

## **Chapter II**

# **ISSUES**

### INTRODUCTION

Certain issues which impact future Federal railroad safety policy choices have emerged during the course of this study. Attention to these issues in policy formulation is significant because of the effects on the level of safety as well as economic implications for all of the stakeholder groups (i.e., group having a definable interest in these problems). \*

For purposes of this report, an issue is defined as an area of controversy. Therefore the following statements included as issues in the report will, in all likelihood, be argued upon by concerned stakeholders. These statements of issues should not be construed as recommendations by the Office of Technology Assessment (OTA).

1. Should future Government policy be directed toward the specific reportable causes of train accidents, as the regulations, inspection, and enforcement programs are now directed, or toward the possible underlying reasons (i. e., heavier axle loadings, deferred maintenance, and the general economic health of the industry)?
2. How should the purposes and criteria for administering the inspection programs be more clearly defined and the standards upon which such programs are based be more adequately designed to meet the given safety problems they are to address and to determine appropriate inspection and enforcement levels?
3. How should differences over primary responsibility for occupational safety and health of railroad employees between the Occupational Safety and Health Administration (OSHA) and the Federal Railroad Administration (FRA) be resolved to enable more effective administration of the program?
4. So that grade-crossing safety can be improved, What must be done to resolve jurisdictional problems regarding responsibility for implementation of rail-highway grade-crossing programs?
5. Should State participation in Federal railroad safety programs and policy be modified or eliminated?
6. What needs to be done to increase cooperation among stakeholders so various problems within the industry, now working counter to safety, can be resolved—and thus permit a more systematic approach to railroad safety?

It is not clear from analysis of Government involvement in railroad safety activity that these issues have been or are being addressed in existing policy formulation.

This chapter presents the selected railroad safety issues. Policy alternatives, research questions, and options are outlined pertinent to the issues.

As a part of the issues formulation, OTA outlined a list of 33 questions which were given to the Railroad Safety Advisory Panel. Panel responses to these questions are included in appendix E.

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\*The identified stakeholder groups include: the public, railroad management, railroad labor, railroad shippers, suppliers of railroad equipment, and Government agencies.

## ISSUE 1

**Should future Government policy be directed toward the specific reportable track causes of train accidents, as the regulations, inspection, and enforcement programs are now directed, or toward the possible underlying reasons (i.e., heavier axle loadings, deferred maintenance, and the general economic health of the industry)?**

Over the 9-year period 1966-74, track-caused train accidents increased over 100 percent. A substantial amount of the property damage reported resulted from these accidents.

Many railroads have been unable to generate the capital necessary to maintain and/or improve their track and fixed facilities. Estimates of industry-deferred maintenance were approximated at \$6.6 billion in 1975. The combination of deferred maintenance and heavier axle loading appear to be major reasons underlying the increases in track-caused train accidents.

Current Federal emphasis has focused on researching and regulating the technology or technological problems associated with these types of accidents. To date, efforts to reduce train accidents, specifically track-caused, through regulation, inspection, and enforcement have been largely unsuccessful. However, as also shown, the extent to which such efforts have prevented accidents is not known and currently cannot be measured. It should be noted that it appears that hazardous materials dangers may continue as long as track problems are a primary cause of train accidents.

### **Policy Alternatives**

- 1. Government** safety policy should continue to be primarily directed toward the specific cause of the train accidents, such as track problems, rather than addressing operational practices such as heavier axle loading or the economic problems of the industry which result in deferred maintenance.
- Government safety policy should be broadened to address both specific accident causes and underlying operational factors. However, Government safety policy should not address the industry economic problems.
- Government safety policy should be broadened to address the specific causes of train accidents and the underlying industry operational and economic factors impacting such accidents.
- Government safety policy should address only specific accident causes, and Government economic policy should be coordinated with safety policy to ensure that the underlying operational and economic factors impacting train accidents are addressed.

### **Research Questions and Needs**

- Further research needs to be conducted to specifically identify the relationship between track-caused train accidents, operational practices (i.e., heavier axle loadings), deferred maintenance, and the economic health of the industry. Specific variables which should be examined and correlated for individual railroads include the level of maintenance provided, the types and locations of train accidents, the extent and effectiveness to which railroads employ the practice of "slow ordering" as a means to offset potential accidents, increased axle loadings, the specific financial resources of the railroad, and the density of traffic movements along specific routes.
- Research should be conducted to determine the relationship of the financial resources of the industry to its injuries and fatalities, especially those occurring to employees.
- Research intended to determine optimal Government safety and economic policy should be explored. Specifically, findings relative to capital needs, and routes with

greatest traffic density should be analyzed in connection with significant safety problems to determine optimum use of Federal expenditures or resources.

#### Congressional Options

- Oversight hearings may be conducted for the purpose of discussing with industry and labor the relationship of train accidents and industry economic problems.
- Congress may conduct oversight hearings with the Federal Railroad Administration to explore questions and methods for systematically addressing the train accident problems and their underlying causes.
- Congress may request the establishment of an explicit agenda designed to plan and enumerate specific priorities for research and development related to train accidents.
- Congress may direct future economic policy or assistance to identify safety accident performance on heavily travelled routes as a part of criteria for optimization of Government financial assistance.
- Congress may require future Government safety policy to clearly identify specific and underlying causes of train accidents prior to implementation of programs.
- Congress may initiate expansion of its safety policy to incorporate measures to address the underlying causes of train accidents.

#### ISSUE 2

**How should the purposes and criteria for administering the inspection programs be more clearly defined and the standards upon which such programs are based be more adequately designed to meet the given safety problem they are to address and to determine appropriate inspection and enforcement levels?**

A primary tool of Government railroad safety efforts has been regulation. Both the early safety laws and more recently the FRSA of 1970

place emphasis upon regulation as the means for achieving adequate levels of safety in the railroad environment. The regulations under these Acts establish standards for track and equipment as well as operating, inspection, and reporting requirements for railroads and their employees. In order to determine industry compliance with these regulations, the Government has established a system of inspecting facilities, equipment, and operating practices. The FRA's current position is that this inspection force has the responsibility of monitoring the compliance of railroads rather than detecting all defects. The railroads have the major responsibility for detecting defects and the FRA inspection program is intended to serve as a disincentive to noncompliance. Where violations of regulatory requirements are found, certain enforcement action ensues, which usually results in a fine.

This study indicated that there is no statistical evidence to show that an increase in the level of Government inspection activity will produce an improvement in railroad safety in terms of a reduction of casualties or property loss and damage. However, this study has also found that the regulatory programs on which the inspection and enforcement efforts are generally based—and indeed the inspection programs themselves—do not contain measures of effectiveness, nor do the regulatory standards clearly show how the standard will impact a given safety problem. Therefore, an assessment of the effectiveness of inspection activity in terms other than their relationship to the accident rate has not been possible. For instance, it is not possible to say whether Federal inspection has prevented accidents to any significant extent. Further, there is no statistical evidence to show that increased monetary penalties will result in an improvement in railroad safety. Finally, this study was unable to determine what basis was used by the Government in assigning inspection and enforcement efforts to particular regulatory programs.

#### Policy Alternatives

1. **Reallocate and/or increase/decrease** inspection and enforcement resources with

respect to each regulatory program based on a consideration of (a) the relative importance of that program in terms of the frequency and severity of the safety hazard to which it is directed, (b) the effectiveness of inspection in determining and motivating compliance, and (c) a rate of inspection effort for ensuring industry compliance that is based on a determination of the likelihood of a defect or deficiency being discovered.

2. Maintain current FRA policy—with the possibility for reallocation and/or increase/decrease of resources—by establishing standards for inspection and enforcement that maximize industry inspection efforts. Further, use Government inspection and enforcement activity only to the extent necessary to assure that the industry is complying with the Government's requirements.
3. Reallocate and/or increase/decrease Federal inspection and enforcement resources with respect to each railroad, based on the historical compliance by individual railroads with the particular regulatory program. Require each railroad to pay a proportion of the costs of Government inspection and enforcement activity conducted on its facilities based on the level of compliance discovered.

#### **Research Questions and Needs**

1. What are the best measures of effectiveness of inspection and enforcement activity for each regulatory program?
2. On what, if any, regulatory programs do inspection and enforcement activities have little or no effect, or have an effect that is substantially smaller than the cost of that activity?
3. The goals of any inspection program may take at least two forms: (a) to motivate compliance by their enforcement potential, or (b) to detect defects and ensure compliance by the intensity of the inspec-

tion effort. The question as to which approach would be most effective, given the railroad safety picture, is one that should be answered before any major restructuring of the inspection effort is undertaken. The exploration of this question should include an analysis of the resources necessary and the relationship of inspection to the problems at hand.

4. In what ways, if any, should the penalty structure be adjusted so as to complement the inspection strategy adopted by the Government? For example, if the inspection strategy is designed to monitor compliance in reliance upon the deterrence of penalties, should the penalties be established at higher levels? On the other hand, if the inspection strategy is designed to be so pervasive as to discover most defects and deficiencies, should the penalties be relatively low, to assure there are sufficient funds to take corrective action? Finally, should there be an alternative penalty structure that could be used in cases of flagrant noncompliance to account for differences among railroads in their ability to pay the penalties?

#### **Congressional Options**

- Permit FRA to collect from railroads a portion of the annual inspection and enforcement costs incurred for each railroad for all regulatory programs.
- Permit FRA to apply the penalties collected to the costs of inspection.
- Require FRA to adjust the inspection and enforcement effort devoted to each program to the frequency and severity of the hazard at which the program is directed.
- Require FRA to determine (to the extent it has not already done so) the extent to which industry inspection efforts (with, possibly, the involvement of rail labor) can support Government inspection efforts.
- Require FRA to establish measures of effectiveness of inspection and enforcement ef -

forts relative to compliance with safety regulations.

### ISSUE 3

How should differences over primary responsibility for occupational safety and health of railroad employees between the Occupational Safety and Health Administration (OSHA) and the Federal Railroad Administration (FRA) be resolved to enable more effective administration of the program?

At the present time, there is no apparent agreement between the FRA and OSHA about primary responsibility for occupational safety and health programs for railroad employees. Statutory authority allows OSHA to exercise jurisdiction where FRA does not; however, OSHA's limited attempts to exercise authority have been challenged in court. The FRA issued an advance notice of proposed rulemaking in March 1975 and a proposed rule on July 15, 1976, on the subject of Railroad Occupational Safety and Health Standards. These proposals, in effect, would have eliminated OSHA jurisdiction completely from any work place associated with railroad operations and would have permitted FRA itself to take over OSHA's function.

In a letter to the Railway Labor Executives Association, however, Secretary Adams indicated that he was taking steps to resolve the matter moving away from FRA's position in its proposed rule. He stated that the FRA would be responsible for administration and enforcement of all existing railroad safety laws and regulations; that OSHA would be responsible for all health conditions of railroad employment, including those associated with railroad operations; and that OSHA would be responsible for all safety conditions not covered by FRA. Nonetheless, the statement does not resolve the problem that has complicated the matter from the outset, that is, how to distinguish between safety and health and how far each agency's jurisdiction extends. Furthermore, although Secretary Adams has taken this step to clarify

the situation, there has not yet been a memorandum of understanding entered into between the FRA and OSHA indicating their agreement as to this matter. On March 14, 1976, the FRA published a notice in the Federal Register, which cancelled the FRA proposed rulemaking of 1976. To date, the apparent division between the two agencies has been as follows: OSHA having responsibility for safety and health in the maintenance shops, office buildings, and the like and FRA having responsibility for safety with in a broad interpretation of the "rail operating environment."

### Policy Alternatives

1. Assign responsibility for all aspects of the occupational safety and health of railroad employees to OSHA.
2. Assign responsibility for all aspects of the occupational safety and health of railroad employees to FRA,
3. Continue the division of responsibility, with clarification of the specific responsibilities belonging to OSHA and FRA.
4. Make a new division of responsibility for the occupational safety and health of railroad employees between OSHA and FRA.
5. Place the responsibility for occupational safety and health of railroad employers with the railroads.

### Research Questions and Needs

1. What constitutes occupational safety and health and how does that impact on the operations of the railroad? This definition would be useful if it related specifically to the industry, taking into account the interaction of employees with various aspects of the operations.
2. What is the extent to which (occupational safety and health, by whatever definition, is a problem railroad employees? A study would be helpful in understanding the particular nature of the problems before decisions as to appropriateness of expertise may be finally made.

3. What is the precise nature of the disagreements between OSHA and FRA? Are there similar problems in other industries, and what has been their resolution?

### **Congressional Options**

- Amend the Federal Railroad Safety Act to clarify congressional intent as to occupational safety and health of railroad employees.
- Require FRA and OSHA to resolve the difficulties between them within a specified period of time and report back to Congress on their resolution.
- Require FRA and OSHA to measure their resolution of the problem by assessing occupational safety and health data trends for railroad employees over a specified period of time and to report back to Congress.
- Amend the laws to prevent Federal intervention in matters concerning the occupational safety and health of railroad employees.

### **ISSUE 4**

**So that grade-crossing safety can be improved, what must be done to resolve jurisdictional problems regarding responsibility for implementation of rail-highway grade-crossing programs?**

Accidents at grade crossings account for approximately 65 percent of the fatalities arising from railroad operation. Recognizing the magnitude of the problem, Congress provided 90 percent funding, under the Federal Highway Safety Acts of 1973 and 1976, to States for safety improvements to railroad-highway crossings. However, installation of the protective devices and the expected decrease in fatalities have been impeded by several factors: (1) the Federal Highway Administration apportions the funding to States by statutory formula, which is not based on either number of grade crossings or accidents, but reserves the right to disapprove cer-

tain State-funding strategies; (2) jurisdiction over the highway-grade crossings resides exclusively with the States, but this jurisdiction is, in many cases, divided among State agencies; and (3) installation and maintenance of train-activated warning devices may be done only by railroad employees or by private contractors employing members of the railroad union authorized to do so.

Although both technology and resources exist to solve the problem, they have not been successfully applied on a large enough scale, to date, because of jurisdictional problems concerning responsibility.

### **Policy Alternatives**

1. Give all responsibility for highway-grade crossings to the States. Have partial funding available from the Federal Government, with discretion granted to the States as to how it is to be utilized at grade crossings.
2. Place all responsibility for highway-grade crossings with the Federal Government and have it allocate resources according to its assessment of the priorities.
3. Give all responsibility for highway-grade crossings to the railroads, and have partial Federal funding available.
4. Leave the responsibilities as they are presently defined; but clarify the nature of the particular roles and the circumstances of the role for each of the concerned parties—i. e., Federal, State, and railroad.

### **Research Questions and Needs**

1. **A study to determine the characteristics of the “most dangerous” grade crossings based on exposure and previous history at individual grade crossings would aid in determining what, if any, priority-setting should be done at the Federal level and what, if any, specific direction/guidelines should be provided to States and railroads.**

2. If there is to be an increasing volume of train traffic and an increase in unit trains, as appears possible with a renewing interest in coal as an energy source, what implications will such increases have for grade crossing safety?

### Congressional Options

- Establish goals for the reduction of highway/railroad grade-crossing accidents.
- Amend the statute to define more clearly the roles of various participants in the program.
- Direct the Federal Highway Administration to confer with the States and the railroads and report back to Congress within a specific time period on a clarified understanding of their roles.
- Direct the Federal Highway Administration to develop priorities and/or criteria for determining priorities and measures of effectiveness for the program and to report back to Congress within a specified period of time as to the effectiveness of the program. The measures should relate at least in part to the accident data.

### ISSUE 5

#### **Should State participation in Federal railroad safety programs and policy be modified or eliminated?**

In the Federal Railroad Safety Act of 1970, Congress provided for a program in which States could participate in the inspection activities of the FRA in order to ensure compliance with Federal safety standards. This program has been controversial from its inception, with the States generally differing with FRA on how the program should be implemented and on the States' rights regarding the program. The FRA believed that it was responsible under law to ensure that participation by the States would be consistent with Federal inspection standards and policy. Thus, it set forth, by regulation, criteria

with which States have to comply in order to be able to participate.

States—with NARUC (National Association of Regulatory and Utilities Commissions) as one of their most vocal representatives—maintained that they had been guaranteed participation as a right under the law and that FRA was not correct in circumscribing the possibilities for State participation in this way. Nonetheless, the FRA regulations set forth requirements for participation; these requirements include the qualifications that State inspectors must meet. Inspector qualification has been one of the most contentious questions between FRA and the States. FRA maintains that a high level of experience is necessary; the States have argued that it is not necessary and that, furthermore, they are not able to find qualified people. Further, they would not be able to pay them if qualified. At the present time, the State Participation Inspection Program is limited to inspection programs for track and for freight car equipment (excluding safety appliances). There are currently 28 State inspectors and 8 inspector trainees in the equipment inspection program. There are 20 States participating in the track program and 8 States participating in the equipment program. Participation by States has not been large. Although the State inspectors are bound by the same standards and policy as the Federal inspectors, they are responsible to the States rather than to the FRA. Further, by statute, the States have enforcement power only if the FRA fails to act within 180 days. The State inspectors, like the Federal inspectors, must recommend enforcement action to FRA in Washington, where the decision is made on whether or not to take action.

#### **Policy Alternatives**

1. Expand the State Participation Inspection Program to include other aspects of the FRA inspection effort.
2. Leave the State Participation Inspection Program as it is presently constituted.
3. Leave the State Participation Inspection Program as it is presently constituted but

expand the States' rights under the program.

4. Discontinue the State Participation Inspection Program.

### Research Questions and Needs

1. In order to make a judgment about the desirability of the State participation Inspection Program, an evaluation of its effectiveness, as currently implemented, should be carried out. What measures of effectiveness should be established so as to allow generalizations based on "facts" rather than "impressions?" What inspector qualification in relation to the tasks that he/ she is expected to perform should be required.
2. What are the State's views of the program and their reasons for either participating or not participating?
3. What would be the effectiveness of the penalty structure and the enforcement policy of FRA (e.g., with regard to compromising penalties), if the States had enforcement powers?

### Congressional Options

- Amend the statute to confer greater powers to the States.
- Repeal the State participation provision.
- Direct FRA to establish measures of effectiveness for the State Participation Inspection Program, assess the program against these measures, and report back within a specified period of time with alternative courses of action.

## ISSUE 6

**What needs to be done to increase cooperation among stakeholders so various problems within the industry, now working counter to safety, can be resolved—and thus permit a more systematic approach to railroad safety?**

As indicated by the study findings, Government safety programs are currently placing differing emphasis on problems of casualties and property losses. However, there is a lack of understanding concerning the causes of these problems, the rationale for current programmatic emphasis, or the appropriateness and effectiveness of the mechanisms currently utilized by Government to address today's safety problems.

Railroad safety stakeholders generally have strong beliefs about the proper role of Government, the specific safety problems which should be addressed, and the various mechanisms Government should utilize to address these problems. Moreover, the concerns of the stakeholder groups regarding Government safety policy have economic as well as safety implications. The positions of the various groups have often run counter to one another and have been characterized by a lack of cooperation. (There are several recent signs toward a positive trend in cooperation. ) The result of the conflicting views, opinions, and approaches to safety by all groups has been that Government's approach to safety generally has been impaired. Inadequate attention has been placed on accident data, measures of effectiveness have not been designed into the programs, alternative approaches to safety problems have not been systematically considered, and jurisdictional problems between and among various agencies have arisen.

### Policy Alternatives

1. Establish a new method for addressing safety problems which creates an environment for cooperation; which sets priorities based on accident data analysis including accident severity, frequency, and cost; which examines alternative mechanisms for addressing safety problems; which establishes clear measures by which safety standards and programs can be evaluated; and which clearly identifies the appropriate agency or organization responsible for administration of safety programs.

2. Continue the existing method utilized to address safety problems wherein specific problems raised by given stakeholder groups are identified and addressed.

**Reward Question and Need+**

1. A clear and comprehensive determination and definition of the factors and criteria necessary to establish a systems approach to safety should be studied.
2. Research determining the extent economic and market forces may provide solutions to safety problems should be conducted.
3. To what extent, and by what specific means, should cost/benefit analyses be used to evaluate all approaches to safety problems.

4. What are the underlying factors or causes contributing to safety problems today? How much do we know about these factors?
- b. What specific types of levels of safety problems are inherently more amenable to solution through incentive programs? Through mandatory requirements?
6. What transferable knowledge is available from other transportation modes or other industries with respect to levels of cause for safety problems and/or mechanisms deployed to address these problems?
7. What are the specific types of incentive mechanisms available to Government, and where or how have they been successfully applied?