transit Authority
- Dallas Area Rapid Transit
- Detroit Department of Transportation
- Golden Gate Bridge Hwy & Transportation District
- Johnson City Transit System
- Hampton Roads Transit
- City of Logan, Utah
- King County (Washington) Dept of Transportation
- Lawrence/Amador Valley Transit Authority
- Los Angeles Department of Transportation
- Los Angeles County Metropolitan Transportation Authority
- Madison Metro Transit System
- Maryland Mass Transit Administration
- Metra (Chicago)
- MTA of Black Hawk County, Iowa
- MTA of Harris County (Houston)
- Metropolitan Transportation Authority (New York)
- MTA Long Island Rail Road
- MTA Metro North Railroad
- MTA New York City Transit
- NACOLG Transit, Muscle Shoals, Alabama
- New Jersey Transit
- New Orleans Regional Transit Authority
- City of Phoenix, Public Transit Department
- Pace (Chicago area)
- Pierce Transit
- Port Authority Trans-Hudson Corporation
- Regional Transit Authority of Northeastern Illinois
- Rock Island County Metropolitan
- RTC Las Vegas
- Sacramento Regional Transit District
- Salem Area Mass Transit
- San Mateo County Transit District
- San Diego Transit
- San Francisco Municipal Railway
- SunLine Transit Agency (Palm Springs)
- Santa Monica Municipal Bus Lines
- Southeastern Pennsylvania Transportation Authority
- Santa Clara Valley Transportation Authority
- Washington Metropolitan Area Transit Authority
- Westchester County Dept of Transportation
- Yolo County Transit District

Purchased Transportation/Vanpool Operators

- Laidlaw Transit Services
- VPSI, Inc.
- National Railroad Passenger Corporation (Amtrak)

State Departments of Transportation

- Illinois
- Indiana
- Maryland

US Department of Transportation

- FTA Office of Program Management
- FTA Office of Budget and Policy
- FTA Office of Planning
- FTA Office of Research, Demonstration, and Innovation
- FTA Office of Safety and Security
- FTA Office of Chief Counsel
- FTA Office of Civil Rights
- FTA Office of Administration
- Volpe National Transportation Systems Center
- Federal Railroad Administration
- Bureau of Transportation Statistics

Other Federal Agencies

- National Transportation Safety Board
- Department of Energy
- Federal Bureau of Investigation

Interest Groups

- National Safety Council
- American Public Transportation Association
- Community Transportation Association of America
- American Association of State Highway and Transportation Officials

Consultants

- Booz Allen & Hamilton, Inc.
- KKO & Associates, LLC
- Lee H. Rogers
- Littleton C. MacDorman
- Manuel Padron & Associates
- Parsons Brinckerhoff Quade & Douglas
- Phil Olekysk
- Wilbur Smith & Associates

Universities

- Boston University
- Northwestern University
- Rensselaer Polytechnic Institute
- University of California – Irvine
- University of California – Los Angeles
- University of Illinois – Chicago

Session attendees ranged from large multi-modal transit operators to small rural operators, and also included several purchased transportation and vanpool operators. Several USDOT representatives, including FTA personnel, state DOT members, transit consultants, and university researchers also attended the sessions in each city.

Participants consistently communicated a number of concerns at the listening sessions:

- Required data should have a valid application or else be eliminated from the NTD.
- More emphasis should be placed on the timely distribution of reporting manuals and on adequate reporter training.
- The NTD should be designed as a query-capable database, responsive to detailed data requests and capable of providing data in a user-friendly output format.
- The NTD should consolidate required purchased transportation data fields so that only agencies that purchase service report operational and financial data. This modification should increase accuracy and consistency of reporting.
- Forms should be customized by mode to simplify reporting.
- Safety and security sections should include clear and concise definitions, thresholds, and reporting criteria. Safety data, particularly fatalities, should be collected and disseminated on a more timely basis.
- Rural data is essential to the industry; collection of some rural data items should be considered as part of the NTD.

APTA NTD Workshop

To ensure that the experience of transit managers is integrated into the next update of the NTD, a workshop was held in Washington, D.C. on April 7 and 8, 2000. APTA arranged a two-day meeting of approximately 20 top-level managers, including general managers, chief financial officers, chief information officers, and safety experts. Attendees represented a wide range of agencies of different sizes, modes, and locations.

During this workshop, attendees provided their comments and feedback on the NTD and its usefulness, focusing on issues such as GPRA reporting, safety and security, and uniform reporting practices.

APTA NTD Workshop Participants

Jeffrey C. Arndt
Vice President and Chief Operating Officer
Metropolitan Transit Authority of Harris County
(Houston)

James Bromfield
Director of Operations Support, Safety
MTA New York City Transit

Robin Cody
Department Manager, Information Technology
San Francisco Bay Area Rapid Transit District

Tracy Daly
Assistant General Manager
SunLine Transit Agency (Palm Springs)

Michael P. DePallo
Director and General Manager
Port Authority Trans-Hudson Corporation

Ronald L. Freeland
Administrator
Maryland Mass Transit Administration

Fred Goodine
Chief Safety Officer
Washington Metropolitan Area Transit
Authority

Robert T. Kuo
Deputy General Manager
Finance and Administration
San Francisco Municipal Railway

Paul J. Larrousse
General Manager
Madison Metro Transit System

John McGee
Chief Officer of Business Development
Southeastern Pennsylvania Transportation
Authority

Jim McLaughlin
Director, Transit Planning
Los Angeles County Metropolitan
Transportation Authority

Jeffrey A. Nelson
General Manager
Rock Island County Metropolitan (Illinois)

Christopher A. Poinsette
Chief Financial Officer
Dallas Area Rapid Transit

Catherine Regan-DeCicco
Senior Director Capital Funding
New Jersey Transit Corporation

Michael S. Townes
Executive Director
Hampton Roads Transit

Douglas Wentworth
Director, Planning and Information Services
Sacramento Regional Transit District

Richard A. White, Chair
General Manager
Washington Metropolitan Area Transit
Authority

Individual Meetings

Wherever feasible, individual meetings were arranged with relevant organizations, including the following:

- FTA managers in the Office of Program Management; Office of Safety and Security within the Office of Program Management; Office of Budget and Policy; Office of Planning; Office of Research, Demonstration, and Innovation; and Office of Civil Rights
- Other DOT agencies including the Bureau of Transportation Statistics, the Volpe National Transportation Systems Center, the National Highway Traffic Safety Administration (NHTSA), and the Federal Railroad Administration (FRA)
- Other federal agencies including the NTSB, the FBI, and the Department of Energy
- Individual transit operators, including the New York Metropolitan Transportation Authority and three of its operating agencies, MTA Long Island Rail Road, MTA Metro North Railroad, MTA New York City Transit; Southeastern Pennsylvania Transportation Authority; Chicago Transit Authority; PACE; Metra; San Mateo County Transportation District, Bay Area Rapid Transit District, Alameda-Contra Costa Transit District, San Francisco Municipal Railway, Central Contra Costa County Transit District; and Golden Gate Bridge, Highway, and Transportation District.
- State Departments of Transportation
- Universities and other research organizations
- Consulting firms specializing in transit
- Industry interest groups such as APTA, the Community Transportation Association of America (CTAA), and the American Association of State Highway and Transportation Officials (AASHTO)
- Specific issue-related organizations such as the National Safety Council

FTA NTD Advisory Committee

FTA formed an NTD Advisory Committee to give FTA offices an opportunity to address NTD issues. The committee met twice and received a briefing on draft findings and proposed recommendations. Feedback was provided during the two meetings and through interactive correspondence. The FTA NTD Advisory Committee will continue to comment on the project as it progresses into Phase II and through implementation. The FTA NTD Advisory Committee comprises representatives of the following FTA Offices: Office of Program Management; Office of Budget and Policy; Office of Planning; Office of

Research, Demonstration, and Innovation; Office of Safety and Security; Office of Civil Rights; Office of the Chief Counsel; Office of Administration; and the Bureau of Transportation Statistics.

Safety and Security Outreach

Specific outreach was conducted on safety and security data collection to evaluate the current reporting system and to recommend new systems and approaches to meet future transit data needs. Meetings were arranged with safety and security specialists within FTA and in other DOT agencies. Further, safety and security feedback was addressed in the listening sessions, interviews, and meetings. The March 15 listening session in Washington, D.C. focused on transit safety and security.

Additional NTD Feedback

For those who were not able to attend listening sessions or individual meetings, a number of dedicated means of collecting input were created specifically to collect comments on the current NTD: an e-mail address, a mail drop, and a fax number.

2.2 TRB/NAS NTD Advisory Committee

An appointed committee of academic and industry experts was formed under the auspices of the TRB to provide guidance throughout the NTD review study. Initial findings and proposed draft recommendations were presented to the TRB in Washington, D.C., on April 10, 2000.

The TRB committee formally provided the FTA with its findings and recommendations regarding the NTD review in a letter from the committee chairman, Michael Townes, dated May 18, 2000. The committee's recommendations were considered in preparation of this report. FTA will continue to coordinate with the committee and consider its recommendations in the next phase of the review.

TRB/NAS NTD Advisory Committee

Robert Babbitt
Executive Director
Metropolitan Transit Authority (Nashville)

Cecil W. Bond, Jr.
Assistant General Manager
Safety and Security Division
Southeastern Pennsylvania Transportation
Authority

Daniel K. Boyle
Vice President
Transportation Management & Design

John Collura
Professor, Department of Civil and
Environmental Engineering
Virginia Tech

John Dockendorf
Chief, Urban Transit Division
Pennsylvania Department of Transportation

Gordon J. "Pete" Fielding
Research Professor
University of California – Irvine

Peter G. Furth
Professor, Department of Civil and
Environmental Engineering Northeastern
University

Fred C. Goodine
Chief Safety Officer
Washington Metropolitan Area Transit
Authority

Alfred Harf
Executive Director
Potomac & Rappahannock Transportation
Commission

Littleton C. MacDorman
Principal
MacDorman & Associates

Clarence W. Marsella
General Manager
Denver Regional Transit District

Jyme Sue Olson
Principal Planner
Regional Public Transportation Authority
(Phoenix)

Christopher A. Poinsette
Chief Financial Officer
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Catherine Regan-DeCicco
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H. Douglas Robertson
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Connie L. Soper
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Michael S. Townes
Executive Director
Hampton Roads Transit

Douglas L. Wentworth
Director, Planning and Information Services
Sacramento Regional Transit District



TRB/NAS NTD Advisory Committee (cont'd)

STAFF

Stephen R. Godwin
Director, Studies and Information Services
Transportation Research Board

Thomas J. Hillegass
Principal
Hillegass Consulting

Francis E. Hollad
Studies and Information Services
Transportation Research Board

3. FINDINGS

The NTD serves diverse stakeholders—FTA, other Federal agencies, transit systems, special interest groups, consultants, and researchers— each with different data requirements and expectations of the database. The NTD was designed to collect and disseminate uniform public mass transportation financial and operating data for use by all constituencies of the transit industry. The NTD is intended to support public investment decisions and to provide transportation systems, all levels of government, and the public with information for mass transportation service planning. FTA's greatest challenge with respect to the NTD is to meet the most vital needs of key stakeholders while minimizing the burden on transit agencies providing data.

The NTD is not and should not be the sole mechanism for collecting operational and financial information about the transit industry. APTA routinely collects additional data from its members (e.g., its annual fare study) and the Transit Cooperative Research Program commissions special studies of the industry. FTA periodically funds special studies to address areas of particular importance and to address new data analysis capabilities that result from the application of new technologies. These alternative reporting mechanisms provide the ability to examine the performance of the transit industry in specialized areas. The NTD should focus on the data needed annually on a national level to support clear and continuing federal and transit agency needs. Other data needs might best be accomplished through other mechanisms.

A thorough analysis of NTD uses, limitations, and the evolving needs of public transit data stakeholders has yielded a number of major findings:

- The need to more closely align data content and collection with applications of data
- The need to focus on collection of more timely, relevant, and accurate safety and security data
- The need for data to be available in a more timely manner to meet other critical needs

Transit industry management has indicated that the current NTD does not provide the data necessary for critical management decisions, nor does it provide an environment for sharing best practices. Further, the NTD has not kept pace with the changing focus of federal interest in the transit industry. The NTD was conceived in an era when operating assistance was an important focus of federal funding and there was significant interest in assuring that limited federal funds were improving transit operational efficiency. The focus of federal funding has shifted to investment in capital infrastructure, while the focus of the NTD has remained on operating level of service and financial data.

A number of recent federal data requirements have emerged that cause FTA to examine the NTD's effectiveness. Timeliness of data is a key issue. To support its performance assessment and reporting to



Congress under GPRA, FTA needs to obtain key data elements in advance of the current reporting through the NTD. FTA needs more timely and more detailed safety data to support its (and DOT's) goal of reducing transit-related deaths, injuries, and property damage, and improving personal and property protection.

3.1 Data Applications

An understanding of how NTD data is currently used and what important data needs are not met by the database is fundamental to assessing the value of the NTD. The outreach revealed the following uses of NTD:

- Apportionment of federal funds
- *Conditions and Performance Report* to Congress
- Broad policy/industry analysis
- Response to other federal agencies
- Safety management information
- Planning
- Transit management
- Transit research

Apportionment of Federal Funds

The key statutory use of the NTD data is in apportioning federal funds through two grant programs:

- **Section 5307 Urbanized Area Formula Program:** \$2,773 million in FY 2000, increasing to \$3,446 million in FY 2003 (in guaranteed funding)
- **Section 5309 Capital Program: Fixed Guideway Modernization:** \$980 million in FY 2000, increasing to

NTD Data Applied in the Apportionment FTA Formula Grant Funds FY2000	
Section 5307 Urbanized Area Formula Program (1)	
Bus Tier	Apportionment Unit Value
Urbanized Areas Over 1,000,000	
Population (2)	\$ 2.92438989
Population x Density (2)	\$ 0.00075006
Bus Revenue Vehicle Miles	\$ 0.38917578
Urbanized Areas Under 1,000,000	
Population (2)	\$ 2.64283878
Population x Density (2)	\$ 0.00116390
Bus Revenue Vehicle Miles	\$ 0.46633761
Bus Incentive Tier	
Passenger-Miles Squared ÷ Operating Cost	\$ 0.00471658
Fixed Guideway Tier	
All Urbanized Areas (3)	
Fixed Guideway Revenue Vehicle Mile	\$ 0.52828404
Fixed Guideway Route Mile	\$ 29,791
Fixed Guideway Incentive Tier (4)	
Passenger-Miles Squared ÷ Operating Cost	\$ 0.00044127
Section 5309 Capital Program - Fixed Guideway Modernization (5)	
Legislatively Specified Areas	
Revenue Vehicle Mile	\$ 1.27130968
Route-Mile	\$ 17,530.87
Other Urbanized Areas	
Revenue Vehicle Mile	\$ 1.81402503
Route-Mile	\$ 29,527.95
Notes:	
1) Section 5307 Urbanized Area Program - Areas Under 200,000: Apportionment based solely on population and population x density	
Section 5311 Non-Urbanized Area Formula Program - Areas under 50,000: Apportionment based solely on population	
2) U. S. Census data for urbanized areas	
3) Commuter rail floor = \$5,982,289	
4) Commuter rail floor = \$274,681	
5) Includes funding for Tiers 2,3,4,5,6,7	

\$1,214 million in FY 2003 (in guaranteed funding)

These grant programs apportion grant funds to urbanized areas (UZA) partly on the basis of the following data elements obtained through the NTD:

- Bus vehicle revenue miles
- Bus passenger miles
- Fixed guideway vehicle revenue miles
- Fixed guideway route miles
- Fixed guideway passenger miles
- Operating expenses

Accurate reporting of these data items is vital for equitable apportionment of funding made available by Congress.

Conditions and Performance Report to Congress

The Secretary of Transportation biennially submits a report to Congress on the condition and performance of the nation's surface transportation system. The report, prepared jointly by FTA and the Federal Highway Administration (FHWA), provides information on the condition, performance, and investment requirements for highways, bridges, and transit. The report supports legislative, program, and budget decisions at the federal, state, and local levels. The information provided in the *Conditions and Performance Report* is critical for understanding the future investment needs of transit and for supporting the federal budget authorization process.

FTA makes considerable use of NTD data in developing the *Conditions and Performance Report*. NTD data are used for sections on system characteristics, operating performance, and transit finance. NTD data are also used in calculating asset conditions and investment requirements; however, NTD alone does not provide data sufficient for these later two purposes. NTD provides data on the quantity and age of vehicles in the fleet, the number of maintenance facilities, stations, and miles of track, but does not provide information on the condition of the fleet or other assets or on the dollar investment in those assets. Instead, FTA conducts surveys of fleet condition in order to develop a model relating vehicle age to fleet condition. This model is then applied to the currently available NTD within the larger Transit Economic Requirements Model (TERM) to generate average asset conditions and investment requirements. Such estimation would be greatly improved by having more complete asset data. The *Conditions and Performance Report* includes limited data, available through sporadic research projects,

on system characteristics, vehicle conditions, and investment requirements for rural transit and specialized transit for elderly persons and persons with disabilities.

Broad Policy/Industry Analysis

The NTD is an important source of data for FTA in conducting policy-directed analyses. In the past, such analyses have focused on operating costs. Since the Transportation Equity Act for the 21st Century (TEA-21) eliminated operating assistance for transit agencies in UZAs with populations above 200,000, the focus of policy analysis has shifted to capital stock issues. Routine, uniform collection of data on asset condition and capital investment needs would facilitate FTA's ability to provide meaningful analysis for policy decisionmaking for investment in transit infrastructure.

Response to Other Federal Agencies

FTA uses the NTD to respond to requests for transit data from other federal agencies. For example, FHWA requests data on funding statistics by state and is also interested in HOV lanes that are reported in the NTD. The Environmental Protection Agency and the Department of Energy request data on alternative fuel vehicles and consumption.

Safety Management Information

The Safety Management Information Statistics (SAMIS) Annual Report is a compilation and analysis of transit accident, casualty, and crime statistics reported in the NTD. Transit safety data is collected in the NTD and presented in the SAMIS which presents trend information on accident types, victims, and severity based on these data.

Transit security data are also reflected in the SAMIS report. Two types of security data are included: reports of Part I offenses (primarily violent crimes), and arrests for Part II (lesser) offenses. Trend analyses of this data are also included in the report.

Planning

To support the New Starts process, FTA relies on NTD data in order to understand the actual cost experience of transit agencies that have previously made similar, major capital investments. FTA provides guidance to assist transit agencies in developing grant applications. FTA assists transit agencies in developing projections of future operating and maintenance costs, capital rehabilitation and replacement costs, and ridership growth based on actual transit systems experience. To analyze New Starts, additional detail about non-vehicle operating expenses for fixed guideway modes is desirable. This could assist transit agencies in projecting costs for power, signal, communications, track, and structures maintenance.

Transit Management

Transit agency executives generally believe that the NTD does not provide useful data for improving management of transit operations. Major issues include:

- Limited scope of the data
- Shortcomings for peer comparisons
- Desire for supplementary data sources

Each of these issues is discussed in detail below.

Limited Scope of Data

The current NTD provides limited information for transit managers about quality of services provided. Contemporary transit managers focus on cost containment, service quality, safety, efficiency and effectiveness of services, and maintaining assets in a state of good repair. Transit managers are increasingly concerned about on-time performance and the extent, frequency, and coverage of transit services. However, there is no broad consensus within the industry on how to measure service quality. The NTD does not address these measures.

The funding requirements to maintain capital assets in a state of good repair is, after operations, the greatest financial challenge for transit managers. Requirements to replace rolling stock and maintain fixed assets in a state of good repair is a continuing concern, even for the rail transit systems developed in the 1970s and early 1980s that are now approaching “middle age.” Transit managers must anticipate future funding requirements and secure the resources to meet those needs. To do so, they need detailed information on the assets owned, including the dollar investment and the condition of the assets. NTD does not provide the data necessary to support these decisions.

Shortcomings for Peer Comparisons

Transit managers are interested in peer transit agencies’ experience with service quality, human resources, fare structure, passenger response to fare and service changes, and many other contemporary management and planning issues; the NTD data currently do not fill this need.

NTD data has been useful as a preliminary screening tool for peer analysis. In order to make meaningful comparisons, transit agencies and other users of NTD data must understand the operating environments and characteristics of peer agencies. For example, data users need to understand the agencies’ climatic conditions (e.g., prevalence of winter operations), which effect fuel consumption and maintenance costs,

and provisions of labor agreements and work rules (e.g., restrictions on split runs), which affect labor productivity. The NTD does not provide contextual information necessary to interpret peer agency data.

Desire for Supplementary Data Sharing Mechanisms

Transit managers indicated that the NTD should be focused on the key data items needed to serve clear and continuing federal purposes. Transit managers recognize the need for FTA to collect certain transit data at the national level to meet its statutory and policy needs. Most important, perhaps, from a transit manager's perspective, is NTD's role in justifying federal program levels. Since this role supports the budget authorization process, FTA's ability to assess the conditions and performance of transit is critical for FTA and the transit industry.

Transit managers expressed desire for supplemental industry data to support the management function. Transit managers recommended an industry-based system for accumulating and sharing this data. The APTA workshop participants conceptualized development of a voluntary reporting system designed and managed by the industry to meet its evolving data requirements.

The industry-based system would allow for periodic input of key operational statistics—ridership, miles, and hours—at a finer level of detail than the NTD, such as on a route level. Data would be reported on an ongoing basis by the agencies, thus providing access to detailed data at the time it is most valuable to transit managers. The system could be designed to accommodate other important types of information and data to support management decision-making, such as performance measures, labor work rules, and benefits. It is also anticipated that the industry-based system would include information on any of the forms that might be eliminated from the NTD (as recommended in Section 4).

Transit Research

The NTD provides an important source of transit industry operational and financial information for researchers, including FTA staff, transit agency staff, consultants, independent research agencies, and universities. The studies undertaken by these researchers have been applied in analyzing and developing public policy initiatives; and in assessing a better understanding of the impact of transit service on mobility in urban areas; and in developing the economic potential of transit investment. There is no other source of comprehensive industry information and, despite its limitations, the NTD is generally recognized as a vital resource for researchers.

Further, the NTD is the most detailed database of national-level transit safety data. Because transit organizations, even transit police departments, do not typically report transit-related crimes directly to the FBI or other law enforcement organizations, NTD offers the most comprehensive data available on domestic transit security performance. Similarly, though other agencies may collect more thorough data

concerning certain facets of transit safety or security, NTD is unique in scope and overall detail in its capacity to portray the safety and security of national transportation users, employees, and assets.

3.2 Data Content

Major data content findings focus on the following:

- Capital asset rehabilitation and replacement
- Sources and uses of funds
- Modal data
- System characteristics
- Purchased transportation
- Passenger mile data
- Service quality
- Demographic data
- Rural transit data

Capital Asset Rehabilitation and Replacement

One of FTA's most important responsibilities is to advance legislative initiatives to secure federal funding to meet the needs of the nation's transit agencies to maintain transit systems in a state of good repair. The NTD does not provide sufficient data to fully understand the capital rehabilitation and replacement needs of the industry.

Current Reporting Requirements

Although the NTD does address capital assets, the documentation is limited largely to a numerical quantification.

In addition to the NTD, FTA requires that its grantees maintain two systems that address fixed assets:

- **Fixed asset system:** Transit agencies must maintain a fixed asset system

Form 402 Revenue Vehicle Maintenance and Energy: Number of maintenance facilities by size and owned/ leased

Form 403 Transit Way Mileage: Miles of track, number of grade crossings, stations, accessible stations

Form 403 Fixed Guideway Segment Worksheet: Fixed guideway segments including length and age (age only if after 9/30/92)

Form 408 Revenue Vehicle Inventory: Number of buses, by subfleet (includes age, cumulative miles)



and track the condition of assets through biennial physical inventory.

- **Fleet management plan:** Transit agencies must project bus and rail car rehabilitation and replacement needs through an assessment of each subfleet of rolling stock. Rail fleet management plans are required as part of New Starts grant applications.

However, FTA does not compile a comprehensive database from these systems.

Issues

Immediately following the day-to-day requirement of “getting the service on the street,” the most fundamental challenge facing contemporary transit managers is securing adequate funding to maintain the existing level of service and expand services. Transit managers must anticipate the growing requirement for capital rehabilitation and replacement funding.

Over the past two decades there has been a growing awareness by the transit industry and by FTA of the need to adequately fund the maintenance of transit system capital assets in a state of good repair. Aging transit system assets experience growing maintenance costs and reliability and safety concerns that can only be addressed through significant and continued expansion of the agency’s capital improvement programs. Although the Fixed Guideway Modernization program, begun in the late 1970s, addressed the needs of the nation’s oldest rail transit systems, the newer rail transit systems developed in the 1970s and the early 1980s are now approaching “middle age.” All transit systems have a continuing need to routinely reinvest in their capital assets, to replace aging rolling stock and to address the long-cycle maintenance requirement of facilities that are not typically addressed in annual operating and maintenance budgets.

Government Accounting Standards Board Statement No. 34

In 1999, the Government Accounting Standards Board (GASB) issued its Statement No. 34 that established new standards for reporting the financial condition of state and local governments. One of the underlying motivations for the change in financial reporting standards was the growing expectation on the part of taxpayers and citizens that state and local governments reflect in their financial statement the condition of publicly owned fixed assets and the anticipated liabilities to maintain those assets in a state of good repair. This concern coincides with the interests of FTA and transit agencies.

GASB 34 requirements for infrastructure reporting are intended to address major long-lived municipal-, county-, and state-owned fixed assets, including highways, sewers, and water supply systems. Rail transit system fixed assets are also included. GASB 34 specifically excludes vehicles and buildings from its requirements.

GASB 34 provides for two approaches to project future rehabilitation and replacement requirements:

- **Traditional depreciation-based accounting approach:** This approach applies general straight-line depreciation to the original book value of the assets.
- **Modified approach:** This approach is a condition-based assessment of annual infrastructure reinvestment requirements and addresses the estimated rehabilitation and replacement cost of assets.

The prospective reporting requirements of GASB begin with the largest state and local government entities in FY 2001 (those with annual budgets greater than \$100 million) and extend to FY 2003 for the smallest entities (those with budgets greater than \$10 million). Retroactive reporting begins in FY 2005 for the largest entities.

Many unanswered questions remain with regard to implementing GASB 34, and the extent to which transit agencies will apply the modified approach is unclear. Transit agencies that have made progress in analyzing their fixed assets indicated in the outreach portion of this study that they may proceed with implementing the modified approach. Other agencies with a less comprehensive understanding of their fixed assets indicated that they will continue to use the traditional depreciation-based approach.

Sources and Uses of Funds

The current reporting of sources and uses of funds within NTD does not completely and accurately represent the transit agencies' flow of funds for capital and operations. The outreach portion of this study revealed that agencies would benefit from an improved statement of sources and uses of funds.

Current Reporting Requirements

The NTD captures sources and uses of funds information on three forms:

- **Capital Funding Form (103):** Summarizes sources of federal, state, and local funds applied to capital projects and provides limited detail on uses of funds
- **Operating Funding Form (203):** Summarizes sources of agency-generated and local and state taxes and grants and federal government grants applied to operations. This form includes optional data regarding the types of fares paid and fare revenues by mode
- **Operating Expense Form (301):** Summarizes operating expense by mode, in addition to reporting operating expense detail by function and by object class

Issues

Transit managers would like the sources of funds to provide more detail at the federal, state, and local levels than are now presented in the funding forms. Specifically, transit managers would like more detail at the federal grant level to record flexible highway funds by their original source. Transit managers agree that this additional level of detail would not be burdensome as this information is routinely reported in the budgeting process and is presented in financial statements.

Modal Data

The NTD forms do not adequately reflect inherent differences in the various modes of public transportation.

Current Reporting Requirements

The NTD has evolved over the years to a one-size-fits-all system for all data elements reported and associated definitions. With limited exceptions, all data is required from all reporters. All of the operational data must be reported by mode, the same data elements must be reported for each mode, and the same forms are used to report the data. Some financial data are reported systemwide, while some are required by mode. The same data elements are required for each of the modes.

MODES REPORTED TO NTD	
Rail	Non-Rail
Automated Guideway	Demand Response
Cable Car	Ferryboat
Commuter Rail	Jitney
Heavy Rail	Bus
Inclined Plane	Publico
Light Rail	Trolleybus
Monorail	Aerial Tramway
	Vanpool
	Other

Issues

The extent to which the NTD has dictated the uniformity of reporting across all modes and types of service both increases the burden for reporting certain data elements and lessens the usefulness of some of the data. Clearly, when considering the different modes comprising the public mass transportation system—motor bus, paratransit, commuter rail, light rail, vanpool, ferry—major differences in the fundamental operations are apparent. Although some data and data definitions have broad applicability across the various modes, other data items do not.

Since the last restructuring of the NTD, implemented in the early 1990s, there has been significant growth in the number of commuter rail and demand-response systems. With the increased number of agencies reporting these modes, there is more rationale for tailoring data to the nature of each mode.



For example, commuter rail operators indicated that the required detail in the reporting of operators' wages and hours does not reflect the work rules associated with commuter rail operations. As a result, these data are estimated with varying levels of refinement.

Even within a defined mode, significant service variations may exist that would call for even further refining of definitions and reporting requirements.

APTA's Access Committee formed a paratransit data task force to identify and address key issues in collecting and reporting data on paratransit operations. Central to the recommendations of this group is the need to separate the reporting of paratransit services for operations using dedicated vehicles and operations using nondedicated vehicles (taxis). The fundamental differences in these services necessitate separate reporting and developing appropriate definitions reflecting the service.

System Characteristics

The NTD does not provide sufficient descriptive information to understand all of the data reported within NTD. Additional descriptive data is necessary to understand the context of agency operations and/or the service environment.

Current Reporting Requirements

The NTD currently collects some information on the type of organization reporting; further, information is collected on relevant contractual relationships in those cases in which a reporter purchases service, including the following:

- **Description of the demand response service provider:** Social service agency, taxicab operator, brokerage system, user-side subsidy program, other
- **Monetary nature of contractual relationship:** Cash reimbursement of some of the seller's operating deficit, cash reimbursement of all of the seller's operating deficit, cash payment to the seller for specific mass transportation services, cash reimbursement to the seller for reduced fare programs, and vehicles given, sold, loaned, or leased for below-market value to seller

Issues

In order to make meaningful peer comparisons, data users need to understand the operating environment and service characteristics of the agencies reporting NTD data. As noted above, climate and work rule provisions are important, as is the service profile (peak-to-base ratio and average speed).



The need for background information to understand the data is particularly important when looking at purchased transportation. The extent of the transit agency's responsibilities in providing rolling stock, maintenance facilities, maintenance, street supervision, planning, scheduling, and marketing cannot be ascertained through the NTD. Additionally, the NTD no longer captures information on the disposition of fare revenues for purchased transportation.

The NTD does not provide explanatory information on other services that the transit agency may purchase. Operating cost data is provided for services, but information on the service being purchased is not provided. When analyzing cost information and looking at cost efficiency measures, it is necessary to understand the nature and extent of the services being purchased.

A key characteristic affecting system operational as well as financial data is how a transit agency ensures the security of its patrons, employees, and property. NTD collects data from transit agencies of varying sizes and with varying levels of direct responsibility for providing security services. Data is collected from transit agencies with one- or two-person security departments, larger security departments without sworn police officers, and transit police departments with sworn officers.

Transit agency police departments tend to be an effective, though costly option—one that typically results in higher numbers of arrests, more reliable security data, and higher personnel and supporting overhead costs when compared to other alternatives. Combinations of sworn transit police officers and non-sworn transit security staff are often used in conjunction with local law enforcement agencies. Consequently, legal authority for law enforcement and the ability to acquire data varies from agency to agency.

One of the more difficult issues for transit crime data collection via the NTD is the diversity in volume and level of detail of the crime and security data collected by transit agencies. Transit agencies with dedicated police departments tend to collect more data that generally conforms to FBI guidelines. Transit agencies that depend on local police departments to provide security generally receive more detail on violent or other serious crimes.

Similarly, accident and other safety concerns are affected dramatically by service and system characteristics. For example, fewer slips, trips, and falls typically occur during boarding and alighting of low floor buses (among all passengers) than conventional buses. Several measures exist within the NTD to provide a guide to interpretation of data. The collection of additional, specific and measurable fleet and facility characteristics would improve the utility of data currently collected.

Purchased Transportation

Under the current NTD requirements, reporting purchased transportation is convoluted and does not completely or accurately represent the transit agency's service.

Current Reporting Requirements

Currently, financial and operating data for purchased transportation services are reported differently on the basis of the number of total vehicles operated by the purchased transportation provider under the contract:

- **The purchased transportation seller operates fewer than 100 vehicles across all modes and all contracts.** The transit agency purchasing the service reports data for the purchased transportation service as part of its NTD report. The transit agency reports its capital funding and uses of capital and its operating expenses related to the purchased transportation service on separate forms as part of its NTD submission. Operating expenses for the purchased service include the contract amount and the transit agency's costs associated with administering the contract. The transit agency reports its operating funding in total and does not separate operating funding by type of service. The transit agency purchasing the service reports the operating data for the purchased transportation service on separate forms as part of its NTD submission.
- **The purchased transportation seller operates 100 or more vehicles across all modes and all contracts.** The transit agency purchasing the service reports its capital funding and uses of capital and operating expenses related to the purchased transportation service on separate forms as part of its NTD submission. The transit agency's operating expenses for the purchased service include the contract amount and the transit agency's costs associated with administering the contract. The transit agency reports its operating funding, including purchased transportation fare revenues. The seller of the purchased transportation service must submit a separate, complete NTD report with all financial and operating data.

Issues

In the 1998 database, 31 transit authorities reported purchased transportation costs for services provided by purchased transportation sellers submitting separate complete reports. This included 17 motor bus operations, 19 demand response operations, three vanpool operations, and one commuter rail system.

Many issues stem from the current NTD reporting requirements for purchased transportation services. Both the transit agencies purchasing the service and purchased transportation sellers relate significant dissatisfaction with current reporting procedures. The major issues focus on three concepts:



- The difference in reporting requirements based on the 100-vehicle threshold
- The separation of reporting by type of service (directly operated and purchased transportation)
- The need for additional descriptive information on the contract

Reporting Threshold

The 100-vehicle threshold, which determines the reporting requirements, is arbitrary. Transit agencies purchasing service and the sellers providing service with 100 or more vehicles would like to eliminate this distinction and have the transit agency purchasing the service report all of the service.

Further, transit agencies have concerns about the quality of data reported by the sellers, particularly the operating cost data. Transit agencies expressed confidence in the total financial data reported by the purchased service sellers, but were concerned that the detailed data required at the function and object-class level was generally less accurate. Although transit agencies are not generally involved in developing the data and do not review the data before submission to FTA, transit agencies have a vested interest in their purchased transportation providers' submission of complete, accurate NTD reports to FTA. FTA must accept the purchased transportation providers' NTD submissions in order for the transit agency to remain eligible for federal funding.

Another important concern for the sellers of purchased transportation service who are required to submit separate complete NTD reports is the impact that disclosure of their actual operating costs may have on their competitive position.

Reporting by Type of Service

Under the current system, all operating data is reported separately by type of service. Transit agencies reporting the purchased transportation service as part of their submission must provide separate forms for the directly operated service and the purchased service. Transit agencies indicated that this separation of service is meaningless and presents a fragmented picture of their overall systems. Transit agencies focus on the transit system.

From the perspective of the transit customer, the distinction between service operated by the transit agency and service contracted for is irrelevant. Transit agencies hold contractors to the same service standards they require for their own directly operated service. In some cases, all of the service provided by the transit agency is purchased.

The requirement for separate reporting was developed in the late 1970s, when competitive contracting was less prevalent and before FTA policy required transit agencies to formally assess the benefits of competitive contracting before expanding services. Competitive contracting is now a routine part of

transit management (and the federal mandate for considering competitive contracting relaxed). Transit managers generally recognize contracting as a useful tool for cost containment.

The ability to compare directly operated service with service provided under a contract is important to the transit industry. Both transit agencies and researchers need quality data for comparison purposes. However, the current NTD reporting system does not provide the data needed for meaningful comparisons. Transit agencies do not use the NTD to analyze the potential cost savings or service impacts associated with contracting for service.

Descriptive Information

The NTD does not provide sufficient information on the nature of the purchased service contract to allow for meaningful comparisons. The NTD does not capture key information necessary to understand the cost of the service. The functions the contractors provide significantly vary among transit agencies. Although the “basic” transportation and maintenance functions (e.g., providing operators and mechanics, fuel, and parts) are included in most contracts, in some cases the transit agency provides vehicles, maintenance facilities, radios, fareboxes, street supervision, training, scheduling, and marketing services. The NTD does not indicate these important factors. Further, the NTD does not indicate the disposition of fare revenues, which impacts the cost of the purchased service.

Passenger Mile Data

The reporting of passenger miles supports a number of federal purposes. However, passenger mile data is difficult and expensive for transit agencies to collect. It is perhaps the most burdensome of the NTD reporting requirements.

Uses of Passenger Mile Data

Passenger miles is a fundamental measure of the quantity of transit service consumed and is critical in assessing the effectiveness of the nation’s transit systems and the application of limited public resources. Passenger miles capture the essential function of mass transit—moving people across space.

The reporting of passenger miles overcomes several limitations in the other measure of service consumption, unlinked trips, by addressing the average trip length. Longer trips require more transit service (more vehicles, more vehicle miles and hours, more route-miles and stations) than shorter trips.

As a more representative measure of transit service consumption, passenger mile data is used as one component in the apportionment of Urbanized Area Formula Funds (Section 5307). The incentive tier is allocated on the basis of passenger miles (a measure of service consumed) times passenger miles divided by operating cost (a measure of effectiveness or cost per unit of service consumed).

Collection of Passenger Mile Data

Generally, transit agencies apply one of the following three methods to measure passenger miles:

- **Sampling to measure unlinked trips and passenger miles:** A sample across all routes and all days of the week throughout the year yields both an estimate of annual unlinked trips and average trip length. The estimate of annual passenger miles is computed by multiplying the sample-based estimate of annual unlinked trips by the sample-based estimate of average trip length.
- **Direct measurement of unlinked trips and sampling to measure average trip length:** Unlinked trips is measured through direct counts at the farebox and through sample-based estimates of pass and other non-cash fare media, and average trip length is measured through a sample. The estimate of annual passenger miles is computed by multiplying the direct measurement of annual unlinked trips times the sample-based estimate of average trip length. This is the most common method for bus operations.
- **Direct measurement of passenger miles:** For paratransit operators that apply automated dispatch systems that track the revenue mileage for all passenger trips, FTA is issuing guidance that will allow this 100 percent count information to be reported as the value of paratransit passenger miles. For faregate-controlled transit agencies (currently limited to a small number of rapid transit systems that record entry and exit station of each passenger), a direct measurement of passenger miles is possible without the need for sampling.

When sampling is used by the agencies to determine passenger miles, the methodology must meet FTA's sampling requirements. Transit agencies must use one of the FTA-approved sampling methods or an alternate sampling method developed or approved by a qualified statistician.

FTA currently requires transit agencies to sample for unlinked trips (passengers) and passenger miles according to frequencies established on the basis of urbanized area size and number of vehicles operated in maximum service.

Mandatory Passenger-Mile Sampling Frequency

Annual Urbanized Area (UZA) population of 500,000 or more and 100 or more directly operated vehicles in annual maximum service

Every 3rd Year:

- UZA population of 500,000 or more with less than 100 directly operated vehicles in annual maximum service

- UZA population between 200,000 and with any number of directly operated vehicles in annual maximum service

Every 5th Year: UZA population less than 200,000 with any number of directly operated vehicles in annual maximum service

In mandatory sampling years, transit agencies must sample or collect 100 percent counts of passenger miles. In intermediate years, transit agencies may report passenger mile data in one of three ways:



- Use the mandatory year data for both unlinked passenger trips and passenger miles
- Estimate passenger mile data using the average trip length from the mandatory year times the unlinked passenger trips (100 percent count or re-sampled) from the report year
- Continue sampling

Issues

The collection of passenger mile data can be both difficult and expensive for transit agencies that must sample. Sampling may require as much as one person-year per mode (the typical sample size is approximately two observations per day per mode). In addition, there is the cost for statisticians to develop the sampling plan and to process the sample results into an annual estimate of passenger miles. Many agencies have indicated that the expense associated with collecting passenger mile data meeting FTA sampling requirements may exceed the financial benefit of the Section 5307 incentive tier funding. Transit agencies in urbanized areas less than 200,000 do not receive the benefit of the incentive tier funding.

Significant resources are being expended in a measurement that is of limited usefulness to transit agency management. The minimum passenger mile sample requirement is too thin to be applied except at the systemwide level, yet service planning decisions are typically at the route level (and often, by time of day and day of week). Further, the measure of average trip length typically does not materially change from year to year, absent significant changes in level of service, service pattern, or extension of lines.

Service Quality

The NTD does not provide data useful for assessing transit service quality beyond the simple measure of mechanical reliability. Although no broad consensus exists in the transit industry on what these measures should be, they generally include customer service measures and mobility measures.

Customer service measures address the service experienced by persons using the service and include:

- **On-time performance:** One of the barriers to expanding transit ridership is the perception of poor on-time performance. A comprehensive measurement of this statistic could reveal where additional funding and support to transit agencies might be appropriate. This could include assistance in scheduling, communications, and street supervision.
- **Mechanical reliability:** This could include an expansion of the measurement currently reported, perhaps addressing concerns about the difficulty in reporting transit agency experience in a manner consistent with the FTA definition.

The only direct measure of service quality in the NTD is mechanical reliability expressed as maintenance-related interruptions of service. Derived measures of miles per roadcall can give a limited picture of service reliability, although this measure is limited by definitional problems. Further, it does not address other potential delays in service.

Beyond these considerations is the concern that aggregate systemwide measures of service quality can only give broad indications of how management action affects quality of service. Often, it is route-level information (or even a finer level of detail—by route segment, by time of day) that really provides managers with the information they need to improve service quality. From this perspective, the limited, aggregate, annual (and somewhat untimely) information in the NTD is of little or no value to transit managers in addressing service quality.

Mobility measures address overall access to the transit service and are intended to address the concern of current passengers as well as those not presently using the transit service. They include measures of:

- **Coverage:** This could include the service area within a prescribed distance of routes and stations.
- **Headway:** This could include the percent of route-miles or vehicle-miles with service frequency of less than a prescribed threshold.

FTA has conducted one study that could be applied in a periodic manner every second or third year to advance such reporting and analysis. FTA recently assembled from every transit agency in the nation a set of route maps and schedules and prepared a geographic information system (GIS)-based transit database. This database, periodically updated with current maps and schedule, could be applied to census information to develop a consistently defined assessment of the mobility measures defined earlier.

Demographic and Transit Level of Service Data

The NTD provides limited data for FTA to assess environmental justice in the level of transit service provided. Further, NTD does not provide data useful for supporting livable communities programs. Other sources of data are necessary to meet these needs.

Environmental Justice

A Presidential Executive Order, signed on February 11, 1994, requires that each federal agency “*shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority populations and low-income populations.*” This requirement builds on similar requirements set forth in Title VI of the Civil Rights Act and the National Environmental Policy Act.



Consequently, environmental justice is included in FTA's mobility and accessibility goal in the Strategic Plan. The goal addresses the need to implement a transportation system that is accessible, integrated, efficient, and offers flexibility of choices.

Specific measures of goal attainment include:

- Increase the urban population within 3/4 mile of transit service
- Increase the amount of transit service, measured in terms of total revenue vehicle-hours

Therefore, FTA needs reliable and consistently defined measures of transit service area and population within the service area at a level of detail (e.g., census tract) that can be applied to measure population within a specified distance of a transit route.

These measurements will support FTA in designing programs and evaluating the effectiveness of initiatives related to the coordination of land use and transportation planning, the planning for and evaluation and selection among alternatives of major transportation projects, and the identification of transit needs of welfare recipients entering the work force.

Livable Communities

The fourth goal in FTA's strategic plan is to protect and enhance communities and the natural environment affected by transit. Success in achieving this goal will be measured, in part, by the extent to which sustainability and livability of communities are improved through investments in transportation facilities.

Therefore, FTA needs reliable and consistently defined measures of the following:

- Number of people having access to high quality transit (which exists when people live within 1/4 mile of service with a frequency of 15 minutes or less)
- Vehicle revenue hours providing service with a frequency of 15 minutes or less

Geographic Information System-Based Data Requirements

FTA uses NTD data to address livable communities and environmental justice concerns, including service area and population of service area (consistent with ADA definitions) and annual vehicle revenue miles and revenue hours. However, this NTD data does not address the full range of livable communities and environmental justice issues. FTA relies on other sources for this information.



FTA has recently completed the assembly and analysis of a comprehensive set of transit route maps and schedules for all of the transit agencies in the U.S. This information was applied utilizing geographic information system (GIS) software that permitted the integration of U.S. Census data at the census tract level. This effort enabled FTA to analyze, on a consistent basis, measures of mobility, access to employment, and other measures addressing livable communities and environmental justice.

FTA has the ability, if sufficient funding is appropriated, to periodically update this comprehensive database and provide continuing analyses of these important measures. With the availability of 2000 Census data in 2002, FTA will be able to extend this type of analysis to address the significant trends in increasing suburbanization, urban sprawl, expansion of the reverse commute travel market, and the effectiveness of welfare-to-work strategies.

Rural Transit Data

Rural transit plays a significant role in the nation’s transportation system. Yet, there is no existing mechanism for routine collection of uniform data on rural transit.

Role of Rural Transit

An FTA-funded survey of rural transit found that rural public transit systems served 1,889 counties in 1998, approximately 60 percent of U.S. counties with some non-urban population. The survey estimated that the rural transit industry encompassed 1,215 systems with a fleet of almost 15,000 vehicles. The survey estimated that 289.4 million miles of service were provided and 139 million passengers were carried.

The survey results show a substantial increase in rural transit service, in the number of systems providing rural service, the number of vehicles operated, and the number of trips provided.

Average Characteristics	1994	1998	Percent Change
Fleet Size	11	15	33.5%
Annual Ridership	82,196	147,146	79.0%
Annual Budget	\$315,000	\$488,040	54.9%
Annual Trips/ Vehicle	7,875	9,671	22.8%
Cost per Trip	\$7.00	\$6.31	-9.8%

Source: 5311 Directory

TEA-21 provides a significant increase in federal funding for rural transit. FTA is encouraging the states to use the increased funding to expand coverage and level of rural transit service.

As rural transit service grows, some of the rural transit providers are taking on more of the operating characteristics of the urbanized area systems. Many systems have evolved from coordinated human



service transportation providers to consolidated transportation providers serving the general public and social service agency clients. The searchable directory of Non-Urbanized Area Program (Section 5311) subrecipients available on the National Transit Resource Center shows 20 rural transit properties operating more than 75 vehicles in 1997 and 1998. Two systems, Polk County Transportation System in Florida and OATS, Inc., the Missouri statewide rural transportation system, operated more than 200 vehicles.

State Collection of Rural Transit Data

Most states collect some financial and operating data from the rural transit providers that they fund with federal and/or state transit funds to manage their programs. FTA apportions Section 5311 funds to the states, which in turn select rural transit capital and operating projects for funding based on their own selection process and criteria.

States collect data through the application process and through the periodic reporting requirements that they establish. At the application stage, most states require data on capital and operating sources of funding and operating budget data. Many states also require an inventory of vehicles. This information assists the states to select projects for funding on the basis of equipment needs and ability to fund the local share of project equipment and its operation and maintenance.

Most states also require the rural transit providers to submit periodic financial and operating data, often in connection with their request for reimbursing project expenses. For example, most states request information on vehicle miles and hours of service and passenger trips. Some states request data for each vehicle, while others request aggregate system data.

In 1986, DOT and the U.S. Department of Health and Human Services funded the Transportation Accounting Consortium (TAC), a voluntary alliance of eight states to address financial management concerns for rural and specialized transportation systems. The TAC comprised representatives from Arkansas, Colorado, Florida, Iowa, Massachusetts, Michigan, North Carolina, and South Carolina. The TAC recommended that rural and specialized providers adopt a uniform approach to accounting and urge their states to provide leadership in support of uniform accounting and reporting practices. The TAC developed a chart of accounts on the basis of the NTD (then Section 15) system required for transit agencies receiving urbanized area funds (then Section 5), but modified to address the needs of providers as well as the human service agencies purchasing rides. The TAC report, *Rural Transportation Accounting*, outlines the model accounting structure as well as ridership and other operational data for analyzing transit system performance.

Some states adopted aspects of the proposed uniform accounting system, and some of the concepts are still in practice today. More recently, the Multi-State Technical Assistance Project (MTAP), a peer group



of state transit program administrators, developed a financial management training package based on the TAC report. This project is now being incorporated into training provided through the Rural Transportation Assistance Program (RTAP) by the Community Transportation Association of America (CTAA).

National Data on Rural Transit

Despite the efforts by some states and the coordination by USDOT, AASHTO, and CTAA, there is no comprehensive national database of rural transportation financial and operating data. Reporting financial and operating data through the NTD is required for transit operators in urbanized areas receiving Urbanized Area Program Formula funds (Section 5307). FTA does not impose a financial and operating data reporting requirement on states administering the Non-urbanized Area Formula funds (Section 5311), nor does it impose reporting requirements directly on rural transit providers receiving these funds through the states.

Several organizations, including FTA, do collect some information on rural transit on an ad hoc basis.

FTA has sponsored a survey of rural transit through the national RTAP every 4 to 5 years. The survey is funded through the RTAP and has historically been conducted by the CTAA, although in 1998 the inventory was collected by the Institute for Economic and Social Measurement, Inc. First, available data is collected from the states and supplemented as necessary by contacts with operators. Then, a more detailed survey is distributed to a stratified random sample of providers. CTAA is currently conducting data validation and analysis for the detailed survey collected in 1999. The survey has generally been made available in a published directory of rural public transportation providers (Section 5311 subrecipients) and specialized transportation providers (Section 5310 subrecipients). The 1998 data is available online in a searchable database format through the RTAP funded National Transit Resource Center, operated by CTAA. The data can also be downloaded for further analysis.

AASHTO annually requests data from the states on funding levels for public transportation, (urbanized area, non-urbanized area, and service for the elderly and persons with disabilities). The AASHTO Standing Committee on Public Transportation manages the survey and produces a report, *Survey of State Involvement in Public Transportation*.

Although the survey focuses on funding for public transportation, limited operational data is also requested: peak vehicles, annual revenue vehicle miles, annual revenue passengers, and annual unlinked trips. The survey collects state-level data, not transit agency-level data. Forty states provided data for the 1997 report, the most recently published data.

3.3 Safety and Security Data

Issues

The NTD must satisfy numerous users, support federal recommendations, and guide current and future legislative initiatives. The information contained in the NTD also must support national and local efforts to monitor and continually improve transit safety and security; serve transit safety and security research requirements; and provide key measures to assess DOT's strategic goals. For these reasons, any weaknesses in the database must be addressed so that the NTD can provide the most timely, relevant, and quality safety and security information possible.

The following issues exist with the safety and security data:

- Lack of comprehensive information accident causes
- The need for more uniform reporting of accidents and incidents, including consistency in defining the terminology
- The need for more timely data to better respond to safety and security issues and specific problems
- Inaccurate and incomplete reporting
- The use of incomplete and inconsistent measures of risk exposure
- Lack of data on rural transit safety or security

Collection of Causal Data

FTA needs more inclusive data on accident and incident contributing factors. The purpose of reporting causal data is to provide information on hazards in the nation's transit infrastructure and operations. The collection of such information will enable FTA to identify the reasons for transit accidents, leading to the identification of safety deficiencies and their ultimate resolution. In this way, FTA can more effectively work toward its goal of eliminating transit-related deaths, injuries, and property damage.

Analyzing NTD information alone is inadequate to determine accident causes. NTD data is of limited value and can be used only to identify numeric trends in transit accident history rather than answering the more important question: "Why are accidents occurring?" Without causal accident data, safety deficiencies cannot be identified. An in-depth analysis of the causes and risk factors associated with transit system accidents to determine the safety of transit modes cannot be conducted with current NTD data. Further, FTA has no other centralized database to capture these statistics.

Uniform Data Reporting

Safety statistics among transportation modes (e.g., transit, air, highway, marine) are difficult to compare because of inconsistent definitions and reporting criteria. For example, thresholds for reporting injury severity are not uniform in federal, state, and local reporting standards and in bus versus rail accidents. Inconsistent information about injuries complicates cross-modal analysis. Definitions of what constitutes an accident or even a fatality vary among different FTA programs. For example, FTA's program for the oversight of rail transit systems (49 CFR Part 659) incorporates a \$100,000 threshold for the reportability of accidents (including damage to *any* property). The NTD utilizes a \$1,000 threshold, which encompasses *transit* property damage only. Finally, FTA's programs to address drug and alcohol-related accidents (49 CFR Part 653 and 654) do not use any *monetary* threshold in defining the term 'accident' but are oriented instead towards the removal of vehicles from service. Stakeholders interviewed in the transit industry emphasize the need for consistent definitions to conform to a single standard to enhance comparability of data.

Comparability also is desirable to understanding the relative safety differences among transit modes (e.g., light rail, heavy rail, motor bus, and ferry) and between transit modes and other modes of transportation (e.g., air, motor carrier, railroads, and pipeline). Comparability is difficult to achieve, however, since definitions of even the most basic concepts vary among various modes of transportation. For example, the seemingly basic concept of what constitutes a transportation-related death has numerous definitions within FTA and DOT, in general. Under all FTA definitions, a fatality results when a victim dies within 30 days of an accident. FAA has defined a fatal injury as one occurring within seven days of an accident. FRA's definition, in contrast, specifies that the death must occur within 365 days, while no time window is specified in the definition applicable to the pipeline industry. This inconsistency hampers the performance of analyses of the data produced and collected by these various modes of transportation. By performing this NTD assessment with a primary goal of achieving data and definition consistency, FTA is taking a leading role in the ongoing DOT effort to achieve cross-modal consistency.¹

Timely Data

Differences in federal and local agency fiscal years, the receipt of late reports from grantees, and the time required to verify, compile, and analyze data create an unacceptable delay in the publication of NTD composite safety and security data. Safety and security information must be available directly to ensure that problems—in the case of safety, problems with potentially catastrophic consequences—are identified and addressed immediately. In the case of security data, the ongoing collection of data will ensure that compilation of statistics can be accomplished within months; currently, data is available from FTA approximately 18 months after the end of the calendar year. By the time the information distributed to the industry, crime rates may or may not represent current conditions.

More Accurate Reporting

NTD should present transit fatality, injury, offense, and arrest information in a clearer, more easy-to-understand format, distinguishing passengers from employees and other people, and transportation safety incidents (e.g., collisions and derailments) from incidents not related to safety (i.e., security incidents, such as homicides). Definitions and examples must clearly delineate how data is to be categorized within the framework of the revised Form 405.

Greater standardization of basic measures of loss across all transit modes and all transportation modes will help to achieve consistent and accurate reporting. Common injury and accident reporting thresholds; clear descriptions of how to calculate injuries to employees, operators, pedestrians, trespassers, and other people not in a vehicle; and examples illustrating how to avoid double-counting in collecting statistics (e.g., multi-modal incidents) will enhance reliability and accuracy of information.

Risk Exposure Information

Safety and security data are of two types: outcome data, such as numbers of accidents, fatalities, injuries, and offenses; and exposure data, typically expressed as vehicle-miles, passenger miles, or unlinked passenger trips. When analyzing accident or security statistics, it is necessary to provide some context for the interpretation of these statistics to understand the degree to which individuals and/or property are exposed to particular safety risks.

In certain cases, however, new exposure measures must be collected by NTD in order to provide a meaningful method of performing analysis. More accurate, comprehensive, and consistent measures of risk exposure could help the understanding of the relative importance of factors contributing to transit accidents and to improve the analysis of safety trends. Examples of such measures include the numbers of low floor buses elevators and escalators employed by the agency. Similarly, transit agencies, internally, do not have a common means of reporting crime (and crime exposure), which inhibits their ability to perform benchmarking against other systems.

It must be noted that the collection of safety and security data on a calendar year basis (detailed in the following chapter) versus the collection of most exposure (operational) measures on a fiscal year basis creates a potential data issue. This issue will be addressed in Phase II of this study.

3.4 Timeliness of Data

This section addresses two major issues with the timeliness of NTD data:

- General timeliness of information available in the database
- Timeliness of data needed to support GPRA reporting requirements

General Timeliness of Information Available in the Database

Timeliness of the data has consistently been one of the major criticisms of the NTD.

Transit agencies report NTD data for their fiscal year and submit the annual NTD report to FTA within 120 days of the end of their fiscal year.

Fiscal Year End	Report Due Date	Number of Reporters
June 30	October 28	301
September 30	January 28	96
December 31	April 30	183

The 120-day timeframe is designed to allow sufficient time after the end of the transit agency's fiscal year to close their financial accounts, have the financial data audited, prepare the NTD report for submission to FTA and have the required non-financial data certified by an independent accountant.

FTA apportions urbanized area formula funding for transit agencies in urban areas with populations more than 200,000 based on a formula incorporating data elements provided through the NTD: vehicle revenue miles, fixed guideway directional route miles, operating expenses and passenger miles. To ensure data accuracy, FTA requires that all financial data be audited. In addition, the operating data that is used in the apportionment formula is subject to review by the independent auditor who must perform agreed upon procedures and certify that the data are accumulated and reported in accordance with FTA requirements. FTA grants an automatic extension of 15 days with no questions asked. After the data is submitted, FTA conducts an extensive validation effort focusing on mathematical accuracy, internal consistency of the reported data, magnitude of changes from the prior year's data, and consistency with industry average ranges for key statistics. Generally, FTA completes the validation and database production process by the fall. For the earliest reporters, transit agencies with fiscal years ending on June 30, this means that the publication of the NTD occurs approximately 17 months after the fiscal year end.

FTA has implemented major initiatives to make the data available sooner. With implementation of diskette reporting, FTA reduced the time it took to validate and process the data submissions. FTA made



the database available on the NTD web page, further reducing the time required to publish and access the data. The 1998 NTD was made available on the web in November 1999.

FTA is implementing a significant enhancement to the NTD system for FY 2000 reporting. Reporters will submit their reports using a Windows-based system via the Internet. Through its interactive capability, transit properties and NTD validation analysts will be able to correspond more quickly. This should further streamline the process and speed the availability of the database for analysis.

Timeliness of Data Needed to Support GPRA Reporting Requirements

In accordance with the requirements of GPRA, the U.S. DOT must prepare and submit a report to Congress annually by March 31 on its performance in achieving strategic goals, as set forth in DOT's strategic plan.

Each modal administration within DOT established strategic goals to support the Department's overall strategic goals. FTA developed a series of outcome objectives for each of its five strategic goals, and further identified specific goals and performance indicators to assess its progress toward achievement of goals.

FTA developed a short-term strategy for reporting the data elements required for the first *DOT Performance Report to Congress*. The FTA administrator indicated that the strategy was not to be used over the long term to meet the annual performance reporting requirement, but would provide the data required for the initial report while FTA implemented changes in the NTD to produce more timely and responsive data.

For the 1999 data, FTA used unvalidated NTD data for those submittals in the first two reporting periods (fiscal years ended by September 30 with reports submitted to FTA by January 28 (approximately 68 percent of the reporters). The last group of reporters (approximately 32 percent) includes some of the largest agencies (including those in New York City, Chicago, Seattle, Cleveland, Denver, Cincinnati, New Orleans, Salt Lake City, and Minneapolis) and represents a significant amount of transit service. FTA requested that these reporters submit the data early and extrapolated the other data. Thus, submission reflected about 85 to 90 percent actual data; the balance was estimated.

1999 GPRA Reporting

Current data elements from NTD:

- Fatalities, injuries, and incidents
- Revenue vehicle hours
- Passenger miles
- Boardings/unlinked passenger trips
- Revenue vehicle miles
- Bus fleet accessibility

Data elements from other sources:

- Bus fleet conditions
- Livable Communities/GIS
- Key station accessibility
- Job Access



¹ Bureau of Transportation Statistics, *Transportation Statistics Annual Report 1994* (Washington, D.C., 1995), p. 184.

4. RECOMMENDATIONS

The following recommendations are made to improve the usefulness of NTD data for the diversity of stakeholders and to decrease the burden on transit agencies reporting under NTD:

- Use current-year NTD data to support FTA performance reporting
- Enhance NTD safety and security data reporting
- Implement enhanced reporting of capital assets
- Tailor reporting requirements to specific characteristics of each mode
- Consolidate reporting of directly operated and purchased transportation services
- Provide a mechanism for reporting system descriptive information
- Improve Internet-based reporting
- Reduce reporting burden
- Explore state-based reporting of selected NTD data elements for rural transit providers

4.1 Use Current-Year NTD Data to Support FTA Performance Reporting

FTA should establish a formal methodology for obtaining NTD data needed to support its performance reporting to Congress in accordance with GPRA.

The intent of GPRA is for government agencies to report progress toward their established performance goals annually on March 31. The current NTD reporting cycle, however, does not provide complete, certified, and validated data in a timeframe consistent with FTA's reporting requirements under GPRA.

GPRA Reporting Elements Derived from the NTD

- Fatalities, injuries, and incidents
- Revenue vehicle hours
- Passenger miles
- Boardings/unlinked passenger trips
- Revenue vehicle miles
- Bus fleet accessibility

For its initial report to Congress, FTA implemented a short-term solution for estimating NTD data on a calendar year basis, using (1) actual transit agency data submitted in 1999 NTD reports, (2) preliminary data received in response to FTA's request to the nation's largest transit properties, and (3) estimates for other transit agencies.

Although this approach worked well for the initial performance report to Congress, FTA is committed to develop and implement a process for obtaining more timely and responsive data through the NTD.

Three recommendations are made to address the major issues identified with GPRA reporting:

- Retain the current NTD reporting period
- Require preliminary data from some transit agencies to meet the GPRA reporting schedule
- Do not expand the NTD to incorporate other data elements for GPRA reporting

Each of these recommendations is discussed in further detail below.

Retain the Current NTD Reporting Period

The current NTD reporting period, unlike the GPRA reporting period, is based on transit agencies' fiscal years rather than the calendar year. It is not recommended, however, that FTA change the current NTD reporting period to provide for calendar year data for a number of reasons.

NTD data is used to apportion billions of federal dollars annually; it is imperative, therefore, that accurate data is compiled to support this effort. Consequently, FTA requires an audit of transit agency financial data supplied to NTD. In addition, those operating data supplied to NTD and that are used in the apportionment formula must be certified by an independent auditor and the transit agency's chief executive officer. The requirement for audited financial data precludes changing the NTD reporting period from the transit agencies' fiscal years to calendar years, for which audited data would be unavailable. Further, FTA has no statutory authority to mandate a change in a transit agency's fiscal year to coincide with the calendar year. In some cases, state law determines fiscal year cycles.

Safety-related data in the performance report, however, must be reported on a calendar year basis to ensure consistency among other DOT modes. Transit agencies have indicated a willingness to provide the data on a calendar year basis for this important use. This approach is consistent with the recommendations on reporting safety and security data monthly. Safety data lends itself to ongoing collection.

Require Preliminary Data from Some Transit Agencies to Meet the GPRA Reporting Schedule

To facilitate a consistent and timely process for obtaining data from all NTD reporters by mid-February, FTA should incorporate a new performance summary form within the NTD. This form would be used to collect the key data items that FTA reports as part of the *U.S. Department of Transportation Performance Report to Congress* under GPRA reporting requirements.

The performance summary form would have different implications for transit agencies with different fiscal year ends:

- **June 30 fiscal year end:** About one-half (52 percent) of the reporters are required to submit the NTD report by October 28. For these reporters, the performance summary form should present no additional reporting burden. The data would be submitted to FTA and validated in time for inclusion in the performance report.
- **September 30 fiscal year end:** Another 17 percent of the reporters are required to submit the NTD report by January 28. For these reporters, no additional reporting burden should be incurred. If a reporter in this group receives an extension from FTA, however, the performance summary form would have to be submitted to FTA before submission of the agency's full NTD report. FTA would not validate the data for inclusion in the performance report.
- **December 31 fiscal year end:** The remaining 31 percent of reporters (including systems in some of the largest urbanized areas—New York, Chicago, Seattle, Cleveland, Denver, Cincinnati, New Orleans, Salt Lake City, and Minneapolis) are required to submit the NTD report by April 30. These reporters would be required to submit the performance summary form with preliminary data to FTA by January 30. The reporters would not certify the data, and FTA would not validate the data for inclusion in the performance report.

FTA should require submission of the performance summary form by the end of January. The data on the performance summary form would be unaudited and uncertified. In some cases, and in particular for transit agencies with fiscal years ending December 31, the data would be preliminary and subject to change while the agency's data collection and processing for the fiscal year are completed. Because the performance summary data is not financial, preliminary data is not likely to change significantly.

Transit agencies recognize the importance of providing this data to FTA for reporting to Congress and anticipate minimal additional reporting burden in providing preliminary data for the seven GPRA reporting elements before annual NTD submission.

Do Not Expand the NTD to Incorporate Other Data Elements for GPRA Reporting

At this time, it is recommended that FTA use alternative sources to collect the other data elements that were included in the performance report for 2000—vehicle condition, livable communities, key station accessibility, and job access. The NTD has established high standards of quality for reporting because it is essential for various federal activities. Implementing a data collection process for these other GPRA-required data at this same level of quality would place undue financial burden on transit agencies.

4.2 Enhance NTD Safety and Security Data Reporting

FTA recommends the following major improvements to safety and security data collection in the NTD system:

- Collect causal data on accidents
- Provide clear, consistent definitions and data standards
- Improve the timeliness of reporting
- Supply contextual information to assist in interpreting safety data
- Improve data accuracy

Collect Causal Data on Accidents

FTA recommends including data in the NTD about factors contributing to accidents and incidents. Other DOT organizations, such as FRA, the U.S. Coast Guard, and NHTSA collect causal data on accidents. Further, individual transit agencies study accidents and their causes at a local level. In many systems, however, the number of serious accidents annually is extremely low, hampering an agency's ability to perform credible data and trend analyses. Similarly, the lack of causal information reported to FTA means that overall transit industry causal trends cannot be determined at a national level. These trends would be useful in determining safety concerns, prioritizing and directing resources effectively, implementing policy decisions, sharing best practices, and, ultimately, eliminating public transit-related fatalities and minimizing injuries and property damage.

Moreover, for accident contributing factors, programs used in other agencies, such as FRA and NHTSA, should be used as models. A concise list of causal factor categories should be developed for each distinct mode for reporting agencies to use in describing the reasons for major accidents. Only the most relevant information should be required, to limit transit agency vulnerability to litigation, to protect the privacy of persons involved in accidents, and to enhance the free flow of quality data. Further study of legal issues will be performed to address this issue.

Provide Clear, Consistent Definitions and Data Standards

Terminology used in NTD should be clarified to ensure consistency. Existing standards within NTD and from other federal statistical agencies should be used as a starting point to ensure a greater internal consistency among definitions and safety data within FTA and across modes. Developing standard definitions will provide benchmarks against which the quality of current and future safety can be

assessed. From these assessments, countermeasures can be developed that identify needs for change, leading to systems that provide higher quality data.

NTD does not adequately define, and thus collect, key safety measures. For the information to be beneficial to potential users, consistent definitions of terms such as injury, incident, and fatality, and clear definitions of each offense in the security portion of the form, must be developed. For example, incidents are defined according to different levels of property damage. Thresholds for reporting and definitions of important terms must be standardized.

NTD should define two tiers of accidents, with different information required for each. All “major accidents,” including all accidents involving fatalities, should be reported using a more descriptive accident form including categories of causal data such as environmental factors, human factors, and equipment failures. The use of two reporting tiers is not unprecedented within DOT safety programs. NHTSA maintains two reporting systems, for example, with different reporting triggers. Fatal accidents are recorded in the Fatal Accident Reporting System (FARS); a broader range of accidents is classified in NHTSA’s Generalized Estimate System (GES).

FTA must maintain consistent definitions internally, using the same definitions within FTA as in other safety regulations, programs, and initiatives within DOT. NTD must not only maintain consistency with the definitions in FTA’s other programs, but also collect a broader class of data from which statistically significant conclusions and comparisons can be drawn.

The two-tiered approach would balance the need for internal definitional consistency (“more severe” accidents would map to current and future Rail Fixed Guideway State Safety Oversight definitions in 49 CFR Part 659), with the requirement for adequate safety reporting. By retaining a class of “less severe” accidents, similar to the current NTD threshold for reporting, the depth of statistical information now in the database can be maintained.

Improve the Timeliness of Reporting

To enhance the timeliness of data collection, data compilation, and design of countermeasures, monthly reporting to NTD is recommended. In this way, validation and other procedures can be performed incrementally throughout the year, rather than once per year at the same time as validation is being performed on other data. This will enable more timely generation of an annual final report. Reports should be submitted to FTA within 30 calendar days after the close of the previous month. Modification of information previously submitted should be provided to NTD as investigations reveal further details on accidents.

Factual information on the most serious transit accidents is needed promptly at a federal level to provide answers for various congressional, executive, and other stakeholders requesting details and explanatory information from FTA. The data collection structure, as well as the web-based link to FTA, would enable connectivity between transit agencies and FTA that could be used for this purpose. FTA recommends that reporters be required to notify FTA of all transit fatalities by 9:00 a.m. EST on the workday following an accident. A short form detailing the factual information on the accident would be supplied at that time. Additional deadlines for fatal accidents should be established to prompt updates to known information.

A voluntary reporting system is already in place for transit agencies to report serious accidents (resulting in a fatality or injuries). This program is coordinated by the DOT National Response Center (NRC), operated by the U.S. Coast Guard and electronically disseminated to FTA as part of the National Response System. Because the program is voluntary with no fixed timeframe for reporting, the potential exists for FTA and its regional offices to be inconsistently informed of factual information on serious accidents.

Supply Contextual Information to Assist in Interpreting Safety Data

External factors, such as equipment usage, system facilities, and quantity and type of service supplied, affect safety and security outcome data. Transit agencies must report contextual information as a means to understand safety and security data and the differences from property to property.

The NTD should include requirements for the collection of new exposure measures to provide more meaningful analyses. More accurate, comprehensive, and consistent measures of risk exposure could help in clarifying the relative importance of factors contributing to transit accidents and those likely to affect crime statistics. Better exposure measures require data not only on the numbers of fatalities, injuries, incidents, and offenses, but also data that indicates the overall level of transportation activity. These measures must be carefully selected such that they are accurately measurable, available to transit agencies, and of greatest use in enhancing the value of outcome data currently collected. Further, definitions must be standardized to ensure consistent reporting of these and other related data items.

Moreover, better exposure measures and incident data are needed for evaluating the risks in other areas, including the following:

- The use of alternative-fuel vehicles
- Transit exposure to rail-grade crossings
- The use of escalators and elevators
- Inventory of lifts and low-floor buses



- The extent of certain property owned or leased by an agency (e.g., parking lots) that is likely to affect crime rates

Information on those injured or killed in transit-related accidents is divided into the following subsets: passengers, employees, and others. A fourth category, trespassers, should be added. A significant number of injuries and fatalities occurring on the nation's transit systems result from persons who have deliberately broken laws or system rules and have consequently placed themselves at a higher risk. Providing this information would establish more complete contextual information to properly interpret safety statistics.

Improve Data Accuracy

NTD redesign should address all known and anticipated issues of under- and over-reporting, provide adequate uniformity in reporting, and ensure the reporting of all data. To enhance data quality, specific changes will be recommended for recording suicides, incidents at rail-grade crossings, incidents involving fires, and accidents on transit-owned versus municipally owned property.

To ensure the highest level of accuracy, the NTD should provide separate formats for different transit modes. Fitting different modal information into the standard Form 405 is ineffective in representing safety and security data of different modes. Interpreting definitions across modes is very difficult, and when agencies are forced to do so, the quality of data becomes suspect.

4.3 Implement Enhanced Reporting of Capital Assets

FTA recommends the development of a new capital assets form within the NTD. This form would summarize the current-dollar investment in transit assets and the condition of those assets. This information would provide a new and enhanced foundation for estimating annual rehabilitation and replacement needs by FTA and the transit industry. The form could provide individual transit agencies and the industry as a whole with important information to establish the magnitude of total rehabilitation and replacement needs. The form could also be used as the foundation for implementing enhanced, state-of-the-art asset management systems by the transit agencies.

A manageable number of asset classes must be developed. The classification could be consistent with the scheme used in FTA's Transit Economic Requirements Model (TERM), with some rollup structure.

For each asset, the following data will be reported:

- The year in which the asset is acquired
- The asset value, which could be determined as book value or replacement cost
- The condition of the asset
- Other optional data, including geographic location (either latitude/longitude or milepost [for fixed guideway assets] and detailed characteristics [e.g., in the case of track—types of subgrade, ballast, ties, fasteners, rail, signal system])

Asset Conditions Applied in Transit Economic Requirements Model

Poor: Continued use presents significant operational and safety problems, replacement required

Substandard: Requires frequent major repair, rehabilitation required

Adequate: Requires frequent minor repairs and infrequent major repairs

Good: In good working order, requires infrequent minor repairs

Excellent: New, no mechanical problems, requires only routine maintenance

This information would be updated annually to reflect asset acquisition and retirement. Assessments of condition would be updated every three to five years. The data would be reported using database software suitable for asset management. The database application would need to be integrated with the recently developed Internet-based reporting system.

Reporting of capital assets should apply to the entire transit agency, with no separate reporting by mode or type of service. The principal use of capital asset data—the projection of capital rehabilitation and replacement costs—is seldom addressed by mode, and distinctions are seldom made between assets used in directly operated services and in purchased services.

Implementation

Implementation of the reporting requirement should be phased in depending on the modes operated and the size of the transit system. Fixed guideway transit systems have the greatest infrastructure funding requirements. These agencies, therefore, should begin reporting on this form at its release, anticipated for the FY 2002 reporting year. A total of 34 transit agencies are involved, including those that operate heavy rail, light rail, commuter rail, automated guideway, cable car, and electric trolley bus services. FTA should provide the revised reporting manual and specialized training for this form early in 2001 so that the transit agencies will be prepared to assemble and report the required data.

For other transit agencies, this form should be implemented in stages from FY 2003 through FY 2005, with the larger properties reporting first.

Assistance to Transit Agencies

Recognizing that most of the dollar-value information resides within the asset systems maintained by transit agencies, FTA should provide technical assistance to transit agencies that may not have the programming and technical resources to reformat and report the asset data into the required format. FTA should research the most common accounting systems used by transit agencies and provide software utilities that can automatically convert the data. Ideally, the software should be downloadable from the NTD web site and FTA should provide training in the application of the conversion software.

In addition, FTA should apply the institutional knowledge and experience of its staff, of transit agencies and of states in the early development of the Passenger Transportation Monitoring System (PTMS), initially developed under the requirements of the Intermodal Transportation Efficiency Act (ISTEA). While full implementation of this transportation management system was not required, FTA and other responsible local and state agencies acquired an expanded understanding of the continuing capital requirements of the industry that could be useful to transit managers in the development of information for this new reporting requirement.

4.4 Tailor Reporting Requirements to Specific Characteristics of Each Mode

The NTD should evolve from its “one size fits all” structure. A major refocusing of the NTD is needed to address the specific data requirements, definitions, data collection mechanisms, and issues associated with different transit services.

In the late 1970s, when the NTD was designed and implemented, fixed-route motorbus service was the predominant mode. The NTD focused on collecting data that was meaningful in the context of motorbus, heavy rail, light rail, and, to a lesser extent, demand-response service. The relevance of specific data items and their definitions for demand-response service has been a concern from the beginning. Initially, commuter rail operators provided only a portion of the full NTD report. As other modes became more common, however, reporting was standardized for all modes.

Report standardization across all modes and types of service has presented numerous problems for reporters. Different transit modes have unique attributes; the collection of detailed information on ferry service, for example, is difficult using forms designed for commuter rail service. Factors that contribute to accidents are highly specific to equipment, environment, and therefore, mode.

A focused effort is needed to identify the differences among modes that affect data validity and usefulness. FTA should work with the transit industry, in small groups or with operator task forces, to



develop the reporting format and definitions for each transit mode. To the extent possible, uniformity should be maintained, but the NTD should recognize and reflect the essential differences among modes.

The APTA Access Committee has formed a data working group to address issues specific to the demand response mode. FTA should work with this group to develop meaningful definitions and collection techniques for demand-response operations for the key NTD data elements.

FTA should facilitate the formation of working groups of transit agency representatives for the other major modes. The transit managers' working group emphasized the need for service providers to have significant input to form redesign and definition clarification/revision to reflect the different modes.

4.5 Consolidate Reporting for Directly Operated and Purchased Transportation Services

The NTD reporting requirements and structure should be revised to consolidate the reporting of directly operated and purchased transportation service by the transit agency. The requirement for a separate and complete NTD report from sellers of purchased transportation services operating more than 100 vehicles across all modes and contracts should be eliminated.

Consolidated reporting would result in a complete picture of the transit agency's service. All costs in operating the transit service and all operational data for the system (directly operated and purchased transportation combined) would be reported by the transit agency.

Consolidated reporting would significantly reduce the reporting burden for both the transit agency and the seller of the transportation service. Consolidated reporting would simplify the reporting of financial data by the transit agency and eliminate the need for sellers of purchased transportation service (if operating more than 100 vehicles across all modes and contracts) to disclose proprietary information on their cost of doing business. The transit agencies would simply report the price they paid for the services.

Financial data would include the transit agency's sources and uses of capital and operating funds. The purchased transportation expenses would reflect the contract price and the transit agency's administrative costs for the purchased service. Fare revenues retained by the contractor would continue to be reported in the same way.

4.6 Provide Mechanism for Reporting Additional Transit System Descriptive Information

FTA should add to the Internet-based reporting system descriptive information on the reporting agency that is not addressed now. “Checkoff” and/or narrative information could be included:

- **Transit agency responsibilities if purchased transportation is provided:** This information could encompass revenue vehicles, radios, fareboxes, maintenance facilities, training for vehicle operators and mechanics, street supervision, planning, scheduling and run-cutting, and marketing services
- **Transit agency responsibility for and deployment of security services:** This added detail would address whether the transit agency has sworn police officers or relies on local law enforcement agencies for patrol, criminal investigation, and crime prevention; whether the transit agencies have additional non-sworn security staff to monitor facilities and perform some police functions; and whether remote surveillance is used on vehicles and at stations
- **Other services:** Information on the nature and extent of other services, such as maintenance services would be included

4.7 Improve Internet-Based NTD Reporting

The NTD program should fully implement and continue to expand the state-of-the-art, web-based reporting and distribution structure initiated in the 2000 reporting year. This expansion would further advance NTD usefulness while significantly reducing the burden placed on reporting agencies. The reporting, editing, validation, management, and distribution of data would be facilitated. This improved reporting would minimize the agency data reporting burden, accelerate the data delivery cycle, and greatly enhance user accessibility to NTD data.

Improvements in Data Reporting

The Internet-based reporting system will alleviate major reporting problems agencies now face:

- **Input errors:** An expanded input error-checking function will reduce the exceptions triggered in the validation process, allowing the transit agencies to discover data discrepancies and either correct the problem before submission or attach a detailed field note describing out-of-range values
- **Non-applicable data elements:** Forms limited to the specific modes and types of service operated by each transit agency should be automatically provided. These forms could be accomplished through an initial online set of questions that each agency would answer when first



using the Internet-based reporting system. For example, agencies that operate commuter rail systems would use a form tailored to commuter operations, instead of trying to adapt the commuter rail data to fit into the transit-focused form

- **Local data storage and data use:** The existing Internet-based reporting system does not enable a transit agency to store data in its own computer system. Instead, data is stored on the server that houses the NTD. Transit agencies should be allowed to save the data entered on the NTD forms locally on hard or floppy disks to ensure minimal data loss if data needs to be regenerated

Another data use issue is the availability of data “saved” by the transit agency before submitting an entire report. Agencies now can upload individual forms to the contractor’s server when they are completed, before submission of the entire report. The availability of this information to FTA and other agencies is a concern, especially if agencies have a fiscal year ending early in the NTD reporting process.

Improvements in Data Access

Improvements in methods for users to extract data from the NTD will significantly reduce the time and effort necessary to apply the data. With a full-function interactive query capability, users could specify which data to extract on the basis of several defined sets of criteria:

- Transit agencies, including specific agencies, agencies meeting user-specified characteristics based on NTD data elements (e.g., more than x peak vehicles), and agencies meeting user-specified characteristics based on measures derived from NTD data elements (e.g., ratio measures, such as average speed)
- Specific NTD data elements (e.g., vehicle operations expense, number of fatalities)
- User-specified measures derived from NTD data elements (e.g., ratio measures)
- Specific modes (e.g., trolley bus, automated guideway)
- Specific types of service (i.e., directly operated and purchased transportation)

The NTD can greatly improve the timely access to the data by making data available before validation is completed, with appropriate disclaimers. The NTD should be able to differentiate data that has been validated and/or audited. The data should also be accessible to users earlier, with full disclosure that the data may not be final.

Seamless Data Transfer in the NTD

The NTD should enable direct input of electronic data from transit agency internal accounting and management computer systems rather than relying on manual entry. Further, the automatic completion of



data from year to year should be standard for data items with little variation, such as Forms 001, 002, 005, 403, and 408.

Expanded Training

Internet- and CD-ROM-based training programs should be developed to ensure that transit agency personnel who generate the NTD report are fully aware of online system functions and are prepared to take full advantage of the online system. This training could form the basis for an NTD reporting certification program.

4.8 Reduce the Reporting Burden

Three NTD forms should be eliminated: Operators' Wages, Fringe Benefits, and Transit Agency Employee forms. In addition, methods of relaxing the requirement for annual measurement of passenger miles should be explored.

Eliminate Operators' Wages Reporting

The Operators' Wages Form collects wages and hours worked by revenue vehicle operators. The breakdown of labor into categories was intended to follow the general structure common to many transit labor contracts and work rules. The form has been simplified greatly since its original design, with elimination of many line items. Knowledgeable researchers in the area of transit labor recognize that the limited summary data remaining is inadequate to analyze operator labor data in detail. Additional information would include an understanding of the provisions of the labor contracts and work rules, the service profiles and schedules, and how constraints and opportunities in labor contracts and work rules are applied in scheduling, run-cutting, dispatching, and extra-board management. An accurate portrayal of transit labor expenditures would require significant detail on labor contracts, work rules, service profiles and schedules, and opportunities in contracts and work rules as they relate to scheduling run-cutting, dispatching, and extra-board management and would be burdensome to reporters.

The current operators' wages data has several problems:

- **Confusion and inconsistency in reconciling classes of time recorded:** Because labor contracts and work rules vary greatly among transit agencies, employee time cannot be classified simply. As a result, the transit agencies must approximate time allocation among the categories, and the rules they apply are not uniform across all reporters.
- **Inconsistent reporting of premium time:** The NTD calls for reporting the time worked versus the time paid. Employees working 1 hour of overtime and paid at a time-and-a-half rate should

report 1 hour worked, not 1½ hours, even though the amount paid is at the time-and-a-half rate. NTD reporters do not apply this rule consistently, despite validation checks.

- **Differences among modes:** Commuter rail reporters, in particular, struggle with reporting operators' wages and hours data because the labor classifications differ significantly between railroad and transit contracts.

Eliminate Fringe Benefits Reporting

No users of fringe benefits data were identified during the outreach portion of the study. Transit agencies recognize that decisions on the management of fringe benefit costs are based on much more detail than is reported in the Fringe Benefits Form. Although the reporting of fringe benefits is not an undue burden for most transit agencies (most accounting systems track expenses at the required level of detail), the relatively low interest in applying resulting data suggests that the form be eliminated.

Eliminate Transit Agency Employee Reporting

The Transit Agency Employee Form summarizes employee work hours and head counts for full- and part-time employees for capital and operations, and within operations by function and subfunction. The data was originally reported in terms of full-time equivalents (FTE). This approach was modified, recognizing the relatively arbitrary basis for computing FTEs (total hours divided by 2,080). The current approach is intended to be more accurate. Transit agencies, however, consider this form to be particularly burdensome to complete, because of the need to track labor hours by function and the arbitrary use of fiscal year-end staffing levels, which may not represent average levels during the reported year.

Consider Options for Reducing the Burden Associated with Collecting and Reporting Passenger Miles

While passenger miles is an important measure of the quantity of transit service consumed, FTA should examine ways to reduce the burden associated with sampling for passenger miles. Passenger mile data has been difficult to define in ways that have broad applicability; in addition, this measure contains frequent errors, despite the validation process. Because these problems are generally recognized, the number of users of this data is limited. Measurement of passenger miles is an expensive and error-prone process, and the sampling-based estimate may not be required each year.

Opportunities to reduce the reporting burden that should be considered include:

- Increasing the population threshold for annual reporting from 500,000 to 1,000,000



- Permit the transit agency to report the prior year value and FTA will use that value to compute the incentive tier funding for the Urbanized Area Formula grant
- For transit agencies with small year-to-year service changes (e.g., less than 10 percent), changes in year-to-year average trip length will also likely be small. If a transit agency anticipates a small change in service in the current report year and if it measures unlinked trips based on a 100 percent count (e.g., through the use of electronic fare boxes), the transit agencies could report passenger miles by multiplying current year directly measured unlinked trips times prior year average trip length

It must be recognized that if an agency dedicates staff for the purpose of sampling, moving toward reporting every second or third year may entail “hidden” costs, as staff may need to be retrained and/or temporary staff may need to be hired to perform these less frequent tasks.

4.9 Explore State-Based Reporting of Selected Data Elements for Rural Transit Providers

Rural transit plays a significant role in the nation’s transportation system, and its contribution needs to be included in a comprehensive analysis of transit’s role and performance.

FTA should explore a voluntary reporting mechanism within the NTD to include rural transit data. FTA would work with key stakeholders—the Standing Committee on Public Transportation (SCOPT) of the American Association of State Highway and Transportation Officials (AASHTO), which represents state departments of transportation; the State Affairs Committee of APTA, which represents state transit associations; and the Community Transportation Association of America (CTAA), which represents rural and small urban operators.

Most rural providers are already recording basic performance measures to manage their systems. By consensus, FTA and the stakeholders would select data items deemed to be readily available in order to minimize the reporting burden.

APPENDIX A: SUMMARY OF THE NATIONAL TRANSIT DATABASE REPORTING PROCESS

The National Transit Database (NTD) is more than just a compilation of financial and operating data from the nation's transit agencies. It is a cooperative effort of the federal government, transit agencies, industry trade organizations, consultants, universities, and other researchers, involving:

- Thorough training and documentation by the Federal Transit Administration (FTA)
- Extensive data gathering and reporting by the transit agencies
- Auditing of financial data and review of operational data by the transit agencies' independent auditors
- Certification of the data by the chief executive officer of the transit agencies
- A new state-of-the art Internet-based reporting system
- Detailed review and validation by FTA's contractor
- Publication of the data in a variety of hard copy and electronic formats
- Application of the data in apportionment of more than \$3 billion per year in federal grants
- Extensive application of the data by many sectors, including the federal government, transit agencies, planning agencies, consultants, universities, and other researchers

Figure A-1 summarizes the overall schedule of activities in the typical NTD reporting year. The NTD reporting year is the calendar year. Transit agencies submit data on the basis of their fiscal years; the NTD receives data from 301 agencies with fiscal years ending on June 30, 96 agencies for fiscal years ending on September 30, and 183 agencies with fiscal years ending on December 31.

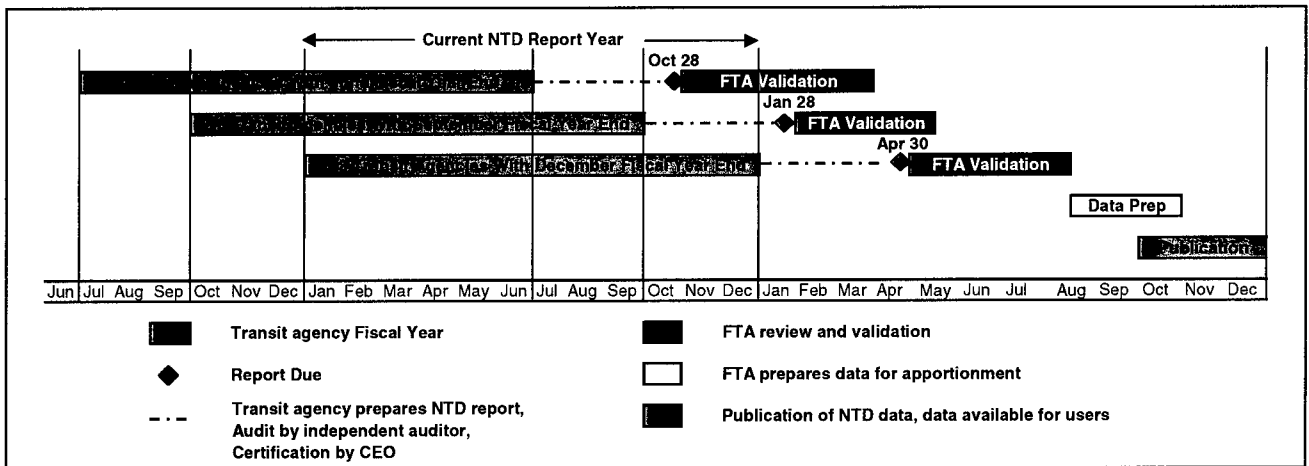
Important aspects of the NTD process involve:

- **Preparation:** Before the NTD report is prepared, and beginning even before the reported fiscal year, FTA and the transit agencies start assembling the data and preparing the report. FTA provides training seminars throughout the nation to introduce new transit staff to the NTD and to update experienced staff in recent improvements and changes. Approximately five or six seminars are conducted each year. The seminars usually begin in early February and end in April or May and are conducted in many locations throughout the U.S. The purpose of the seminars is to assist transit agency staff in understanding the reporting process and in compiling the NTD report. The instructors present detailed form-by-form reviews using examples and defining common terms, highlight reporting changes and requirements, and provide an overview of current

reporting software, publications, and reference materials. One-on-one sessions and software demonstrations are offered at all seminars.

In addition, an annual reporting manual is sent to each transit agency in late January or early February, well in advance of the beginning of the next fiscal year (which for some agencies begins in July). The report manual details the reporting requirements and any changes, explaining who, what, and when to report; providing line-by-line reporting instructions for each form and updating data definitions. FTA also sends to each transit agency the diskettes on which the data is submitted. Recently, FTA has begun introducing NTD reporters to the new Internet-based reporting system, which is optional in FY 2000 and will become mandatory in FY 2001.

- **Preparation of report:** Throughout the fiscal year, the transit agencies assemble financial and operating data to be used in the preparation of the annual NTD report. At some transit agencies, many of the NTD data elements are routinely included in monthly and quarterly management reports. At year-end, special financial and operational reports are generated; this can involve both automated and manual procedures. The data is entered onto the reporting diskette (and the Internet-based reporting system).



- **Audit and certification:** Certain financial and operating data must be certified by the transit agency's independent financial auditor and by the chief executive officer of the agency. The financial audit frequently is due within 90 days of the end of the fiscal year.
- **Submission:** Most transit agencies are required to have certain financial and operating data reviewed by an independent financial auditor. All agencies are required to have the data certified by the Chief Executive Officer (CEO) of the agency. The audit review and the CEO certifications are to be submitted with the NTD report within four months of the end of the fiscal year (in other words, within one month after the three-month period typically required to close the financial records for the prior fiscal year and perform the financial audit).



- **Validation:** The validation process, undertaken by experienced analysts engaged by FTA, consists of four steps: Preliminary Review, Detailed Review, Follow-up Review, and Closeout. FTA performs a variety of mathematical checks to insure that the NTD reporting requirements are met and that the reported data make sense and fall into reasonable ranges. Over 250 validation checks are performed during this process. These checks are more extensive than the 55 error checks included in the Reporting Software diskettes and the current version of the Internet-based reporting system that are applied prior to the transit agency submitting the NTD report to FTA.
 - **Preliminary Review:** The objective of the Preliminary Review is to ensure that a transit agency's report submission is sufficient to conduct validation. The status of each form, key indicators, error checks, and audit reviews/CEO certifications are reviewed. FTA also verifies that the required information has been completed and submitted and the report corresponds with any waivers and/or extensions previously processed for the transit agency.
 - **Detailed review letter:** Upon completion of the initial review, the data is subjected to a series of computerized checks to assess their completeness and reasonableness. The checks include, but are not limited to, logic checks between data items on different forms, range checks for typical values found among transit agencies with similar operating characteristics and time series checks. If needed, the analyst will call the transit agency for additional information or clarification on some of the report items. The issues or problems identified and summarized are sent to the transit agency in a Detailed Review Letter (DRL). The transit agency is given 15 days to respond to the DRL.
 - **Response:** Transit agencies should address all issues and problems identified in the DRL. The CEO and independent auditor, as required, must concur with any revisions. In some cases, the transit agency may determine that the reported data are correct, despite inconsistency with industry trends and prior results.
 - **Follow-Up Review:** A follow-up is conducted once the agency submits its response to the DRL. This revised data is again subjected to the same series of computerized checks in the Detailed Review to assess the completeness and reasonableness. If issues remain or new problems are identified from the review of the agency's updated data, they are summarized in a Follow-Up Letter (FUL) that is sent to the transit agency. The transit agency is given seven days to respond to the FUL.
 - **Response:** Like its response to the DRL, the transit agency should address all issues and problems identified in the FUL and should state that the CEO and/or independent auditor, as required, has/have concurred with any revisions.
 - **Closeout:** A final review is conducted once the transit agency submits its response to the FUL. This revised data are again subjected to the same series of computerized checks used in the FUL. At the completion of the validation process, a Closeout Letter is sent to the transit




agency. This letter will a) document any unresolved issues or problems after the Follow-up review or b) comment on the completeness of the reported data, how it will be included in the NTD, how it will appear in publications, and how it will be applied in the apportionment of Federal funds.

- **Consolidation:** As NTD reports are approved, the comprehensive database of all data, from all forms, for all reporters is assembled. This is a relational database that permits the development of standard and customized queries and reports.
- **Apportionment:** Upon completion of the validation process and consolidation of all of the NTD data, the initial application of the data is the development of the key variables applied in the Section 5307 Urbanized Area Formula Grant Program and the Section 5309 Fixed Guideway Modernization Program. This data is provided to the FTA Office of Program Management to determine formula unit grant dollars and the apportionment of grant funds among the urbanized areas.
- **Publication and use of data:** The NTD data is then made available to the transit industry and other users in the following formats:
 - **Data tables:** a standard set of 31 tables that summarize key indicators of expense, revenue, transit service supplied and consumed, and measures of effectiveness and efficiency.
 - **Transit profiles:** one-page summaries for each transit agency's current financial performance and trends in six key performance measures.
 - **Transit summary and trends:** an industry-wide review of overall trends and detailed examination by agency size and by mode.
 - **Form-by-form data:** all of the numerical data submitted, by form.

The data tables, transit profiles, and summary and trends are published in hard copy and are available on the NTD website (www.ntdprogram.com) in Portable Document Format (.pdf), Microsoft Excel (.xls), and Hypertext Markup Language (.html) formats. The form-by-form data is available only at the website in .xls and .html formats.

APPENDIX B: FTA LISTENING SESSIONS FLYER



FEDERAL TRANSIT ADMINISTRATION ANNOUNCES OPPORTUNITIES TO SUGGEST IMPROVEMENTS TO THE NATIONAL TRANSIT DATABASE

WHAT IS HAPPENING

Reporters to the National Transit Database (NTD) are aware that the Federal Transit Administration (FTA) is preparing to launch on-line NTD reporting via the Internet. But they may be unaware that, in the last few years, there have been major changes in Federal reporting requirements affecting the FTA, such as the Government Performance and Results Act (GPRA). Under the GPRA, certain NTD performance data series need to be reported earlier than the current reporting cycle. Safety data needs to be more timely and provide greater detail. With these new requirements, the FTA will need to change the current NTD. Accordingly, the FTA is taking this opportunity to conduct a comprehensive review of the entire NTD.

The FTA is looking at the NTD from more than the perspective of formula apportionment data. Critical to the FTA is the perspective of NTD data reporters and data users. Increasingly, transit authorities are using NTD data to make local project planning decisions and measure operating performance. The goal is to improve the usefulness of the NTD while minimizing the burden on the reporting agencies. Therefore, the FTA is reaching out to the transit community, seeking your comments and suggestions. Any recommendations you make will be reported to the Congress in May 2000. Based on the recommendations we receive, a new, revised NTD will be implemented next year.

WHAT FTA NEEDS TO KNOW

- Is the right data being reported? Is the data reported at the correct level of detail? Can some data be eliminated? Should *new* or *more detailed* data items be reported?
- How can the NTD safety data be enhanced to be more useful and relevant to the transit industry? Can the data be more timely?
- Does the NTD provide the measures that are *useful to the transit industry in assessing its performance*? *What about quality of service data?*
- Does the NTD provide FTA with the data that FTA needs to assess the effectiveness of its programs?
- How can the NTD system be enhanced to ease *reporting burden*: data definitions, reporting forms, training?
- How can the NTD be more accessible and useful for analysis of *transit project planning, operating cost and performance measures*, transit industry trends?

HOW YOU CAN PARTICIPATE

There are two ways in which individuals, transit properties, government agencies, research and educational institutions, and consultants can suggest improvements to the new National Transit Database:

- **Listening Sessions:** The FTA will take comments & suggestions at the following national meetings:
 - Wednesday, March 1: Chicago Hilton and Towers
1:00 -- 5:00pm 720 South Michigan Avenue, Chicago, IL 60605 (ph) 312-786-6255
(NTD Reporting Seminar follows on March 2 & 3 at the same hotel)
 - Wednesday, March 15: Embassy Suites Hotel
1:00 -- 5:00 pm 1250 22nd Street, NW, Washington, DC 20037 (ph) 202-223-0378
Focus on Safety Data (APTA Legislative Conference at the JW Marriott Hotel on March 13-15)
 - Wednesday, March 29: Hyatt Regency Fisherman's Wharf
1:00 -- 5:00 pm 555 North Point Street, San Francisco, CA 94133 (ph) 415-563-1234
(NTD Reporting Seminars on March 27 & 28 and 30 & 31 at the same hotel)
- **Written comments:** You may contact the FTA's consultant at the e-mail, fax, and mail addresses below.

IF YOU WISH TO PARTICIPATE IN THE LISTENING SESSIONS OR SEND COMMENTS, PLEASE:

<ul style="list-style-type: none"> ▪ Send an e-mail to: nationaltransit@kpmg.com 	<ul style="list-style-type: none"> ▪ Or send a fax to: New National Transit Database 703-747-3833 	<ul style="list-style-type: none"> ▪ Or send mail to: New National Transit Database c/o Ms. Marta J. Jewell KPMG Consulting 1676 International Drive McLean, Virginia 22102
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