NO. 19-71787, 19-71802, 19-71916, 19-71918

UNITED STATES COURT OF APPEALS
FOR THE NINTH CIRCUIT

TRANSPORTATION DIVISION OF THE INTERNATIONAL ASSOCIATION OF SHEET METAL, AIR, RAIL, AND TRANSPORTATION WORKERS, *et al.*,

Petitioners,

v.

FEDERAL RAILROAD ADMINISTRATION, *et al.*,

Respondents,

and

ASSOCIATION OF AMERICAN RAILROADS,

Intervenor.

BRIEF OF AMICI CURIAE ILLINOIS, CALIFORNIA, COLORADO, DELAWARE, THE DISTRICT OF COLUMBIA, MASSACHUSETTS, MINNESOTA, MISSISSIPPI, NEW JERSEY, NEW YORK, OREGON, VIRGINIA, AND WISCONSIN SUPPORTING PETITIONERS

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INTEREST OF AMICI STATES

The States of Illinois, California, Colorado, Delaware, the District of Columbia, Massachusetts, Minnesota, Mississippi, New Jersey, New York, Oregon, Virginia, and Wisconsin submit this brief in support of petitioners in consolidated cases Nos. 19-71787, 19-71802, 19-71916, and 19-71918 pursuant to Federal Rule of Appellate Procedure 29(a)(2). Consistent with their duty to protect the public health, safety, and welfare, the amici States have a substantial interest in the safe operation of trains that pass through their borders.

The Federal Railroad Administration's ("FRA") recent withdrawal of the March 15, 2016 Train Crew Staffing Notice of Proposed Rulemaking ("2016 NPRM")—which recommended that freight and passenger trains be staffed with at least two crewmembers—will make train operations less safe. Limiting the crew to a single crewmember (usually an engineer) creates a more dangerous work environment for those crewmembers, who work long and often irregular hours while performing physically and cognitively demanding tasks, and increases the likelihood of mistakes. In turn, promoting safer work environments by instituting multiple-person crews lessens the risk of train accidents,

which can inflict serious harm on the amici States' environments, communities, and residents (particularly those who live or work in proximity to railways).

The FRA's withdrawal of the 2016 NPRM also purports to preempt state laws regulating train crew staffing. The amici States thus have an additional interest in preserving their ability to regulate train crew staffing within their borders, given that the federal government does not currently require multi-member crews and has not otherwise set minimum safety standards for train crew staffing. Although the States have reached different conclusions on how best to regulate in this area, they share an interest in maintaining the flexibility to regulate in the manner that best suits their individual needs. Each year in Illinois, for example, railroads move one trillion pounds of freight over the State's 7,300 miles of rail, often through Chicago—the largest rail hub in the United States.[1] To that end,

[1] *See* Illinois Rail Facts, Illinois Commerce Commission (2019), https://www.icc.illinois.gov/downloads/public/2019-0425-RR%20Safety%20Fact%20Sheet%202019.pdf (For authorities available on the internet, all sites were last visited on December 11, 2019.). Other States have similar state-specific concerns. For example, in Massachusetts, which is part of the Northeast Corridor, trains carry nearly three million train passengers and over seven tons of freight each year. *See* Massachusetts

Illinois, like several other States with a significant rail presence, has chosen to enact legislation mandating a minimum of two crewmembers for health and safety purposes. 625 ILCS 5/18c-7402(d) (effective Jan. 1, 2020); *see also* Cal. Lab. Code § 6903(a); Colo. Rev. Stat. Ann. § 40-9-110; N.R.S. AB 337, § 1 (effective Oct. 1, 2019); W. Va. Code Ann. § 24-3-1b(a); Wis. Stat. Ann. § 192.25(2). Other States have elected to regulate train crew staffing by either instituting a full-crew requirement—the specifics of which differ depending on the type of operation, but often require some combination of an engineer, a conductor, a fireman, a flagman, and a brakeman[2]—or authorizing a state agency to determine whether a railway's train operation has a

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Dep't of Transportation, Massachusetts State Rail Plan (May 2018), at 2-3, 5, https://www.mass.gov/doc/final-state-rail-plan-spring-2018/download. And mountainous States, like California, Colorado, Oregon, and Washington, must address the additional safety concern of trains operating in "mountain-grade territory." Br. of Washington and California Public Utilities Commission, No. 19-71918, Dkt. 25 at 48.

[2] *See, e.g.*, Ariz. Rev. Stat. Ann. § 40-881 (requiring a "full crew" for passenger, mail, and express trains); Ohio Rev. Code Ann. § 4999.06 (full crew requirement); Or. Rev. Stat. Ann. § 824.300 (requiring full crew "consisting of one engineer, one apprentice engineer, one conductor, one brakeman and one flagger").

sufficient number of crewmembers.[3] Preempting these statutes, as well as others related to train crew staffing, frustrates the amici States' interest in retaining the ability to regulate in this area.

[3] *See, e.g.*, Mass. Gen. Laws Ann. ch. 160, § 185 (allowing the state agency to order changes to the "the number of men forming a train crew" if found that current number "is not sufficient to operate said train for the safety of the public and the employees of the railroad"); N.J. Stat. Ann. § 48:12-155 ("The board of public utility commissioners, upon its own initiative or upon complaint in writing, may by order in writing after hearing on notice to the parties direct any railroad company in this state to employ such number of employees on any of its trains as the board shall deem necessary to afford safe, adequate and proper service for the protection of the public and the employees of such company."); Wash. Rev. Code Ann. § 81.40.010(1) ("No law or order of any regulatory agency of this state shall prevent a common carrier by railroad from staffing its passenger trains in accordance with collective bargaining agreements or any national or other applicable settlement of train crew size. In the absence of a collective bargaining agreement or any national or other applicable settlement of train crew size, any common carrier railroad operating a passenger train with a crew of less than two members shall be subject to a safety review by the Washington utilities and transportation commission, which, as to staffing, may issue an order requiring as many as two crewmembers.").

SUMMARY OF ARGUMENT

In 2016, the FRA proposed a rule requiring freight and passenger trains, with a few exceptions, to be operated by at least two crewmembers. As explained in the 2016 NPRM, this proposal arose out of FRA's concern that as railroads began to implement new technology, they might reduce the number of crewmembers without first "considering safety risks or implementing risk mitigating actions that FRA believes are necessary." Train Crew Staffing, 81 Fed. Reg. 13,918, 13,919 (Mar. 15, 2016) (to be codified at 49 C.F.R. pt. 218).

This recommendation, which strove to maintain appropriate safety standards as the industry completed the years-long process of introducing automated systems into train operations, was based in empirical research and learned experience. The 2016 NPRM, moreover, was consistent with the considered policy judgments of the many States that had previously chosen to regulate train crew staffing. Finally, the 2016 NPRM garnered significant support from the public. Indeed, 98% of the comments were submitted in support of the proposal, and the "vast majority" of those comments "were filed by members of the public

on behalf of themselves as individuals." Train Crew Staffing, 84 Fed. Reg. 24,735, 24,736 (May 29, 2019).

In 2019, however, the FRA reversed course on two fronts. *See id.* at 24,735. First, it decided to withdraw the proposed rule based on its conclusion that minimum crew requirements were not necessary. Second, the FRA asserted its intention to preempt all state regulation of crew size. As petitioners have explained, the FRA's 2019 withdrawal not only violates the Administrative Procedure Act, *see* Br. of Washington and California Public Utilities Commission,[4] No. 19-71918, Dkt. 25, but also fails to preempt state laws, *see* Br. of Nevada, No. 19-71916, Dkt. 19-1; *see also* Br. of Transportation Division of the International Association of SMART Workers, et al., No. 19-71787, Dkt. 25 (discussing the APA and preemption).

The amici States write separately, however, to explain that the FRA's withdrawal is unsound for yet a third reason: it runs counter to the research on safe train operations. That research, as detailed in the 2016 NPRM, shows that operating trains with a single crewmember

[4] The California Public Utilities Commission has independent litigating authority and is not represented by the California Attorney General in this case.

creates a more dangerous work environment for railroad employees that, in turn, negatively impacts the health and safety of those workers and the amici States' residents.

As recent events have shown, train accidents devastate communities, kill and injure residents, and leave behind environmental damage that requires substantial time and resources to remediate. The FRA's withdrawal of the 2016 NPRM interferes with the States' regulatory interests and frustrates their ability to ensure the health and safety of their residents. This Court should grant the petitions.

ARGUMENT

I. Trains operated by multiple crewmembers have safer work environments than those with single-person crews.

As an initial matter, States have an interest in promoting a safe work environment for railroad employees living and working within their borders. As numerous studies have shown, crewmembers operate trains more safely when working as part of a team because they are able to coordinate with one another, provide backup in emergency situations, and solve problems together as they arise. Having multiple crewmembers also protects against fatigue, which can impair attentiveness, decision-making abilities, and response time in an

emergency. Furthermore, the benefits attributed to a two-person crew cannot yet be replaced by technological advances. The FRA's withdrawal of the 2016 NPRM disregards these important interests to the detriment of the amici States' workers and residents.

A. Train operations are safer when crewmembers work as part of a team.

The safety of a railroad employee, and thus of the train operation itself, is enhanced when employees operate as part of a team. Employees who work together are able to coordinate activities, share workloads, reduce fatigue, communicate, problem solve, and learn through observation of other crewmembers' strategies and skill sets. *See* Train Crew Staffing, 81 Fed. Reg. at 13,925-26, 13,929; *see also* Br. of Washington and California Public Utilities Commission, at 36-38.

Operating a train is a complex task involving the coordination of multiple activities. A train crew typically consists of at least a locomotive engineer and a conductor. The engineer's primary role is to drive the train engine from within the cab, which requires him or her to have an extensive knowledge of the rail lines and operating rules and to

quickly assess evolving situations.[5] In that role, the engineer's duties include operating the controls, throttles, brakes, and other equipment; maintaining an appropriate speed of travel; monitoring instruments and gauges, such as air pressure and battery use; observing track and highway-rail grade crossings for hazards or other obstructions; and analyzing updated information, signals, and alerts for factors that could impact the operation of the train and require immediate action.[6]

Conductors help engineers by coordinating and overseeing the activities of the train and any other crewmembers to ensure a safe and efficient operation.[7] Some of the conductor's specific duties may differ

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[5] Emilie Roth & Jordan Multer, Office of Research and Dev., Fed. R.R. Admin., Technology Implications of a Cognitive Task Analysis for Locomotive Engineers 28-29 (2009) [hereinafter Technology Implications], https://railroads.dot.gov/elibrary/ technology-implications-cognitive-task-analysis-locomotive-engineers.

[6] Bureau of Labor Statistics, U.S. Dep't of Labor, Occupational Outlook Handbook, Railroad Workers, https://www.bls.gov/ooh/transportation-and-material-moving/railroad-occupations.htm#tab-2.

[7] *Id.*; *see also* Office of R.R. Policy & Dev., Fed. R.R. Admin., DOT/FRA/ORD-12/13, Cognitive and Collaborative Demands of Freight Conductor Activities: Results and Implications of a Cognitive Task Analysis—Human Factors in Railroad Operations 5 (2012) [hereinafter Cognitive and Collaborative Demands], https://railroads.dot.gov/elibrary/cognitive-and-collaborative-demands-freight-conductor-activities-results-and-implications.

based on whether the engineer or conductor is operating a passenger or freight train, but they work together as a "tightly coupled cooperative team" to ensure safety and efficiency.[8]

As a team, engineers and conductors communicate constantly.[9] They work together to monitor the train and track conditions, identify or anticipate problems, resolve or mitigate risks, and plan ahead during low periods of activity.[10] Conductors also provide important support to engineers by reminding the engineer of upcoming changes, restrictions, or signals; helping to catch and mitigate mistakes; as well as helping the engineer to stay alert during monotonous conditions.[11] Along these lines, studies have shown that when working as a team, crewmembers are able to point out "situations that may have escaped the other's

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[8] Cognitive and Collaborative Demands, *supra* note 7, at 42.

[9] Bureau of Labor Statistics, U.S. Dep't of Labor, Occupational Outlook Handbook, Railroad Workers, https://www.bls.gov/ooh/transportation-and-material-moving/railroad-occupations.htm#tab-2.

[10] Cognitive and Collaborative Demands, *supra* note 7, at 42.

[11] Eduardo Salas et al., *Promoting Teamwork When Lives Depend On It: What Matters in the Railroad Industry?, in* Transportation Research Circular, Teamwork in U.S. Railroad Operations: A Conference, No. E-C159, 10, 14, 70-72 (2011), [hereinafter Promoting Teamwork] http://onlinepubs.trb.org/onlinepubs/ circulars/ec159.pdf; Cognitive and Collaborative Demands, *supra* note 7, at 42; Train Crew Staffing, 81 Fed. Reg. at 13,925.

attention."[12] This is important because hazards on the track may arise while the engineer is focused on a task inside the cab or is manning the controls. In fact, the FRA's Collision Analysis Working Group has concluded that some of the 65 collisions it studied could have been avoided if a conductor had been present in the cab with the engineer.[13] Finally, conductors serve as the backup for the engineer, including, for example, by activating the train's emergency brakes if the engineer fails to do so or by taking control of the cab if the engineer becomes incapacitated.[14]

In many ways, the safe operation of trains is analogous to the safe operation of an aircraft or the safe execution of a military operation.[15] Each of these operations requires the use of expert teams, comprised of

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[12] Collision Analysis Working Group, Fed. R.R. Admin., 65 Main-Track Train Collisions, 1997 through 2002: Review, Analysis, Findings, and Recommendations, 43 (2006) [hereinafter Train Collisions], https://railroads.dot.gov/elibrary/collision-analysis-working-group-cawg-report.

[13] *Id.*

[14] Cognitive and Collaborative Demands, *supra* note 7, at 42.

[15] Elliot E. Entin et al., *Enhancing Communication to Improve Team Performance with Application to Train Crews, in* Transportation Research Circular, No. E-C159, Teamwork in U.S. Railroad Operations: A Conference 27, 28 (2011), http://onlinepubs.trb.org/onlinepubs/circulars/ec159.pdf; *see also* Promoting Teamwork, *supra* note 11, at 23.

trained individuals with distinct roles. Working together, team members in each of these fields coordinate their activities to carry out a shared goal in the safest manner possible.[16]

In fact, teamwork is so entrenched in the operation of freight and passenger trains that many FRA regulations are based on the assumption that crewmembers will work together to complete tasks. In its 2016 NPRM, the FRA thus raised the possibility that reducing the number of crewmembers may render it impossible for train crews to comply with certain FRA regulations that were designed for a multiple-person crew. *See* Train Crew Staffing, 81 Fed. Reg. at 13,932. For instance, a single-person crew may not be able to safely evacuate passengers in the event of an emergency, obey a mandatory directive received via radio transmission while simultaneously driving the train, or manually add a safety hazard when the automated highway-grade crossings have failed. *Id.* at 13,934-95; *see also* Br. of Washington and California Public Utilities Commission, at 55-58.

A single crewmember will also lose the benefit of "job briefings," which require, among other things, crewmembers to discuss how to

[16] Promoting Teamwork, *supra* note 11, at 12.

safely complete an operation "'before work is begun, each time a work plan is changed, and at completion of the work.'" Train Crew Staffing, 81 Fed. Reg. at 13,932-33 (quoting 49 C.F.R. § 218.103(b)(1)). During these briefings, which would not occur with only a single crewmember present, the engineer and conductor are able to craft an appropriate plan of action based on their collective experience and training. *Id.* at 13,933. Thus, as research has shown, pairing a conductor with an engineer can mitigate risk.[17]

All told, train operations are safer when crewmembers are able to work in tandem, as was demonstrated during the aftermath of the 2013 collision of an oil train with a derailed grain train in Casselton, North Dakota. Although the collision resulted in a spill of approximately 475,000 gallons of crude oil and multiple explosions, Train Crew Staffing, 81 Fed. Reg. 13,923, the grain train's three-person crew was instrumental in avoiding catastrophe by moving as many as seventy train cars away from the fire, *id.* at 13,923-24. And the oil train's conductor and engineer worked together to ensure that they were braced for the impact, quickly assessed the emergency, helped each

[17] Train Collisions, *supra* note 12, at 43-46.

other find the quickest exit, and notified multiple authorities to summon emergency responders and prevent additional trains from becoming involved in the collisions. *Id.* at 13,924. In the 2016 NPRM, the FRA described myriad ways in which a single-person crew would have been unable to execute a similarly effective emergency response, confirming the important safety benefits that multiple-person crews bring to train operations. *Id.*

B. A reduction in crew size would increase worker fatigue and lead to a higher risk of train accidents.

Fatigue has long been recognized as one of the most critical safety issues for the railroad industry.[18] Because the industry operates 24 hours a day, seven days a week, many employees work irregular hours—including on nights, weekends, and holidays—or on long routes that keep them away from home for extended periods of time.[19] Work schedules that impact a train employee's duration of sleep, the

[18] Office of R.R. Policy & Dev., Fed. R.R. Admin., RR 18-11, Railroaders' Guide to Healthy Sleep 2 (2018), https://railroads.dot.gov/elibrary/railroaders-guide-healthy-sleep-research-based-educational-website; *see* Br. of Washington and California Public Utilities Commission, at 44.

[19] Bureau of Labor Statistics, U.S. Dep't of Labor, Occupational Outlook Handbook, Railroad Workers, https://www.bls.gov/ooh/transportation-and-material-moving/railroad-occupations.htm#tab-3.

regularity of sleep, or the number of sleep periods in a day can lead to progressive sleep deficit, which FRA research has recognized as one of the primary causes of fatigue.[20] And any sleep deficit, combined with the physical and cognitive demands of operating a train, can increase the likelihood of a train accident.[21]

The FRA has published numerous reports studying the causes, symptoms, and effects of fatigue as they relate to railroad employees and train operations. Not surprisingly, train engineers and conductors are likely to be exposed to fatiguing work conditions due to the irregularity of their schedules.[22] In an FRA study during the 1980s, for instance, a simulation showed that the work schedules of locomotive engineers caused them to accumulate sleep deficits over the course of several consecutive days, even when those schedules complied with the

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[20] Judith Gertler et al., Office of Research & Dev., Fed. R.R. Admin., DOT/FRA/ORD-1306, Fatigue Status of the U.S. Railroad Industry 9 (2013) [hereinafter Fatigue Status], https://railroads.dot.gov/elibrary/fatigue-status-us-railroad-industry.

[21] Thomas G. Raslear, Office of Research & Dev., Fed. R.R. Admin., DOT/FRA/ORD-14/05, Start Time Variability and Predictability in Railroad Train and Engine Freight and Passenger Service Employees 16 (2014), https://railroads.dot.gov/elibrary/start-time-variability-and-predictability-railroad-train-and-engine-freight-and-passenger.

[22] Fatigue Status, *supra* note 20, at 59.

hours-of-service limits under the then-current law.[23] Although the Railroad Safety Improvement Act of 2008 increased the required minimum hours of rest for train employees, a 2013 study by the FRA projected that locomotive engineers and conductors were still likely to exceed the hours-of-service limits established by that Act.[24]

Because fatigue is so closely tied to train accidents, it continues to be a safety priority for the States. Fatigued train employees are more than five times as likely to cause or be involved in a train accident than non-fatigued employees.[25] In one study, the FRA's Collision Analysis Working Group found that impaired alertness was a possible contributing factor in approximately 30% of the accidents it studied.[26] A separate report by the FRA determined that operating a train while fatigued was as risky as having a 0.08 blood alcohol content level.[27]

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[23] *Id.* at 3.

[24] *Id.* at 17.

[25] *Id.* at 66.

[26] Train Collisions, *supra* note 12, at 46.

[27] Steven R. Hursh et al., Office of Research & Dev., Fed. R.R. Admin., DOT/FRA/ORD-08/04, Validation and Calibration of a Fatigue Assessment Tool for Railroad Work Schedules – Final Report 21 (2008), https://railroads.dot.gov/sites/ fra.dot.gov/files/fra_net/2899/ord0804.pdf.

Research has also confirmed that the associated costs of train accidents caused by fatigue dwarf those with no evidence of fatigue; in fact, the economic cost of fatigue-related accidents is *quadruple* those of non-fatigue-related accidents.[28]

Although the Railroad Safety Improvement Act of 2008 increased the federal standards for work hours, rest breaks, and days off, these and other federal railroad safety standards were developed with at least a two-person crew—the prevailing standard train crew size at the time—in mind. *See* Train Crew Staffing, 81 Fed. Reg. at 13,937.[29] As the FRA explained in the 2016 NPRM, a railroad considering transitioning to one-person train crews under the then-proposed exceptions should take numerous precautions before safely doing so, such as considering "what redundancy backstops have been implemented in case the crewmember falls asleep on the job" and also implementing "strategies for reducing railroad worker fatigue, such as

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[28] Fatigue Status, *supra* note 20, at 64.

[29] *See also* R.R. Safety Advisory Committee, Fed. R.R. Admin., Appropriate Train Crew Size Working Group Update 8 (2013), https://www.regulations.gov/document? D=FRA-2000-7257-0158 (follow "Train Crew Size Working Group update" hyperlink).

improving the predictability of schedules, considering the time of day it permits one-person train crews to operate, and educating workers about human fatigue and sleep disorders." 81 Fed. Reg. at 13,926.

Indeed, research shows that single-person crews are more at risk of fatigue because they lack the backup support of other crewmembers. *Id.* at 13,919. As the FRA stated in 2016, single-person train crews may be susceptible to "[t]ask overload," which can lead to "a loss of situational awareness, and potentially to accidents." *Id.*[30] In a single-person crew, all of the responsibilities for operating the locomotive engine; maintaining vigilance over the external, internal, and situational conditions; as well as all other manual and administrative duties, would fall to a single engineer. These conditions leave little room for distractions, and an unexpected alert could, for example, cause an engineer to miss a speed restriction.[31] Multiple-person train crews offer protective benefits against overloading and any resultant fatigue, and can thus help to enhance the overall safety of train operations.

[30] *See also* Technology Implications, *supra* note 5.

[31] *Id.* at 24-25.

C. The use of positive train control systems and related technology is not a sufficient substitute for multiple crewmembers.

The FRA's 2019 withdrawal raised the possibility that the advent of positive train control systems and similar technological advances could reduce the need for multiple crewmembers on most trains. Train Crew Staffing, 84 Fed. Reg. at 24,740; *see also* Train Crew Staffing, 81 Fed. Reg. at 13,919 (addressing automation arguments). Positive train control systems are automated train management systems designed to prevent train-to-train accidents.[32] Although the amici States agree that positive train control is a beneficial and critical advancement for overall train safety, it is not yet a sufficient substitute for a second crewmember.

As an initial matter, positive train control systems are not yet fully operational. Although the Railroad Safety Improvement Act of 2008 established deadlines to implement positive train control systems

[32] Fed. R.R. Admin., PTC System Information, https://www.fra.dot.gov/Page/P0358.

nationwide, some railroads are not on pace to complete the implementation on time.[33]

Furthermore, even when installed, this technology has limitations. Positive train control systems were designed to prevent train-to-train collisions, correct excessive speeds, and ensure proper movement of trains through track switches and maintenance zones.[34] These systems do not, however, prevent collisions with pedestrians, vehicles, or other objects at highway-rail grade crossings.[35] In other words, although a positive train control system may be capable of stopping or slowing a train to avoid a collision with another train, it does not identify hazards at crossings, such as a vehicle stalled on a

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[33] *PTC Update: Are Railroads on Track to Meet the Impending Deadline?*, Before the U.S. Senate Comm. on Commerce, Science, & Transp., 115th Cong. (2018) (statement of Ronald L. Batory, Administrator, Federal Railroad Administration) [hereinafter Batory Statement], https://www.transportation.gov/testimony/ptc-update-are-railroads-track-meet-impending-deadline.

[34] Fed. R.R. Admin., PTC System Information, https://www.fra.dot.gov/Page/P0358; Ass'n of Am. R.R.s, The Role of Positive Train Control Technology, https://www.aar.org/campaigns/ptc/.

[35] Ass'n of Am. R.R.s, The Role of Positive Train Control Technology, https://www. aar.org/campaigns/ptc/; *see also* Technology Implications, *supra* note 5, at 36.

track. This gap in coverage is significant. In Illinois alone, for instance, there are 7,595 public grade crossings.[36]

There are also lingering questions about the technology's effectiveness. As recently as October 3, 2018, the current FRA Administrator, Ronald L. Batory, testified to the U.S. Senate that railroad executives have reported experiencing "significant technical issues" with positive train control systems due to their "immature" "reliability and stability."[37]

Finally, the combination of positive train control systems and one-person crews has not been sufficiently analyzed. Indeed, the positive train control studies completed by the FRA assume the presence of an engineer and a conductor in the cab. Train Crew Staffing, 81 Fed. Reg. at 13,937. This lack of information is concerning because positive train control systems create additional cognitive demands for train engineers. And it is not yet clear whether, on balance, the benefits of automation outweigh these new demands. In addition to these concerns, there is reason to believe that crews using automated technology may become

[36] Illinois Rail Facts, *supra* note 1.

[37] Batory Statement, *supra* note 33.

complacent and unable to take full control of a train if a positive train control system becomes non-operational.[38] For these reasons, among others, implementation of positive train control without multiple crewmembers and before these studies are performed could lead to an overall diminishment of train safety. *See* Train Crew Staffing, 81 Fed. Reg. at 13,929. States should not be required to take such a risk.

II. The safe operation of trains carrying hazardous materials prevents accidents and mitigates their harmful effects.

In addition to the health and safety interests discussed above, the amici States have a specific interest in the safe transport of crude oil and other hazardous materials by freight rail through their borders. In 2018 alone, railways transported more than 200 million barrels of crude oil—as well as other hazardous materials—on the 140,000 miles of freight rail in the United States.[39] That same year, there were 1,870

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[38] Emilie Roth et al., Office of Research & Dev., Fed. R.R. Admin., DOT/FRA/ORD-13/31, Using Cognitive Task Analysis to Inform Issues in Human Systems Integration in Railroad Operations 21-22, 40 (2013), https://railroads.dot.gov/ elibrary/using-cognitive-task-analysis-inform-issues-human-systems-integration-railroad-operations.

[39] U.S. Energy Information Admin., Movements of Crude Oil and Selected Products By Rail (2019), https://www.eia.gov/dnav/pet/pet_move_railNA_a_EPC0_ RAIL_mbbl_a.htm.

train accidents in the United States, 71% of which were derailments.[40] When trains carrying crude oil or other hazardous materials derail and spill their cargo, both the public and the environment are at risk of serious injury and loss. The frequency and severity of these accidents, moreover, has increased as the railway system is being used more regularly to transport crude oil and other hazardous materials.[41]

This heightened use of the rail lines to carry these materials is significant because freight trains pass through or near major metropolitan, suburban, and rural areas; schools, businesses, and residences; federal and state protected lands; and innumerable lakes and waterways. In fact, approximately 25 million Americans live within a one-mile evacuation zone of railroad track that is used to transport crude oil and other hazardous materials.[42] Given these

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[40] Bureau of Transp. Statistics, Train Fatalities, Injuries, and Accidents by Type of Accident, tbl.2-41 (2019), https://www.bts.gov/sites/bts.dot.gov/files/table_02_41_ 092319.xlsx.

[41] Sean T. Dixon, *Up Around the Bend: The Next Generation of Crude-by-Rail Legal Issues*, Nat. Resources & Env't, Spring 2016, at 27.

[42] *Id.* at 28; *see also* Br. of Nevada, at 38 (explaining Nevada's "legitimate concerns about the transportation of nuclear and other hazardous materials" given that railroad tracks "crisscross the State of Nevada through high desert terrain and urban areas").

dangers, many States have used their regulatory authority to enact measures designed to prevent or mitigate the heightened risks posed by derailments. These measures include, among others, instituting a minimum crew size for train operations.

A. The Lac-Mégantic train derailment represented a turning point in train staffing regulation.

The 2013 Lac-Mégantic disaster—which prompted the federal government and many States to study the effectiveness of one-person crews—illustrates the harm that can be caused by a train derailment, as well as ways in which appropriate safety measures, including the use of multi-person crews, can prevent similar accidents or mitigate their negative effects.

The freight train involved in the Lac-Mégantic accident was transporting crude oil from North Dakota to a refinery in New Brunswick, Canada.[43] When the train began experiencing mechanical

[43] Transp. Safety Bd. of Canada, Railway Investigation Report R13D0054—Runaway Train and Main-Track Derailment—Montreal, Maine & Atlantic Railway 1 (2014), http://tsb.gc.ca/eng/rapports-reports/rail/2013/R13D0054/R13D0054.pdf; Letter from Deborah A.P. Hersman, Chairwoman, Nat'l Transp. Safety Bd., to Cynthia L. Quarterman, Adm'r, Pipeline & Hazardous Materials Safety Admin. 1 (Jan. 21, 2014), https://www.ntsb.gov/safety/safety-recs/recletters/R-14-004-006.pdf.

issues, the railway instructed the engineer to stop the train at a predetermined point in Quebec.[44] Once stopped, the engineer engaged the air brakes on the engine locomotive, applied a limited number of handbrakes to rail cars, left the engine running, and went to a hotel for the night.[45] Shortly thereafter, a fire started in the train's smokestack due to leaking oil.[46] Local firefighters were dispatched with instructions from the railway to turn off the locomotive.[47]

Although this resolved the fire, it also caused the airbrakes to disengage and slowly release pressure.[48] The limited number of hand brakes the engineer applied was not enough to hold the 10,000-ton train, which started rolling down a seven-mile hill.[49] The train, travelling at 65 miles per hour, ultimately derailed when it hit a 10-

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[44] Transp. Safety Bd. of Canada, *supra* note 43, at 1-2; Hersman, *supra* note 43, at 1-2.

[45] Transp. Safety Bd. of Canada, *supra* note 43, at 1-2; Hersman, *supra* note 43, at 1-2.

[46] Transp. Safety Bd. of Canada, *supra* note 43, at 2; Hersman, *supra* note 43, at 2.

[47] Transp. Safety Bd. of Canada, *supra* note 43, at 2; Hersman, *supra* note 43, at 2.

[48] Transp. Safety Bd. of Canada, *supra* note 43, at 2; Hersman, *supra* note 43, at 2.

[49] Transp. Safety Bd. of Canada, *supra* note 43, at 2.

mile per hour curve near the center of the small town of Lac-Mégantic, Quebec.[50] Sixty-three tank cars carrying oil ruptured and released more than 1.6 million gallons of burning oil into Lac-Mégantic, killing 47 residents and destroying 40 buildings.[51] More than 2,000 people had to be evacuated as the town burned.[52]

In addition to causing these immediate harms, the oil spill contaminated local waterways, the town's sewer system, and 22,000 cubic meters of soil.[53] The clean-up costs were estimated to be approximately $200 million.[54] Because the railway was driven into bankruptcy following the accident, the costs and logistics of the clean-up placed a tremendous burden on local resources and emergency

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[50] Transp. Safety Bd. of Canada, *supra* note 43, at 2; Hersman, *supra* note 43, at 2.

[51] Transp. Safety Bd. of Canada, *supra* note 43, at 2; Hersman, *supra* note 43, at 2.

[52] Transp. Safety Bd. of Canada, *supra* note 43, at 3; Hersman, *supra* note 43, at 2.

[53] Evan W. Busteed, *Bakken Crude and the Ford Pinto of Railcars: The Growing Need for Adequate Regulation of the Transportation of Crude Oil by Rail*, 27 Vill. Envtl. L.J. 63, 80 (2016).

[54] *Id.*

personnel.[55] The town of Lac-Mégantic, with a population of just under 6,000 residents, was left to cover nearly $8 million in clean-up costs in the first few weeks after the accident alone.[56]

The investigation of the accident brought to light several concerns about the sufficiency of the railway's safety measures. In an effort to reduce costs, the railway had sought and obtained an "unusual exemption" from the Canadian regulatory body to operate a one-person crew.[57] The railway also advised the engineer to set an insufficient number of handbrakes and prohibited the use of additional airbrakes.[58] Although Canada's Transportation Safety Board could not conclusively determine that a second crewmember would have prevented the Lac-

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[55] CBC News, *Lac-Megantic Rail Disaster Company MM&A Files for Bankruptcy* (Aug. 7, 2013), https://www.cbc.ca/news/business/lac-mégantic-rail-disaster-company-mm-a-files-for-bankruptcy-1.1338481.

[56] Statistics Canada, Census Profile – 2016 Census: Lac-Mégantic [Population centre], Quebec and Quebec [Province] (2017), https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E&TABID=1 (search "Lac-Mégantic" then follow hyperlink for "Lac-Mégantic, Quebec [map]").

[57] Grant Robertson, *Ten-Second Procedure Might Have Averted Lac-Mégantic Disaster*, The Globe and Mail (Mar. 7, 2016), https://www.theglobeandmail.com/ news/national/new-info-shows-backup-brake-may-have-averted-lac-megantic-disaster/article29044518/.

[58] *Id.*

Mégantic accident, its investigative summary of the accident revealed the railway had an "elevated level of risk"[59] in part because of a "weak safety culture" that contributed to "unsafe conditions [and] unsafe practices."[60]

These findings prompted the federal government, *see* Train Crew Staffing, 81 Fed. Reg. at 13,921, and several States, *see, e.g.*, 625 ILCS 5/18c-7402(d) (effective Jan. 1, 2020); Colo. Rev. Stat. Ann. § 40-9-110; N.R.S. AB 337, § 1 (effective Oct. 1, 2019); to reexamine their regulation of train crew staffing.[61] Indeed, the train that derailed in Lac-Mégantic had first traveled through Minneapolis, Milwaukee, Chicago, and Detroit, where this or any other accident could have occurred along the way.[62] The FRA was thus "concerned" by the railway's inconsistent

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[59] Transp. Safety Bd. of Canada, *supra* note 43, at 135.

[60] *Id.* at 124.

[61] In addition to Colorado, Illinois, and Nevada, at least 28 States have proposed additional regulation on crew size since 2015. *See* Train Crew Staffing, 84 Fed. Reg. at 24,741 & n.44 (identifying proposed legislation in Alabama, Arizona, Georgia, Idaho, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Minnesota, Missouri, Nebraska, Nevada, New Mexico, New York, North Dakota, Ohio, Oklahoma, Pennsylvania, South Dakota, Texas, Utah, Virginia, Washington, and Wyoming); *see also* 2019 Mass. S. 2039.

[62] Transp. Safety Bd. of Canada, *supra* note 43, at 55 fig.7.

approach to crew staffing in the aftermath of the accident. Train Crew Staffing, 81 Fed. Reg. at 13,922. Although the railway "changed its operating procedures to use two-person crews on trains in Canada," it did not "make corresponding changes to its operating procedures in the [United States], even though the risk associated with this catastrophic accident also exists in the [United States]." *Id.* Accordingly, when the FRA issued its 2016 NPRM, it explained that the proposed rule reflected a proactive approach to reducing or eliminating the risks posed by the use of one-person crews because "railroad employees and the general public should not have to wait for horrific accidents before the Federal government takes action." *Id.* at 13,938, 19,940.

B. Train accidents injure residents, burden state and local resources, and harm the environment.

The Lac-Mégantic accident is just one example of the harm a train derailment can inflict on local residents. As seen there, many accidents result in significant injuries, including fatalities, to people going about their everyday lives when a train happens to derail in their community. In 2005, for example, nine people were killed and more than 250 required medical treatment when a train derailed in the town of

Graniteville, South Carolina and released a cloud of toxic chlorine gas.[63] And in 2002, approximately 1,500 North Dakota residents were injured when a train derailed and released anhydrous ammonia.[64] In yet another incident, a freight train derailed in Rockford, Illinois in 2009, causing an explosion and large fire that burned three motorists who were stopped at a nearby crossing.[65]

These accidents also require first responders in local communities to place their lives at risk and expend significant resources in an effort to mitigate the damage they cause. On September 10, 2019, for example, more than a dozen freight train cars carrying methyl isobutyl ketone, a flammable liquid, derailed in the town of Dupo, Illinois.[66] The

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[63] Jordan Barab, *Five Years after Lac-Mégantic, U.S. Freight Rail Going Backward on Safety*, The Century Foundation (2018), https://tcf.org/content/commentary/five-years-lac-megantic-u-s-freight-rail-going-backward-safety/?session=1.

[64] Nat'l Transp. Safety Bd., NTSB/RAR-04/01, Derailment of Canadian Pacific Railway Freight Train 292-16 and Subsequent Release of Anhydrous Ammonia Near Minot, North Dakota—Railroad Accident Report 1 (2004), https://www.ntsb.gov/investigations/AccidentReports/Reports/RAR0401.pdf.

[65] CNN, *1 Dead, 6 Hurt in Illinois Train Derailment*, Jun. 20, 2009, https://www.cnn.com/2009/US/06/20/illinois.train.derailment/index.html.

[66] Assoc. Press, *Union Pacific Freight Train Derailment Causes Huge Fire in Southern Illinois*, ABC 7 Chicago, Sep. 10, 2019,

derailment caused a large fire that released black smoke into the air, and emergency personnel from as many as 30 agencies responded,[67] evacuating nearby residents as well as students at the local elementary, junior high, and high schools.[68]

In addition to causing physical injuries, train accidents inflict psychological harm on survivors and witnesses who, in many cases, may be diagnosed with post-traumatic stress disorder. A 2016 study of residents of Lac-Mégantic found that two-thirds of residents suffered from "moderate to severe" post-traumatic stress disorder, and many reported being traumatized by the sight of a sunset, the sounds of slamming doors, and both real and toy trains.[69] One in six participants

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https://abc7chicago.com/freight-train-derailment-causes-huge-fire-in-southern-illinois/5529059/; Doha Madani, *Train Derails and Catches Fire in Illinois, Triggering Evacuations as Smoke is Seen for Miles*, NBC News, Sep. 10, 2019, https://www.nbcnews.com/news/us-news/train-derails-catches-fire-illinois-triggering-evacuations-smoke-seen-miles-n1052081.

[67] Madani, *supra* note 66.

[68] Assoc. Press, *supra* note 66.

[69] Ingrid Peritz, *Lac-Megantic Residents Continue to Suffer from PTSD After Rail Tragedy: Study*, The Globe and Mail, Feb. 4, 2016, https://www.theglobeandmail. com/news/national/lac-megantic-residents-suffering-from-anxiety-ptsd-after-rail-tragedy-report/article28565348/.

also reported an increase in alcohol consumption following the accident.[70]

A separate study of survivors of a 2004 passenger train derailment in Sweden found that many lived through near-death experiences, which is a predictor for post-traumatic stress disorder.[71] Most suffered psychological impacts, including fears of trains, nightmares, feeling "on edge," and having triggered responses to certain noises, like the creak of a bicycle or a sudden sneeze.[72] And in Illinois, residents of Decatur remember the chilling images they saw more than 45 years ago when a train carrying isobutane gas collided in a train yard, setting off an explosion that damaged more than 600 buildings and 80 homes, killed 7 workers, and injured more than 140 residents.[73]

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[70] *Id.*

[71] Rebecca Forsberg & Britt-Inger Saveman, Survivors' Experiences from a Train Crash, Int'l J. Qualitative Studies in Health & Well-Being 5, 10 (2011), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3224231/.

[72] *Id.* at 8.

[73] Tony Reid, *45 Years Later, Memories of the 1974 Decatur Rail Yard Explosion Remain Fresh*, Effingham Daily News, Jul. 22, 2019, https://www.effinghamdaily news.com/news/years-later-memories-of-the-decatur-rail-yard-explosionremain/article_e7fc0335-62d8-52c4-aacc-d96f88059faa.html.

As a final matter, train accidents harm the States' local environments and resources by, among other things, contaminating the soil and leaching hazardous liquids into water sources. In 2013 alone, trains in the United States spilled more than 1.5 million gallons of oil, which amounted to more than the previous 42 years combined.[74] And in the years since, there have been numerous oil spills caused by train accidents, including: a 2016 derailment in Oregon's Columbia River Gorge that spilled 42,000 gallons of crude oil;[75] two derailments in two days in Wisconsin in 2015, which resulted in 1,000 gallons of crude oil and 20,000 gallons of ethanol being spilled;[76] and the 2015 derailment that spilled over 110,543 gallons of crude oil near the historic town of Galena, Illinois.[77]

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[74] Busteed, *supra* note 53, at 79-50.

[75] Assoc. Press, *A Timeline of Recent Oil Train Crashes in the US and Canada*, AP News, Jun. 3, 2016, https://apnews.com/84b1e8273d854697b34af57bc60badc2.

[76] Assoc. Press, *Crews Work to Clear up After 2 Wisconsin Train Derailments*, Chi. Tribune, Nov. 9, 2015, https://www.chicagotribune.com/nation-world/ct-wisconsin-train-derailment-20151108-story.html.

[77] Press Release, Ill. Att'y Gen., Attorney General Announces Settlement With BNSF Railway for Oil Spill Caused by Train Derailment (Feb. 14, 2017), http://www.illinoisattorneygeneral.gov/pressroom/2017_02/20170214.html; U.S. Envtl. Prot. Agency, Pollution/Situation Report: BNSF Galena Derailment—Removal Polrep

Each of these spills placed a tremendous burden on state and local communities to clean up and monitor the site of the accident. In the Galena accident, for instance, the tank cars ruptured and leaked crude oil into the ground adjacent to the Galena and Mississippi Rivers, and a resulting fire caused dense black smoke.[78] The Illinois Attorney General reached a settlement with the railway company for $10.5 million to clean the site, monitor for contamination, and reimburse state and local authorities for the costs they incurred.[79]

In sum, the amici States submit that, in the absence of federal regulation requiring multi-member crews, they should retain the ability to protect their residents and workers and avoid environmental and other harms by instituting minimum crew requirements. The FRA's withdrawal of the 2016 NPRM impairs the amici States' interests and exposes their residents and workers to the often devastating effects of train accidents.

#15 Final 2 (2015), https://response.epa.gov/site/polrep_printer.aspx?counter=24556&format=pdf.

[78] Press Release, *supra* note 77.

[79] *Id.*

CONCLUSION

For these reasons, this Court should grant the petitions.

RESPECTFULLY SUBMITTED this 11th day of December 2019.

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