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The Federal Role in Railroad Bridge Safety

Railroad bridges carry heavy and potentially dangerous loads over busy roadways and important waterways. Many of these bridges are a century old or more. For example, the Metropolis and Sciotoville bridges over the Ohio River, owned and maintained by freight railroads BNSF and CSX, respectively, were built in 1917. Near Baltimore, CSX freight trains and MARC commuter trains use a stone arch bridge built in 1835. These bridges, built to conservative standards in the age of heavy steam locomotives, have proven to be durably engineered, and rail accidents resulting from bridge failure have been rare.

Nevertheless, the presence of visibly aging infrastructure can be alarming to residents, especially in the aftermath of the rare incidents where bridges do fail. For example, on July 5, 2018, two 30-ton pieces of non-load-bearing concrete fell from the Onondaga Street Bridge, owned by the New York, Susquehanna & Western Railway (NYSW), in Syracuse, NY; no one was hurt. In a separate incident in 2012, a Conrail train derailed and a tank car carrying hazardous materials was punctured while crossing a movable bridge in Paulsboro, NJ. While the bridge was structurally sound, it was not fully locked in place, which went unnoticed during crew inspection. There were no fatalities or serious injuries, but hundreds of residents were evacuated.

As entities engaged in interstate commerce, railroads are regulated by the federal government. However, unlike road bridges, which are the responsibility of public entities, railroad bridges are the responsibility of the private railroad companies that own or operate them, including the responsibility to maintain records of bridge inspections and repairs. Congress has acted in recent years to improve oversight of railroad bridge safety, but incidents such as the ones noted above have prompted concerns about whether enough is being done to protect the public.

Background

Growing Federal Role Since the 1990s

Aspects of railroad safety have been the subject of federal law and regulation since the 1890s. With the passage of the Federal Railroad Safety Act of 1970, the relatively new Federal Railroad Administration (FRA) became responsible for all aspects of rail safety, including railroad operations and the condition of track supports. Since that time, FRA has had the authority to inspect railroad facilities and to remove from service any infrastructure that poses a safety hazard (49 U.S.C. 20104). This is rare; only two emergency orders removing a bridge from service have been issued in the last 20 years.

Prior to 1995, no federal policy specifically addressed the inspection or maintenance of railroad bridges, leaving railroads to decide how and when to inspect their bridges. The Rail Safety Improvement Act of 1988 (P.L. 100-342) directed FRA to issue regulations regarding the safety of maintenance-of-way employees working on bridges, including the use of nets, handrails, and walkways, but it did not address bridge inspections themselves.

FRA undertook a survey of the nation's railroad bridges starting in 1991, estimating that there were approximately 100,700 bridges in service. In its survey, FRA also assessed the bridge management policies of 80 railroads, and observed inspections of more than 8,000 bridges (there were 597 railroads that reported safety data to FRA that year). FRA released the results of its survey in 1995, when it issued its first interim statement of policy for the safety of railroad bridges (60 *Federal Register* 20654).

The interim statement of policy concluded that the country's largest railroads "are following a course of action that corresponds with the public interest in prevention of bridge failures." Consequently, FRA opted to publish policy guidance, not regulations that would give the agency the authority to issue violations and collect fines, because "the industry has no apparent systemic bridge safety problem."

FRA found that there was greater variation in the effectiveness of bridge safety plans adopted by shortline railroads, small rail lines that have in many cases been spun off from larger railroads as independent companies. (Class I railroads are the largest operators, and regional railroads form a middle tier between Class I railroads and shortlines.) Shortlines, whether independent or consolidated under a holding company, control a comparatively small portion of the rail system in the form of several hundred separate lines, including the two most recent railroads to have bridges taken out of service by FRA emergency order. Although NYSW—the railroad involved in the Syracuse incident—is a regional railroad, the 1991 FRA survey found this tier more consistent with the larger railroads in the development and execution of bridge safety plans.

Final guidance on bridge safety, issued in 2000 as Appendix C to 49 C.F.R. Part 213, recommended that all railroad bridge owners periodically inspect bridges using competent inspectors, noting that the prevailing industry practice is to inspect bridges annually at a minimum. Railroads were also recommended to determine the capacity of all railroad bridges in their systems, and to limit operational loads to stay within that capacity; maintain records of bridge design, construction, maintenance, and inspection documents; and adhere to the design and rating

of bridges found in the American Railway Engineering and Maintenance-of-Way Association (AREMA) *Manual for Railway Engineering*.

In response to incidents involving trains that operated over bridges with deficiencies, FRA issued a safety advisory clarifying its bridge policy in 2007. The advisory recommended that railroads maintain an accurate inventory of the bridges for which they are responsible (72 *Federal Register* 51898).

Guidance Becomes Law: RSIA and FAST

The 2007 safety advisory, and the collapse of the Interstate 35W highway bridge in Minneapolis, MN, that same year, prompted Congress to include a provision in the Rail Safety Improvement Act of 2008 (RSIA; P.L. 110-432, §417) that requires railroads to maintain bridge safety plans (also referred to as Bridge Management Programs), and to make those plans available to FRA for review. FRA had been conducting evaluations of railroad bridge safety plans since the 1980s, before the 1995 interim statement of policy was first issued, but they were not required until RSIA was implemented.

The final rule implementing RSIA was published in 2010 and closely follows the structure of the FRA bridge policy statements, incorporating them into the *Code of Federal Regulations* (49 C.F.R., Part 237). The regulations require railroad bridge owners to implement safety plans that include at minimum annual inspections of bridges; conduct special inspections if the weather or other conditions warrant such inspections; maintain an inventory of all bridges and know their safe load capacities; maintain design documents and document all repairs, modifications, and inspections of each bridge; ensure bridge engineers, inspectors, and supervisors meet minimum qualifications; make sure bridge inspections are conducted under the direct supervision of a designated railroad bridge inspector; conduct internal audits of bridge management programs and inspections; and retain all bridge safety documents for at least two years, providing FRA access to those documents.

In response to concerns raised over oil trains after the 2013 Lac-Mégantic, Quebec, derailment which killed 47, Congress further amended bridge safety laws by requiring FRA to establish a means for state and local governments to obtain public versions of bridge inspection reports. To comply with the Fixing America's Surface Transportation (FAST) Act of 2015 (P.L. 114-94), in 2016 FRA launched a website where officials can submit request forms for bridge inspection records. RSIA already required that FRA be granted access to bridge safety records upon request. The FAST Act provision aims to make this easier. Public versions of bridge inspection reports contain basic information such as a bridge's general condition and the date of its last inspection. Typically, railroads have preferred not to make public too many details about the condition of their infrastructure or the volume of their traffic, citing security concerns.

Current Issues

Inconsistent Oversight of Smaller Railroads

In 2007, a Government Accountability Office (GAO) audit found variability in bridge safety programs among shortline railroads, similar to what FRA's own 1991 survey found, but now also found variability among regional railroads. Noting that this variability did not always seem to inform FRA's selection of railroads for audit, GAO recommended the development of a risk-based methodology for auditing bridge safety programs. A 2016 audit conducted by the Department of Transportation Inspector General (OIG) found that this risk-based prioritization effort ended after the enactment of RSIA, and recommended that FRA issue more detailed guidance to bridge specialists that defines how they should conduct and track their reviews. This recommendation and the five others arising from the audit were closed by OIG by November 2016. Noting that the Syracuse bridge incident occurred after this audit, that the bridge had been evaluated by NYSW to be safe, and that NYSW was in compliance with the FAST Act, some have contended that additional transparency is needed in order to avoid similar incidents in the future.

Shortage of FRA Bridge Specialists and Data

Enforcement of bridge safety law and regulation is often constrained by a lack of FRA bridge specialists, a position which requires specific engineering expertise that other inspectors may lack. FRA employs several hundred safety inspectors but in 2016 eight were dedicated to bridges. At that staffing level, FRA estimated it would take 8-10 years to review all bridge safety plans. FRA has sought funding to double its bridge specialist staff. As of August 2018, FRA had added one bridge specialist position for a total of nine, three of which were vacant. Funds for additional bridge inspectors and \$500,000 for the creation of a nationwide bridge inventory similar to the FHWA's National Bridge Inventory have been requested by FRA but not yet appropriated.

Availability of Federal Financial Assistance

Bridge projects are eligible for federal grants and loans, depending on their size and scope, but such assistance has been limited. Bridges on shortline, regional, or intercity passenger railroads are eligible for funding from the Consolidated Rail Infrastructure and Safety Improvements (CRISI) program. They are also eligible for funding from the Better Utilizing Investments to Leverage Development (BUILD) and Infrastructure for Rebuilding America (INFRA) programs, but must compete with highway, transit, and other projects. Furthermore, the Railroad Rehabilitation and Infrastructure Finance (RRIF) loan program guarantees up to \$35 billion to finance railroad infrastructure projects, with \$7 billion set aside for shortline railroads. Direct loans can fund up to 100% of a project with repayment periods of up to 35 years and interest rates equal to the cost of borrowing to the government.

Shortline and regional railroads like NYSW have been eligible to benefit from Section 45G of the Internal Revenue Code of 1986, which entitles qualified railroads to a tax credit equal to 50% of their track maintenance expenses. This credit is not permanent, though it has been

extended several times in recent years. It most recently expired at the end of 2017.

Ben Goldman, Analyst in Transportation Policy

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