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TRANSPORTATION SAFETY

Opportunities for Enhancing Safety Across Modes

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Mr. Chairman and Members of the Subcommittee:

We appreciate the opportunity to testify on the Department of Transportation's (DOT) initiatives for comparing safety across transportation modes.[1] Specifically, and in response to the Subcommittee's interest, we reviewed some of the measures of safety often used to compare the modes, the limitations in making such safety comparisons, and the way that each mode and DOT assess safety. Secretary of Transportation Federico Peña, as well as his predecessors, has placed safety among the Department's top priorities and for a good reason: in 1992 about 47,000 people were killed in this country in transportation-related accidents. According to DOT, motor vehicle crashes in 1990 alone cost the United States at least $137 billion in lost income, property damage, medical, and other expenses.

The information presented here is based on issues raised in our general management review of DOT, reports that we have issued over the past few years related to transportation safety, many for this Subcommittee, and information provided by DOT related to cross-modal safety comparisons. (See app. IV for related reports and testimonies.) Our testimony today will make the following points:

-- The safety of the modes of transportation is usually assessed on the basis of the number of fatalities that occur each year. The overwhelming majority, almost 95 percent, of all transportation-related fatalities are associated with travel on the nation's streets and highways. Transportation safety performance is generally

[1]DOT organizations with safety missions include the Federal Aviation Administration, Federal Highway Administration, Federal Railroad Administration, National Highway Traffic Safety Administration, Research and Special Programs Administration, and the U. S. Coast Guard.

evaluated by comparing the number of fatalities with the volume of traffic so that safety is expressed as a rate, such as fatalities per passenger mile or per ton mile. Fatality rates for transportation provided by commercial carriers--the airlines, Amtrak, mass transit, and intercity bus companies--are considerably lower than fatality rates for the private travel modes--automobiles and general aviation. Notwithstanding differences in modal safety performances, a common thread exists among the modes--performance is improving.

-- Passenger miles or ton miles are output measures that take into account the effect of differences in the volume of traffic and travel on safety. But other measures, such as fatalities per hour of exposure or accidents per vehicle trip, are also reasonable measures of transportation safety. Changing the unit of exposure can dramatically affect the relative performance of the modes. For example, the fatality rate for air travel is much lower than that for interstate automobile travel. But, if they are measured on the basis of hours of exposure, the difference narrows considerably. Regardless of how modal safety is measured, it is important to limit modal comparisons to instances where the modes are conceivable substitutes for each other.

-- Although fatalities represent an ultimate failure in our transportation system, they tell only part of the story. First, fatalities occur in less than 1 percent of the roughly 7 million annual transportation accidents. In addition to the costs associated with the loss of life, costs from injuries, property damage, and other such economic impacts as lost commercial opportunities occur. Second, data on the extent of injuries and property damage associated with transportation accidents are often not

reported, are incomplete, or are unreliable. Furthermore, each mode has different thresholds for reporting property damage. Third, safety performance measures should take into account the purpose of the trip or trip length if comparisons are to have operational significance. Finally, it is unlikely that any one safety measurement can be applied across all transportation modes.

-- Out of a total budget of about $37 billion, DOT, using its definition of what is exclusively a safety function, estimates that about $1.9 billion was for safety programs in fiscal year 1993. However, assessing the value of public investment in transportation safety is problematic for a number of reasons. Because they are not required to do so, neither DOT nor the individual modal administrations maintain data on the total funding and staffing devoted solely to safety. In addition, for some of the modes, the safety role is shared between federal, state, and local governments. Data on state, local, and private sector investment in transportation safety are scattered and without such information, estimates of the effectiveness of safety investments are difficult to make. Furthermore, the modal administrations do not categorize as safety those programs that have the dual mission of safety and efficiency.

-- DOT's Bureau of Transportation Statistics and the modal administrations have made limited progress in developing transportation-related safety indicators. In December 1991, the Intermodal Surface Transportation Efficiency Act (ISTEA) established the Bureau and charged it with numerous responsibilities, including the development of performance indicators for the national transportation system. The Bureau has not yet developed such indicators. Each of the modal administrations has been concurrently developing

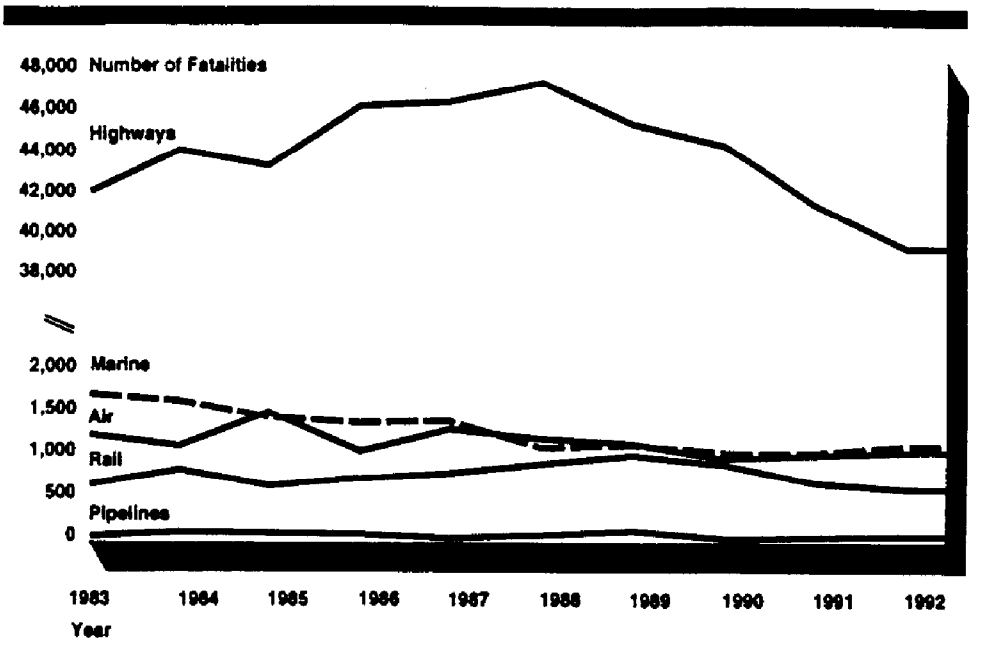
safety indicators within the framework of its responsibility. In our opinion, the Bureau can play an important leadership role in ensuring that the modal administrations benefit from sharing safety work that has been done and ensure that safety is incorporated in DOT's performance indicators.

I will now discuss these issues in greater detail.

MODAL ADMINISTRATIONS COLLECT AND ANALYZE FATALITY STATISTICS

Each modal administration collects and analyzes fatality statistics for its mode of transportation. Fatality data between fiscal years 1983 and 1992 show that most fatalities occur on the nation's streets and highways. During this period, highway fatalities averaged about 44,000 annually and represented about 94 percent of the about 47,000 fatalities that occurred on average for all modes combined. On average, marine fatalities (primarily recreational boating) numbered 1,262, aviation fatalities (primarily general aviation aircraft) numbered 1,128, railroad fatalities numbered 636, and pipeline fatalities numbered 22. Figure 1 shows the number of fatalities resulting from accidents by transportation mode for fiscal years 1983 through 1992.

Figure 1. : Fatalities by Mode, 1983-92

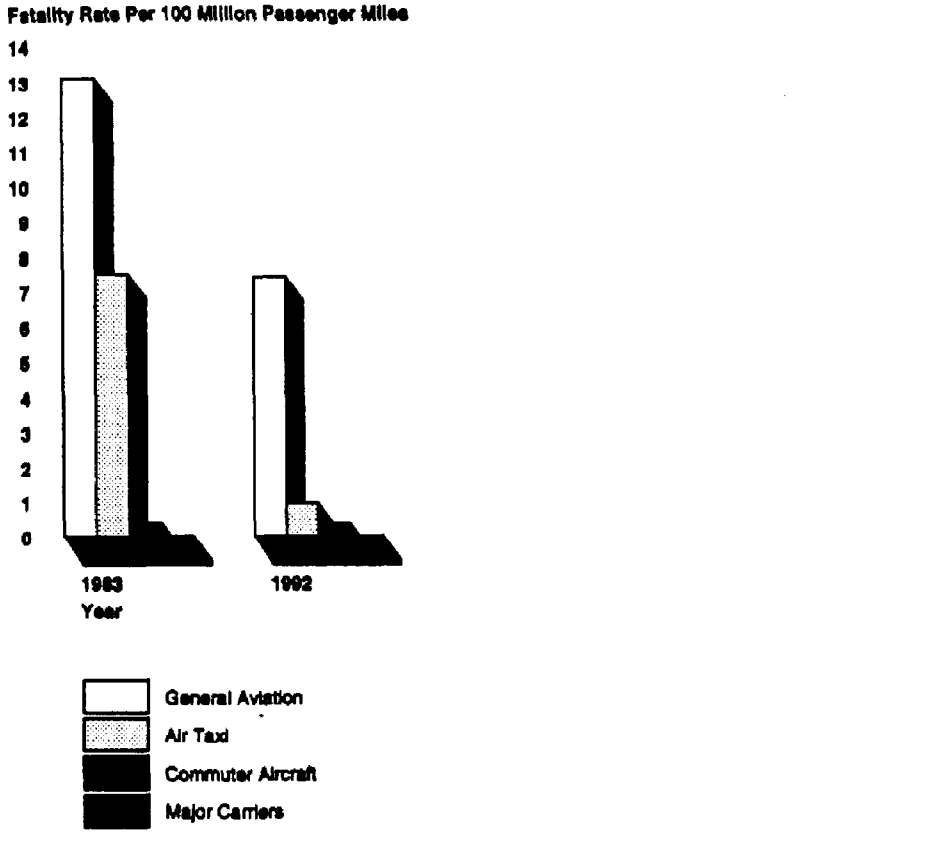


The average annual number of fatalities by mode for the time period:

Pipelines	22
Rail	638
Air	1,128
Marine	1,262
Highways	44,116

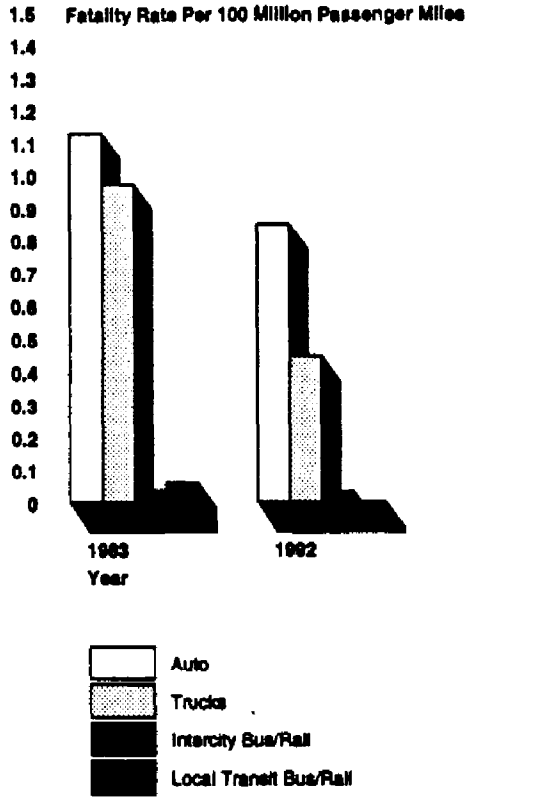
Fatalities are often expressed as a rate, such as fatalities per passenger mile, vehicle mile, or ton mile. According to DOT statistics, in 1991, the fatality rate for automobiles was 0.848 per 100 million passenger miles, compared with 0.446 for heavy trucks, 0.006 for commercial air carriers, and 0.022 for intercity and commuter rail. Fatality rates for transportation provided by commercial carriers--the airlines, Amtrak, mass transit, and intercity bus companies--are considerably lower than fatality rates for the private travel modes--automobile and general aviation. Notwithstanding differences in modal safety performances, a common thread among the modes is that performance is improving. Figure 2 shows the trend in fatality rates per 100 million passenger miles for the types of aviation operations and figure 3 shows the trend for various surface transportation modes over the period 1983-92.

Figure 2. Fatality Rate by Aviation Type, 1983 and 1992



Note: In 1983, the fatality rate for major carriers was .005 and in 1992 was .006; therefore, these values do not appear in this figure.

Figure 3. Surface Transportation Fatality Rate, 1983 and 1992



Note: Local transit bus/rail data for 1992 are not available

Although fatality data are readily available, they are not by themselves sufficient for comparing safety among modes. For example, if 500 people drove an average of 100 miles each in 1 day and 5 people were killed, the fatality rate would be 1 per 10,000 passenger miles. Similarly, if 500 people flew an average of 1,000 miles in 1 day and 5 people were killed, the fatality rate would be 1 per 100,000 passenger miles, or 10 times less. Therefore, even though the number of fatalities is the same, another perspective of risk can be gained through the use of another measure, in this case, fatalities per passenger mile.

Another measure is fatalities per hour of exposure. Exposure hours is the amount of time that the occupant is in the vehicle and exposed to the risk of an accident. Many of the modes currently do not collect this data, however, using this alternative measure of risk can dramatically affect the relative performance of the modes. For example, the fatality rate for air travel is much lower than that for interstate auto travel. But if they are measured on the basis of hours of exposure, the difference narrows considerably, because an airplane generates several times as many miles per hour as an automobile. Regardless of how modal safety is measured, it is important to limit modal comparisons to instances where the modes are conceivable substitutes for each other.

CURRENT MEASURES FOR ASSESSING SAFETY RISK HAVE LIMITED USE FOR CROSS-MODAL COMPARISONS

Fatality and fatal accident rates tell only part of the transportation safety story, and they have their limits for comparing safety across modes. First, fatalities occur in less than 1 percent of the roughly 7 million annual transportation accidents. Also, for some modes, especially aviation, the likelihood of an accident is dependent on the number of takeoffs and landings, where most of the accidents occur, rather than the number of passenger or plane miles flown.

Second, data on the extent of injuries and related hospital costs and property damage associated with transportation accidents are incomplete. For example, in 1989, we reported that the Federal Railroad Administration (FRA) had little assurance that its injury and accident database is reliable because the railroads were not reporting accurately or completely.[2] Four of five railroads that we reviewed reported 8,977 injuries, 968 accidents, and over $73 million in damages to railroad equipment in 1987. On the basis of our analysis of 521 unreported injuries and 532 unreported accidents, we found that an additional 61 injuries and 52 accidents met established reporting criteria and should have been reported to FRA. Also, FRA's data showed that the railroads reported 2,176 missed workdays associated with 156 injuries. Our review of railroad records for the 156 injuries showed that employees actually missed 8,023 workdays, or 269 percent more than that reported. Furthermore, of the 171 accident cases that we analyzed, the estimated cost of damages due to train accidents was understated by 52 percent, or $3.5 million. FRA is attempting to improve railroad accident and injury reporting.

One problem in gathering reliable data is that most of the information reported originates at the scene of the accident and neither the full extent of the injury nor the dollar cost of property damage is readily apparent. Although they may be appropriate for each mode, the modal administrations have different reporting thresholds and therefore the data collected and reported are not fully comparable. For example, for accidents involving property only, RSPA requires the industry to report natural gas pipeline accidents when property damage is in excess of $50,000 while the Coast Guard requires reports when property damage is at least $500 (for recreational boating accidents). Appendix I

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[2]Railroad Safety: FRA Needs to Correct Deficiencies in Reporting Injuries and Accidents (GAO/RCED-89-109, Apr. 5, 1989).

provides information showing the differences in reporting thresholds for each modal administration.

Third, safety performance measures must take into account the purpose of the trip or trip length if comparisons are to have operational significance. For example, local trips of very short distances, such as work and shopping trips, are not meaningful to aviation; and except for some choice of transit in selected markets, such as bus, the automobile is the only mode available. Also, trips of under 200 miles largely exclude commercial aviation as a choice. Conversely, trips of over 600 miles largely exclude the automobile or bus as meaningful alternatives. Therefore, it is not useful to compare the safety performance of a 1,000-mile airplane trip with that of a 25-mile commute via mass transit since the two are not substitutes for each other.

Collecting data to support common measures is not without cost; this is an expense that could extend beyond the federal level. According to DOT officials, depending on the measure or set of measures selected for assessing safety, the modal administrations, state and local governments, and industries regulated would be affected. The modal administrations would likely have to implement new data collection requirements, acquire new computers and software, and apply additional staff. State and local governments would also have to meet any new administrative requirements for collecting and reporting data, training staff, and possibly hiring additional staff. The industries might be affected because of the potential requirement to provide data that they may not now collect. These DOT officials said that the Department has to determine what safety measures to use and once this is done, DOT will be in a better position to determine the impacts on the modal administrations, state and local governments, and industry as well as administrative and implementation costs in light of the benefits to be derived.

Finally, we recognize that it is unlikely that any one safety measurement can be applied across all transportation modes and that challenges exist in developing performance indicators useful for cross-modal comparisons. For example, it would not be useful to include marine fatalities in a measure that is based on fatalities per passenger mile because most marine fatalities result from recreational boating accidents that are not a function of miles traveled. As an indication of these challenges, we have identified some of the pros and cons of implementing some measures in appendix II.

DOT LACKS DATA TO ASSESS THE TOTAL INVESTMENT IN SAFETY

In response to an inquiry by this Subcommittee and under its definition of what is exclusively a safety function, DOT estimates that about $1.9 billion of the Department's almost $37 billion fiscal year 1993 budget was allocated to safety programs. However, assessing the value of public investment in transportation safety is problematic for a number of reasons.

For example, the $1.9 billion does not include all safety-related expenditures because some activities that are not performed strictly for safety reasons have important safety components and consequences. Also, each modal administration has different responsibilities that result in different definitions of safety activities. To illustrate, FAA has regulatory responsibility for the entire aviation industry, including developing aviation standards; certifying aircraft as airworthy; licensing pilots, crews, and mechanics; inspecting aircraft maintenance and operations; and providing airport security. Accordingly, FAA used about $616 million in fiscal year 1993 to perform these functions. FAA does not include in its safety costs funding for programs that are nonregulatory but have a dual-mission--safety and efficiency. For example, FAA does not include the $3 billion in operations

costs associated with the air traffic control and maintenance technician work forces or that portion of the $2 billion Airport Improvement Program used by airports to acquire firefighting and rescue equipment in its estimates of safety expenses. Nor does FAA include that portion of the $32.8 billion Capital Investment Plan that is vital to aviation safety, such as the Terminal Doppler Weather Radar System--a $351 million program that provides alerts of hazardous weather conditions in terminal areas and alerts of changing wind conditions that influence runway usage.

Conversely, other modal administrations--FRA, the Federal Highway Administration (FHWA), the National Highway Traffic Safety Administration, the Research and Special Programs Administration, and the Coast Guard share regulatory responsibility with the states. Each of these modal administrations has a cadre of federal inspectors or enforcement officials complemented by state or industry inspectors/enforcement officials to ensure adherence to federal requirements. For the most part, these administrations do not capture information on the resources (staffing and funding) that the states and local governments devote to safety.

FHWA is a good example. FHWA regulates commercial motor carriers, vehicles, and drivers. The agency provides grants to the states for motor carrier- and highway-related safety programs, highway safety research and development, and enforcement activities. The agency used about $127 million for fiscal year 1993 for these safety programs. However, FHWA does not know the amount of investment that the states and local governments make to implement highway safety programs. For example, the state and local governments do not break out from their other duties the amount of time and related funding spent by police officers to enforce transportation safety laws. Also, FHWA does not include the portion of the $16 billion it provided on average to states between fiscal years 1989 and 1993 for such functions as highway construction and maintenance where safety is an important by-

product, such as repairing highway potholes that will lessen the likelihood of tire blowouts and related accidents or strengthening freeways and bridges to meet seismic requirements. FHWA Appendix III shows the differences in modal administrations safety strategies, their regulatory responsibilities, and the number of federal and state safety inspectors and enforcement officials.

BUREAU OF TRANSPORTATION STATISTICS AND MODAL ADMINISTRATIONS HAVE MADE LIMITED PROGRESS IN DEVELOPING PERFORMANCE INDICATORS

The Bureau of Transportation Statistics has made limited progress in developing performance indicators for the nation's transportation system. In December 1991, ISTEA established the Bureau and made it responsible for implementing a long-term data collection program that includes developing indicators for the national transportation system through a cooperative effort with the modal administrations, the states, and other federal agencies. The Bureau began operations in December 1992. Since that time, it has functioned with two analysts and a deputy director who primarily focused on developing the Bureau's first annual report due to the Congress on January 1, 1994. The report is currently being printed and is expected to be released shortly. In December 1993, the President nominated a director who is awaiting confirmation.

In addition to ISTEA's requirements, the Vice President's National Performance Review (NPR) recommended that DOT develop common governmentwide measures of transportation safety. The Secretary of Transportation in September 1993 tasked the Office of Transportation Regulatory Affairs to develop an implementation plan to respond to the NPR recommendation. This office formed a committee comprising modal and other departmental officials, including a member from the Bureau of Transportation Statistics, to address this issue. The Bureau is represented at committee meetings by a Volpe National Transportation Systems Center

official, who is working under contract with the Bureau. According to Bureau officials, the involvement with the committee's effort will help them develop performance indicators. At the present time, the committee expects to recommend governmentwide safety measures by October 1994.

Governmentwide safety measures should supplement, but not replace, predictors of safety problems that are unique to the individual modes of transportation. As we recommended in our management review of DOT and in numerous reports and testimonies, the individual modes should establish precursors of safety risk--that is, conditions or circumstances that, if left uncorrected, lead to accidents.[3] The ultimate goal of DOT's safety programs is to prevent accidents and their consequences: death, injury, and property damage. DOT has used accident rates to set program goals and assess overall performance. We previously reported that, in most instances, accident rates, especially in the rail and aviation areas, do not provide the most reliable basis on which to target inspection resources because (1) once the accident occurs, it is too late to prevent it and (2) accidents occur too infrequently to be valid indicators of all safety problems.

A different objective for inspection programs could be to reduce the frequency of noncompliance with safety regulations and standards. Defining the objective this way provides a direct link between the work that inspectors do and the results they can achieve. Monitoring performance in meeting the objective, in turn, provides more timely data to identify safety problems and direct resources at high-risk conditions. We have recommended that FAA and FRA develop risk-assessment measures for targeting their

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[3]Department of Transportation: Enhancing Policy and Program Effectiveness Through Improved Management (GAO/RCED-87-3, Apr. 13, 1987).

resources toward those areas needing the most attention.[4] FAA and FRA are currently developing risk-assessment systems.

Over the last several years, the modal administrations have been developing safety performance measures and predictors of safety problems (safety indicators). In August 1992, we reported that progress on FAA's Safety Indicators Program has been slow.[5] After spending 4 years and more than $7 million on the Safety Indicator Program, FAA had made little progress in developing a consistent set of air safety measures and the supporting computer capability to (1) present the state of aviation safety and (2) support decisions on potential changes of safety activities. FAA subsequently convened a task force composed of users to develop a set of indicators and developed a plan with scheduled milestones that outlined the respective responsibilities of participating offices. FAA currently uses some aviation safety program performance measurements that include assessing the frequency of near mid-air collisions and pilot deviations. We have not reviewed other modes' progress in developing their safety indicators.

CONCLUSIONS

DOT's mission is to keep the movement of people and goods flowing efficiently, economically, and safely. DOT recognizes that some level of risk is involved with transportation and its strategy is to take every feasible opportunity to improve safety. In carrying out this mission, DOT relies on the individual modal administrations, in conjunction with the industries regulated, to ensure the safety of the nation's travelers. To varying degrees,

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[4]Aviation Safety: Problems Persist in FAA's Inspection Program (GAO/RCED-92-14, Nov. 20, 1991) and Railroad Safety: New Approach Needed for Effective FRA Safety Inspection Program (GAO/RCED-90-194, July 31, 1990).

[5]Aviation Safety: Progress on FAA Safety Indicators Program Slow and Challenges Remain (GAO/IMTEC-92-57, Aug. 31, 1992).

the modes establish standards and performance criteria for vehicle manufacturers, license service providers, and invest in improving safety of the transportation infrastructure. The modal administrations will probably never have enough staffing resources to cover the full breadth of their responsibilities. Therefore, much of the safety responsibility is through industry self policing; the oversight is shared among the federal, state, and local governments. Although the modal administrations attempt to identify potential safety problems before they lead to serious accidents, for the most part, the agencies continue to be reactive and either lack or do not use available information to effectively oversee their programs and utilize their resources.

Since the modal administrations will probably never have enough resources to carry out their activities, it is imperative that DOT have the best possible resource utilization at the mode level before the Department can effectively compare resource utilization and application across modes. Although FAA and FRA are developing systems to target their inspection resources at areas that present the greatest risk, it is unclear that the agencies are coordinating on these efforts or sharing their experience with other modal administrations. In addition, for these efforts to be effective, the modal administrations must either develop or use the wide range of information they collect. One particularly important element that the modes must address is the reliability of inspection data, including the severity of findings and the extent to which industry takes corrective actions.

Although recent trends are encouraging (the fatality rate continues its decade long downward trend and the absolute number of deaths is declining), fatalities are not the only basis on which to compare safety among modes. Although other measures exist, they too have limitations for cross-modal safety comparisons. These limitations include the lack of common measurement criteria, inconsistent data collection and reporting, lack of common

definitions of accidents, different safety strategies/objectives, and different regulatory structures.

Currently, it is difficult to identify and sum up all the public and private investment in transportation safety. For example, DOT does not include the costs of programs with a dual mission--safety and efficiency--in its safety program costs. Furthermore, DOT does not capture the funding that the state and local governments devote to safety. Knowing these costs would help (1) decisionmakers to ascertain the total federal, state, and local investment in safety and (2) DOT to make more informed decisions about how to allocate scarce federal funds among the various modes. In addition, information on relative safety performance can be used to help assess the investment in transportation safety. Better safety performance data, when combined with more complete data on our national investment in transportation safety, can help identify targets of opportunity where additional resources devoted to improving travel safety are likely to yield the greatest payoff.

ISTEA assigned the Bureau of Transportation Statistics with the responsibility to develop transportation performance indicators; NPR recommended that DOT develop governmentwide safety measures. Since the Bureau has not yet responded to ISTEA's requirements, it has the opportunity to learn from what has already been done by the modal administrations, who have been developing safety indicators. The Bureau can also ensure that safety becomes an integral component of DOT's overall performance indicators. This will encompass remedying data limitations; determining the potential impacts on the modes, state and local governments, and the industries' they regulate; and assessing the benefits of implementing one or a series of safety measures relative to their impacts.

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Mr. Chairman, this concludes my statement. I will be happy to respond to any questions at this time.

DIFFERENCES AMONG MODAL ADMINISTRATIONS ACCIDENT REPORTING FOR PROPERTY DAMAGE ONLY

Modal Administration	Reporting Threshold
Federal Aviation Administration (FAA)	Excess of $25,000 damage to property other than the aircraft.[6]
Federal Highway Administration (FHWA) [Commercial trucks and buses]	None (Report made if vehicle is towed away.)
Federal Railroad Administration (FRA)	Excess of $6,300 in damages to railroad on-track equipment, signals, track, track structures, and roadbed.[7]
National Highway Traffic Safety Administration (NHTSA)	No reporting requirement for individual accidents.
Research and Special Programs Administration (RSPA)	
Natural gas pipelines	Excess of $50,000
Hazardous liquid or carbon dioxide pipelines	Excess of $5,000
Coast Guard	
Vessels	Excess of $25,000
Recreational boating	Excess of $500

[6]FAA uses the National Transportation Safety Board's (NTSB) regulations for reporting aviation accidents and property damage.

[7]NTSB has a higher threshold for reporting railroad accidents.

PROS AND CONS OF SOME MEASURES OF SAFETY RISK

Measure	Pros	Cons	Limitations
Fatalities per passenger mile	Provides common basis for assessing passenger risk using distance criteria.	Eliminates cargo/ freight transportation from the analysis.	FAA collects data for flight hours and departures. Most accidents occur during takeoffs and landings and are not a function of distance flown. FHWA and NHTSA measure vehicle miles and use estimates of vehicle occupancy. Pipelines do not transport passengers. The Coast Guard does not collect data on the number of passengers carried or distance traveled (nautical miles).
Fatalities per ton mile	Provides common basis for assessing cargo/freight risk using distance criteria.	Eliminates passengers from the analysis.	FAA collects data on flight hours and departures. Modes handle different types of freight. Aviation handles high time value goods, rail handles bulk items, and trucking is somewhere between. FHWA and NHTSA measure vehicle miles but do not collect data on freight carried. The Coast Guard does not collect data on tons carried or distance traveled (nautical miles).
Fatalities per vehicle mile	Provides common basis for assessing the risk per vehicle relative to the distance traveled.	Does not allow for differences in passenger and cargo or account for the number of vehicle occupants.	FAA collects data on flight hours and departures. Most accidents occur during takeoffs and landings and not a function of distance flown. The Coast Guard does not collect data on distance traveled (nautical miles).
Fatalities per exposure hours	Provides common basis for measuring the length of time exposed to the mode.	Does not allow for differences between passengers and cargo. Could send wrong message that speeding reduces the chance of being killed.	FRA collects data on passenger and ton miles but not on hours of travel. The Coast Guard does not collect data on hours traveled. FHWA and NHTSA do not collect data on hours driven.

APPENDIX III

COMPARISON OF MODAL REGULATORY RESPONSIBILITIES

Characteristic	Modal Administration					
	[redacted]	FHWA	FRA	NHTSA	RSPA	Coast Guard
Safety objective	Ensure a safe National Airspace system through regulatory actions and specific goals of reducing general aviation accidents, operational errors, near mid-air collisions, and pilot deviation incidents.	Reduce the fatality rate by an average of 5 percent annually by developing and implementing safety management systems to address roadway, vehicle, and highway travelers' safety.	Improve the effectiveness and timeliness of inspections.	Increase safety belt use to 75 percent and reduce the involvement of alcohol in fatal accidents to less than 43 percent by 1996.	Protect the people and the environment of the United States through a comprehensive pipeline safety program by developing, issuing, and enforcing minimum pipeline regulations.	Minimize personal injury and property damage on the nation's waterways and Maintain a rate of fewer than 5 fatalities per 100,000 boats.
Who or what regulated	Air carriers, commuter airlines, air taxis, general aviation, repair stations.	Commercial carriers--trucks and buses--in interstate commerce.	Railroad carriers and shippers.	New motor vehicles and vehicle-related equipment; state driver and vehicle programs are influenced through NHTSA grants.	Gas and hazardous liquid pipeline operators.	Ports, shoreside facilities, and commercial and recreational vessels on U.S. waters as well as recreational boating manufacturing.

APPENDIX III

Characteristic	Modal Administration					
	FAA	FHWA	FRA	NHTSA	RSPA	Coast Guard
Number of components regulated	192,000 general aviation aircraft, 7,300 scheduled commercial aircraft, 10,500 nonscheduled commercial aircraft, 692,000 pilots, 650 pilot training schools, 190 maintenance schools, and 4,700 repair stations.	250,000 interstate motor carriers, 6.5 million commercial drivers.	635 railroads, 18,000 locomotives, 1.2 million freight cars, 200,000 miles of track.	Indirect responsibility over operators; billions of vehicle-related equipment such as tires, brake components, headlights, child safety seats, and motorcycle helmets.	55,000 operators, 1.8 million miles of pipeline.	96,000 aids to navigation 40,000 vessels, 70,000 seamen, 4,000 waterfront facilities, 50 million boaters, 16.1 million boats.
Number of federal inspectors and/or enforcement staff	2,500 safety inspectors, 848 aircraft certification inspectors, and 852 security inspectors.	350	518	100	22	416
Number of state inspectors and enforcement staff	0	5,200 full or part-time inspectors.	127	Varies by state; includes some state and local police activities	220	Coast Guard could not provide.

RELATED GAO PRODUCTS

AVIATION

Aviation Security: Additional Actions Needed to Meet Domestic and International Challenges (GAO/RCED-94-38, Jan. 27, 1994).

Aviation Safety: FAA Can Better Prepare General Aviation Pilots for Mountain Flying Risks (GAO/RCED-94-15, Dec. 9, 1993).

Aircraft Certification: FAA Can Better Meet Challenges Posed by Advances in Aircraft Technologies (GAO/T-RCED-94-53, Oct. 20, 1993).

Aircraft Certification: New FAA Approach Needed to Meet Challenges of Advanced Technology (GAO/RCED-93-155, Sept. 16, 1993).

FAA Work Forces: Important Decisions Affecting Staff Use and Management (GAO/T-RCED-93-59, June 30, 1993).

Aviation Safety: Unresolved Issues Involving U.S. Registered Aircraft (GAO/RCED-93-135, June 18, 1993).

FAA Evacuation Standards (GAO/RCED-93-165R, June 8, 1993).

Air Traffic Control: Status of FAA's Modernization Program (GAO/RCED-93-121FS, Apr. 16, 1993).

Aircraft Maintenance: FAA Needs to Follow Through on Plans to Ensure the Safety of Aging Aircraft (GAO/RCED-93-91, Feb. 26, 1993).

Aviation Safety: Slow Progress in Making Aircraft Cabin Interiors Fireproof (GAO/RCED-93-37, Jan. 6, 1993).

Aviation Safety: Increased Oversight of Foreign Carriers Needed (GAO/RCED-93-42, Nov. 20, 1992).

Aviation Safety: New Regulations for Deicing Aircraft Could Be Strengthened (GAO/RCED-93-52, Nov. 18, 1992).

Aviation Safety: Additional Actions Needed for Three Safety Programs (GAO/T-RCED-92-90, Aug. 4, 1992).

Aviation Safety: Progress Limited With Self-Audit and Safety Violation Reporting Programs (GAO/RCED-92-85, Mar. 31, 1992).

Aviation Safety: Commuter Airline Safety Would Be Enhanced With Better FAA Oversight (GAO/T-RCED-92-40, Mar. 17, 1992).

Aviation Safety: Users Differ in Views of Collision Avoidance System and Cite Problems (GAO/RCED-92-113, Mar. 16, 1992).

Aviation Safety: Better Oversight Would Reduce the Risk of Air Taxi Accidents (GAO/T-RCED-92-27, Feb. 25, 1992).

Aviation Safety: FAA Needs to More Aggressively Manage Its Inspection Program (GAO/T-RCED-92-25, Feb. 6, 1992).

Aviation Safety: Air Taxis--The Most Accident-Prone Airlines--Need Better Oversight (GAO/RCED-92-60, Jan. 21, 1992).

Aviation Safety: Problems Persist in FAA's Inspection Program (GAO/RCED-92-14, Nov. 20, 1991).

Aviation Safety: Emergency Revocation Orders of Air Carrier Certificates (GAO/RCED-92-10, Oct. 17, 1991).

SURFACE TRANSPORTATION

Gray Market Vehicle Program: Extension Warranted, but Improvements in Vehicle Identification Are Needed (GAO/RCED-94-22, Jan. 3, 1994).

Longer Combination Trucks: Driver Controls and Equipment Inspection Should Be Improved (GAO/RCED-94-21, Nov. 23, 1993).

Amtrak Safety: Amtrak Should Implement Minimum Safety Standards for Passenger Cars (GAO/RCED-93-196, Sept. 22, 1993).

Railroad Safety: Human Factor Accidents and Issues Affecting Engineer Work Schedules (GAO/RCED-93-160BR, July 7, 1993).

Amtrak Training: Improvements Needed for Employees Who Inspect and Maintain Rail Equipment (GAO/RCED-93-68, Dec. 8, 1992).

Natural Gas Pipelines: Greater Use of Instrumented Inspection Technology Can Improve Safety (GAO/RCED-92-237, Sept. 28, 1992).

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