AUTHENTICATED
U.S. GOVERNMENT
INFORMATION
GPO

S. HRG. 114–125

PASSENGER RAIL SAFETY: ACCIDENT PREVENTION AND ON-GOING EFFORTS TO IMPLEMENT TRAIN CONTROL TECHNOLOGY

HEARING

BEFORE THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION UNITED STATES SENATE

ONE HUNDRED FOURTEENTH CONGRESS

FIRST SESSION

JUNE 10, 2015

Printed for the use of the Committee on Commerce, Science, and Transportation



U.S. GOVERNMENT PUBLISHING OFFICE

97–741 PDF WASHINGTON : 2015

For sale by the Superintendent of Documents, U.S. Government Publishing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512–1800; DC area (202) 512–1800
Fax: (202) 512–2104 Mail: Stop IDCC, Washington, DC 20402–0001

SENATE COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION

ONE HUNDRED FOURTEENTH CONGRESS

FIRST SESSION

JOHN THUNE, South Dakota, *Chairman*

ROGER F. WICKER, Mississippi	BILL NELSON, Florida, *Ranking*
ROY BLUNT, Missouri	MARIA CANTWELL, Washington
MARCO RUBIO, Florida	CLAIRE MCCASKILL, Missouri
KELLY AYOTTE, New Hampshire	AMY KLOBUCHAR, Minnesota
TED CRUZ, Texas	RICHARD BLUMENTHAL, Connecticut
DEB FISCHER, Nebraska	BRIAN SCHATZ, Hawaii
JERRY MORAN, Kansas	EDWARD MARKEY, Massachusetts
DAN SULLIVAN, Alaska	CORY BOOKER, New Jersey
RON JOHNSON, Wisconsin	TOM UDALL, New Mexico
DEAN HELLER, Nevada	JOE MANCHIN III, West Virginia
CORY GARDNER, Colorado	GARY PETERS, Michigan
STEVE DAINES, Montana	

DAVID SCHWIETERT, *Staff Director*
NICK ROSSI, *Deputy Staff Director*
REBECCA SEIDEL, *General Counsel*
JASON VAN BEEK, *Deputy General Counsel*
KIM LIPSKY, *Democratic Staff Director*
CHRIS DAY, *Democratic Deputy Staff Director*
CLINT ODOM, *Democratic General Counsel and Policy Director*

CONTENTS

	Page
Hearing held on June 10, 2015	1
Statement of Senator Thune	1
Statement of Senator Nelson	3
Statement of Senator Blunt	30
Statement of Senator McCaskill	33
Statement of Senator Manchin	35
Statement of Senator Blumenthal	38
Statement of Senator Peters	39
Statement of Senator Booker	42
Statement of Senator Cantwell	43
Statement of Senator Markey	45
Statement of Senator Klobuchar	47
Statement of Senator Gardner	48
Statement of Senator Johnson	49

WITNESSES

Hon. T. Bella Dinh-Zarr, PhD, MPH, Vice Chairman, National Transportation Safety Board	4
Prepared statement	6
DJ Stadtler, Vice President of Operations, Amtrak	15
Prepared statement	16
Robert C. Lauby, Associate Administrator for Safety and Chief Safety Officer, Federal Railroad Administration, U.S. Department of Transportation	18
Prepared statement	20
Charles Mathias, Associate Chief, Wireless Telecommunications Bureau, Federal Communications Commission	22
Prepared statement	24

APPENDIX

Response to written questions submitted by Hon. Steve Daines to:	
DJ Stadtler	53
Charles Mathias	53

PASSENGER RAIL SAFETY: ACCIDENT PREVENTION AND ON-GOING EFFORTS TO IMPLEMENT TRAIN CONTROL TECHNOLOGY

WEDNESDAY, JUNE 10, 2015

U.S. SENATE,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, DC.

The Committee met, pursuant to notice, at 10:05 a.m. in room SR–253, Russell Senate Office Building, Hon. John Thune, Chairman of the Committee, presiding.

Present: Senators Thune [presiding], Blunt, Ayotte, Fischer, Johnson, Gardner, Nelson, Cantwell, McCaskill, Klobuchar, Blumenthal, Markey, Booker, Manchin, and Peters.

OPENING STATEMENT OF HON. JOHN THUNE, U.S. SENATOR FROM SOUTH DAKOTA

The CHAIRMAN. This hearing will come to order.

As Ranking Member Nelson and I noted after the tragic derailment of Amtrak train 188 in Philadelphia last month, the victims, their families, and all those affected by the accident remain in our thoughts and prayers.

We convene today's hearing to evaluate how we can assist railroads and passenger rail operators to prevent derailments like Amtrak 188 in the future.

While the cause of this accident has not been officially determined, preliminary data from NTSB show that Amtrak 188 was traveling through the curve at Frankford Junction at a speed of 106 miles per hour, despite the maximum authorized speed of 50 miles per hour on that curve. Without question, speed was a factor in this derailment and human error may have contributed to the excessive speed, underscoring the importance of train control technology and other strategies to address this accident risk.

Today we will hear from a panel of experts on accident prevention and train control, focusing in particular on positive train control. We know that automatic train control and older automatic braking technology was in effect on the southbound tracks at Frankford Junction, but not on the northbound tracks where the derailment occurred. Automatic train control protections, which are cheaper and quicker to implement than positive train control systems, may have made a critical difference in the Amtrak 188 derailment and have since been implemented by Amtrak at Frankford Junction.

Amtrak is engaged in a complete survey of the Northeast Corridor to identify and implement other necessary automatic train control modifications. While additional automatic train control protections must be implemented immediately, where feasible and appropriate, positive train control is a more advanced, transformative safety technology that, when properly configured and fully operational, will more effectively prevent accidents. When it comes to more robust overspeed derailment, train-to-train collision prevention and work zone incursion, and misplaced switch protection, PTC offers critical safety benefits that are simply not achieved through any other existing technology.

While I fully support the implementation of PTC, for years I have noted the complexity of its full implementation for both passenger and certain freight railroads. The mandate covers over 60,000 miles of track and over 20,000 locomotives, and the complexity is compounded by the challenges of achieving seamless interoperability across passenger and freight railroads with differing systems.

Among other things, PTC has required the formulation of 26 new technical standards facilitating the development of new communications equipment, on-board displays, back office servers, the acquisition and integration of radio spectrum and the mapping of 400,000 field assets.

Many challenges were not fully understood or appreciated when PTC was mandated in 2008 following the tragic Metrolink accident in California or when railroads drafted their initial PTC implementation plans following the final implementing rule in 2010. The technical complexity is why. As implementation progressed, the FRA in 2012 and GAO in 2013 warned that most railroads would not meet the December 31, 2015 statutory deadline to implement PTC. FRA found that railroads encountered extensive and unexpected technical and programmatic challenges, and GAO found that railroads could encounter operational risks from trying to meet the deadline while components were still in development.

That being said, railroads have made progress on implementation. Over 13,000 locomotives are equipped or partially equipped and over 8,000 signals have been replaced. Railroads have also committed significant funds. Passenger railroads have spent over $1 billion, and freight railroads have spent over $5 billion. But due to the complexity and implementation challenges with PTC, the vast majority of railroads will not meet the deadline.

As a result of this reality, the question in Congress has not been whether to extend the deadline, but rather how to extend the deadline.

Senator Feinstein, with original cosponsors Boxer, Blumenthal, Schumer, and Gillibrand, introduced a bill, Senate Bill 1006, that would extend the deadline to 2018 on a case-by-case basis in one-year increments.

The Administration proposes giving the Secretary of Transportation discretion to extend the deadline with no hard end date on a case-by-case basis. The Administration also proposes to allow the Secretary to exempt track from the PTC mandate altogether if a railroad implements alternative strategies that meet certain criteria.

Senator Blunt, with 13 cosponsors, 10 of which are on this committee, including me, introduced a bipartisan bill, Senate Bill 650, that was successfully reported out of this committee granting an extension to 2020 with case-by-case extensions for testing, certification, or extenuating circumstances for up to 2 additional years. As amended by Senator Blumenthal, the bill would require annual progress reports submitted to the Secretary.

There is merit in ensuring that railroads focus their time and resources on installing and testing PTC appropriately so that the systems work as intended, especially given the $6 billion investment to date and the great need to put that investment to use. But there is also merit in providing additional oversight to ensure expeditious implementation.

Understanding that there is broad agreement on the need for deadline extension, I hope Congress can soon come together on a thoughtful, revised implementation framework for this important safety technology. Otherwise, there could be some potentially significant effects when each railroad that cannot meet the deadline must decide whether to stop service or operate in violation of the law, subject to penalties and unknown liability risk.

After December 31, each railroad must evaluate the legality of allowing passenger operations over their tracks and the legality of shipping toxic-by-inhalation materials that are nevertheless critical to so many parts of our economy, from ammonia for our fertilizer to chlorine for our water. Alternative modes of transportation may not be as efficient or as safe.

In the course of our hearing today, in addition to PTC, I expect that we will discuss other noteworthy, ongoing safety initiatives. Without question, we must improve the safety of our Nation's passenger rail system.

To that end, I commend Senators Wicker and Booker for their leadership on the passenger rail bill, which will be introduced later this month and has a dedicated safety title that addresses many of these important issues. The Committee looks forward to considering their bipartisan bill later this month.

With that, I will yield to our distinguished Ranking Member, the Senator from Florida, Senator Nelson.

STATEMENT OF HON. BILL NELSON, U.S. SENATOR FROM FLORIDA

Senator NELSON. Thank you, Mr. Chairman.

And you are right. Tragically, the reason we are here for this hearing is that our rail safety efforts have not worked. And while this investigation is ongoing, the solution is apparent. We need positive train controls installed and activated as soon as possible.

Now, we have heard about the technical challenges and reasons for delay, and undoubtedly, the installation of PTC is complex, but just talking about the technical challenges will not make them go away. We need to get this technology installed quickly, and then we must do some more. We must make sure that we prevent further delays. And we must also consider whether additional technologies or changes in operations could prevent these kinds of crashes. While we know that PTC is, we think, the best solution,

I would like to hear from you all today if there are other measures that can be put into place in the meantime to protect passengers.

We must also make sure that our passenger and commuter railroads have the funding that they need to install PTC. According to the American Public Transportation Association, commuter rail needs between $2 billion to $3 billion to implement and install these systems. But what are we facing? Instead of looking at these increases, we are facing cuts. I think we are going to have to reverse that course.

And finally, we would like for no accidents to occur at all, which is the standard, but we know that they will. So we need to protect the victims when those accidents occur. The victims and their families ought to receive appropriate compensation, but an arbitrary cap on compensation enacted nearly 2 decades ago is unrealistic. It is time to reevaluate the cap and to ensure that the victims of these crashes are adequately compensated.

And compared to other modes of transportation, rail obviously will continue to be a very safe way of moving people and freight. But this committee has the responsibility to learn from this crash and to examine whether additional safety measures should be put into place.

I thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Senator Nelson.

I want to turn now to our panel. We have with us today Mr. Robert Lauby. He is the Chief Safety Officer at the U.S. Department of Transportation. Mr. DJ Stadtler. Mr. Stadtler is the Chief Operations Officer of Amtrak. Mr. Charles Mathias. He is the Bureau Chief of the Wireless Telecommunications Bureau at the Federal Communications Commission. And the Honorable Bella Dinh-Zarr. Ms. Dinh-Zarr is the Vice Chairman of the National Transportation Safety Board.

Welcome to all of you. Thank you for taking the time to share with us your thoughts. We look forward to your input and the opportunity to ask you some questions. I believe we will start on my left and your right with Ms. Dinh-Zarr. Please proceed with your remarks, and if you can all confine it as close as possible to five minutes, it will be greatly appreciated. Thank you.

STATEMENT OF HON. T. BELLA DINH-ZARR, PHD, MPH, VICE CHAIRMAN, NATIONAL TRANSPORTATION SAFETY BOARD

Dr. DINH-ZARR. Thank you, Chairman. Chairman Thune, Ranking Member Nelson, and members of the Committee, thank you for the opportunity to speak to you today.

I would like to start by telling you about an incident that occurred in Connecticut when two commuter trains collided head on after one of the trains failed to follow operating orders. Four people were killed and 43 people were injured as a result of this accident.

This accident occurred on August 20, 1969 in Darien, Connecticut, and led to the NTSB's first train control technology recommendation in 1970. While it occurred over 45 years ago, the same story, the story of tragedies that could have been prevented, is repeated again and again in too many of the rail accidents that we have investigated now.

Since that first recommendation, the NTSB has investigated over 140 PTC-preventable accidents in which nearly 300 people died and over 6,500 people were injured. The complete list of these accidents is attached to my full written statement.

As we all know, the May 12 accident in Philadelphia would have been prevented by PTC, and sadly eight people were killed and more than 200 people were seriously injured. I was there. I was at the scene of that accident. I saw firsthand the terrible aftermath and the damage, and I had the opportunity to speak with some of the families who were affected by this tragedy. So on behalf of the entire NTSB, I would first like to offer my deepest condolences to those who lost their loved ones in this accident, and our thoughts still remain with those who are recovering from their injuries. And we would like to assure them that we are working to prevent future such tragedies.

Simply stated, PTC, or positive train control, is a system that prevents or mitigates accidents, accidents involving overspeeding, train-to-train collisions, incursions into roadway work zones, and misaligned switches. PTC is really the safeguard against human factors like distraction, fatigue, or simply human error. It does not take away from the responsibility of the operator, but what it does do is provide an additional layer of safety, an additional layer of safety should something, whatever it is, go wrong.

After the deadly accident in Chatsworth, California in 2008, Congress mandated the implementation of PTC by the end of this year, 7 years after the bill was signed into law. Those railroads that have made the difficult decisions and invested in this proven safety enhancement should be commended for their leadership. For those that will not meet the deadline, there should be a transparent accounting of the steps taken, and the steps not taken, to implement this mandate.

We at the NTSB understand that there are challenges and complexities associated with implementing PTC, but there are rail lines that will meet the deadline. And in other industries, we have seen technologies implemented that were considered initially to be too difficult or too expensive, but ultimately these lifesaving technologies were implemented, they were accepted, and they were welcomed by the American public.

For example, in cars, electronic stability control, or ESC, can detect when a car is about to lose traction and automatically apply the brakes. Congress mandated stability enhancing technologies in 2005, and just 7 years later by 2012, all new cars were equipped with ESC. And NHTSA reports a 60 percent reduction in fatal rollovers and a 31 percent reduction in single-vehicle crashes as a result of ESC.

There are always challenges and complexities and costs associated with new lifesaving technologies, but we need to move beyond thinking about the short-term transactional costs and focus on, as the Chairman eloquently put it, the long-term transformational benefits that technologies like PTC will provide to save lives and prevent injuries. We have the latest technology, and even if it is difficult, we should use it to save lives.

As we state in our Most Wanted List, each death, each injury, and each accident that PTC could have prevented testifies to the

vital importance of implementing PTC now. And I feel it is my responsibility to all of you, to Chairman Thune, to the good Senators of this committee, and to the American people to add that for every day that passes without PTC, we run the risk of another deadly and very preventable, PTC-preventable, accident.

Thank you, and I would be happy to answer any questions.

[The prepared statement of Dr. Dinh-Zarr follows:]

PREPARED STATEMENT OF HON. T. BELLA DINH-ZARR, PHD, MPH, VICE CHAIRMAN, NATIONAL TRANSPORTATION SAFETY BOARD

Good morning Chairman Thune, Ranking Member Nelson, and the Members of the Committee. Thank you for inviting the National Transportation Safety Board (NTSB) to testify before you today.

The NTSB is an independent Federal agency charged by Congress with investigating every civil aviation accident and significant incidents in the United States and significant accidents and incidents in other modes of transportation—railroad, highway, marine and pipeline. The NTSB determines the probable cause of accidents and other transportation events and issues safety recommendations aimed at preventing future accidents. In addition, the NTSB carries out special studies concerning transportation safety and coordinates the resources of the Federal Government and other organizations to provide assistance to victims and their family members impacted by major transportation disasters.

Since its inception, the NTSB has investigated more than 140,500 aviation accidents and thousands of surface transportation accidents. In addition, the NTSB has completed 553 major investigative reports in the areas of railroad, pipeline, and hazardous materials safety, including 150 accidents involving Amtrak. On call 24 hours a day, 365 days a year, NTSB investigators travel throughout the country and internationally to investigate significant accidents and develop factual records and safety recommendations with one aim—to ensure that such accidents never happen again.

To date, we have issued over 14,000 safety recommendations to nearly 2,300 recipients. Because we have no authority to regulate the transportation industry, our effectiveness depends on our reputation for conducting thorough, accurate, and independent investigations and for producing timely, well-considered recommendations to enhance transportation safety.

The NTSB's annual Most Wanted List highlights safety-critical actions that the U.S. Department of Transportation (DOT), United States Coast Guard, other Federal entities, states, and organizations need to take to help prevent accidents and save lives. In January, the NTSB released its Most Wanted List of Transportation Safety Improvements for 2015. Each year, we develop our Most Wanted List based on safety issues we identify as a result of our accident investigations. This year's Most Wanted List includes "Implement Positive Train Control in 2015." As we pointed out:

> Without Positive Train Control (PTC), real-world results have been tragic. PTC is a system of functional requirements for monitoring and controlling train movements to provide increased safety. While the NTSB has called for a system like this for over 45 years, it still has not been fully implemented in our commuter, intercity, and freight trains. Without it, everybody on a train is one human error away from an accident.
>
> Congress enacted the Rail Safety Improvement Act of 2008 [RSIA]. The Act requires each Class I rail carrier and each provider of regularly-scheduled intercity or commuter rail passenger service to implement a PTC system by December 31, 2015. Progress is being made toward this lifesaving goal. Metrolink became the first commuter rail system to implement PTC, when it began a revenue service demonstration on the BNSF Railway. This demonstration project is a step in the right direction, and Metrolink reports it will implement PTC fully throughout its entire system before the Congressionally mandated deadline.
>
> It has been more than 45 years since the NTSB first recommended the forerunner to PTC. In the meantime, more PTC-preventable collisions and derailments occur, more lives are lost, and more people sustain injuries that change their lives forever.
>
> Yet there is still doubt when PTC systems will be implemented nationwide as required by law.

Each death, each injury, and each accident that PTC could have prevented, testifies to the vital importance of implementing PTC now.

For over 45 years, the NTSB has investigated numerous train collisions and over speed derailments caused by operational errors involving human performance failures. The NTSB attributed these human performance failures to a variety of factors, including fatigue, sleep disorders, medications, loss of situational awareness, reduced visibility, and distractions in the operating cab. Many of these PTC-preventable accidents occurred after train crews failed to comply with train control signals, follow operating procedures in non-signaled or "dark" territories, observe work zone protections, or adhere to other specific operating rules such as returning track switches to normal position after completing their work at railroad sidings.

The first NTSB-investigated accident that train control technology would have prevented occurred in 1969, when four people died and 43 were injured in the collision of two Penn Central commuter trains in Darien, Connecticut.[1] The NTSB recommended, based upon its investigation of that accident, that the FRA study the feasibility of requiring railroads to install an automatic train control system, the precursor to today's PTC systems.[2] The appendix to this prepared statement provides a chart showing that since the NTSB issued the first safety recommendation concerning train control technology in 1970, there have been more than 140 accidents across the country resulting in nearly 300 fatalities, more than 6500 injuries, and costing millions of dollars, that could have been prevented or mitigated by PTC.

Older cab signaling and speed control systems, such as automatic train control (ATC), have been in use for nearly a century. In 1919, a system that could automatically stop a train in violation of a signal was tested on the Buffalo, Rochester, and Pittsburgh Railway. That same system was commercially applied to the Chicago and North Western Railway in 1923. ATC is designed to enforce restrictive and stop signals by applying a penalty brake application to slow or stop the train to prevent or mitigate the results of train-to-train collisions, but ATC will not prevent all train collisions and was not designed to prevent over speed derailments.[3] Although ATC is still in use today, the nearly century-old technology is obsolete and insufficient to provide an acceptable level of rail safety today. PTC systems are designed to prevent derailments caused by over speeding and train-to-train collisions by slowing or stopping trains that are not complying with the signal systems, track authorities and speed limits. They are also designed to protect track workers from being struck by trains by preventing train incursions into designated work zones and prevent train movement through misaligned switches.

Congress enacted RSIA in the aftermath of the 2008 accident in Chatsworth, California in which a Metrolink commuter train and a Union Pacific freight train collided head-on, killing 25 people and injuring 102 others.[4] The NTSB's investigation concluded that the Metrolink engineer's use of a cell phone to send text messages distracted him from his duties and that PTC could have prevented or mitigated this accident. This Committee's report accompanying the Senate bill under consideration prior to the enactment of the RSIA also pointed to the NTSB's investigation of a 2005 train derailment in Graniteville, South Carolina, in which an employee failed to properly line a track switch, resulting in the death of nine individuals due to the release of chlorine gas.[5] [6]

RSIA requires the implementation of a PTC system by December 31, 2015, on each line over which intercity passenger or commuter service is operated or over which poison-or toxic-by-inhalation hazardous materials are transported .[7] Several rail carriers have stated that they will not meet the 2015 deadline, and we know that Congress is considering extending the PTC implementation deadline. We urge Congress not to extend the RSIA deadline and require full PTC implementation without delay. NTSB accidents are filled with files containing PTC preventable acci-

---

[1] NTSB, *Penn Central Company, Collision of Trains N–48 and N–49 on August 20, 1969,* Rpt. No. RAR–70–03 (October 14, 1970).

[2] R–70–020, Dec. 18, 1970.

[3] Penalty braking is a brake application that is initiated after the train engineer fails to comply with a signal or to acknowledge an alerter alarm.

[4] NTSB, *Collision of Metrolink Train 111 With Union Pacific Train LOF65–12 Chatsworth, California September 12, 2008,* Rpt. No. NTSB/RAR–10/01 (Jan. 21, 2010).

[5] S. Rpt. No. 110–270, accompanying *S. 1889, the Railroad Safety Enhancement Act of 2007,* at 6 (March 3, 2008).

[6] NTSB, *Collision of Norfolk Southern Freight Train 192 With Standing Local Norfolk Southern Train P22 With Subsequent Hazardous Materials Release at Graniteville, South Carolina, January 6, 2005,* Rpt. No. NTSB/RAR–05/04 (Nov. 29, 2005).

[7] Rail Safety Improvement Act of 2008, Pub. L. No. 110–432, § 104 (2008).

dents, and every day that PTC is delayed, the risk of a PTC-preventable accident remains.

The most recent PTC-preventable accident occurred last month on May 12, 2015, when Amtrak Northeast Regional Train 188 derailed. The accident train, operating northbound from Washington to New York, departed Philadelphia's 30th Street Station on time bound for New York's Penn Station. The train derailed while traveling through a four-degree left curve at Frankford Junction. Maximum speed through the curve is 50 miles-per-hour (mph), but NTSB's preliminary data analysis determined that moments before the derailment, the train was traveling at 106 mph when the engineer applied the emergency brake system. Eight people were killed and more than 200 were injured.[8]

Another PTC-preventable accident occurred on December 1, 2013, when a Metro-North commuter train derailed in the Bronx after entering a curve with a 30 mph speed limit at 82 mph.[9] Four people lost their lives and 61 others were injured. We determined the probable cause of the derailment was the engineer's noncompliance with the 30 mph speed restriction because he had fallen asleep due to undiagnosed severe obstructive sleep apnea. A contributing factor was the absence of a positive train control system that would have automatically applied the brakes to enforce the speed restriction.

Other accidents that could have been prevented by PTC include:

- In September 2010, near Two Harbors, Minnesota, human error and fatigue contributed to the collision of two freight trains, injuring five crewmembers.
- In April 2011, near Red Oak, Iowa, fatigue contributed to the rear-end collision of a coal train with a standing maintenance-of-way equipment train, killing two crewmembers.
- In May 2011, in Mineral Springs, North Carolina, human error contributed to the rear-end collision of two freight trains, killing two crewmembers and injuring two more.
- In May 2011, in Hoboken, New Jersey, human error contributed to the collision of a train with the bumping post at the end of the track.
- In January 2012, near Westville, Indiana, inattentiveness contributed to the collision of three trains, injuring two crewmembers.
- In June 2012, near Goodwell, Oklahoma, human inattentiveness contributed to the collision of two freight trains, killing three crewmembers.
- In July 2012, near Barton County, Missouri, human error contributed to the collision of two freight trains, injuring two crewmembers.
- In May 2013, near Chaffee, Missouri, inattentiveness and fatigue contributed to the collision of two freight trains, injuring two crewmembers and causing the collapse of a highway bridge.
- In December 2013, near Keithville, Louisiana, human error contributed to the collision of two freight trains, injuring four crewmembers.

Since 2004, in the 30 PTC-preventable freight and passenger rail accidents that the NTSB investigated, 69 people died, more than 1,200 were injured, and damages totaled millions of dollars.

Thus far, some PTC systems have been successfully deployed. For example, one of the deployed PTC systems is the Amtrak Advanced Civil Speed Enforcement System (ACSES). Amtrak has deployed ACSES along portions of the Northeast Corridor that are owned by Amtrak.[10] ACSES, a transponder-based system approved by FRA, enforces maximum track speed limits, permanent and temporary speed limits, and positive stop at interlocking and controlled point signals displaying stop. In addition, Amtrak has deployed the Incremental Train Control System (ITCS) on more than 60 route miles along Amtrak owned Michigan Line between Chicago and Detroit.[11] ITCS has been in revenue service since September 2000.

Extending RSIA's deadline may result in a patchwork of PTC systems in operation across U.S. rail systems. Without a fully implemented and PTC system, railroads that complied with the 2015 deadline would not be able to fully utilize their PTC functionality if they operate on track used by a carrier that has not met the law.

---

[8] NTSB, Preliminary Report: Railroad DCA15MR010 (2015).

[9] NTSB, *Metro North Railroad Derailment,* Accident Brief No. RAB–14/12 (October 24, 2014).

[10] The area of track where the May 12, 2015 derailment occurred near Philadelphia is not yet equipped with ACSES. Amtrak has indicated it expects to have ACSES operational in this area by the end of 2015, if possible.

[11] *See http://www.fra.dot.gov/Page/P0287.*

In February 2013, the NTSB held a forum called "Positive Train Control: Is it on Track?" in order to bring together a wide range of experts to examine the technological, regulatory, and operational status of PTC.[12] Challenges hindering the full implementation of PTC were discussed, including cost, standardization of technologies, and availability of radio spectrum. Despite these challenges, the NTSB believes it is crucial that the Congressionally-mandated goal of PTC by the end of 2015 remain in place.

Conclusion

Early forerunners of PTC have been in existence since the 1920s. Yet, more than a decade into the 21st century, we are still hearing that PTC cannot be implemented this year—it is too costly and too difficult. This type of response would not have been tolerated concerning automobile seatbelt or airbag technology, and it should not be acceptable here. The NTSB strongly supports full PTC implementation without delay. Many railroads that have made the difficult decisions and invested millions of dollars to implement PTC in 2015 should not be penalized for their leadership. For each and every day that PTC implementation is delayed, the risk of a PTC-preventable accident remains.

Thank you for the opportunity to testify before you today. I look forward to responding to your questions.

[12] Information concerning the NTSB's PTC Forum on is available at *http://www.ntsb.gov/news/events/Pages/2013__Train-Control__FRM.aspx*

ATTACHMENT

	A	B	C	D	E	F	G	H	I	J	K	L
1	DATE OF ACCIDENT	LOCATION	RAILROAD(S)	INJURED	FATAL	Property Damage	ACCIDENT TYPE	PTC in PC	PTC RELATED REC(S)	RECIPIENT(S)	PTC Preventable under current FRA regulations	PTC Preventable under current NTSB recommendations
2	8/20/1969	Darien, CT	Penn Central	43	4		head-on		R-70-20	FRA	yes	yes
3	12/2/1971	***	Special Study - Signals & Operating Rules as Causal Factors in Train Accidents	***	***	***	***		R-71-45	FRA	***	***
4	3/12/1972	Herndon, PA	Penn Central	0	4		head-on	no	R-73-8 (alerters)	FRA	yes	yes
5	5/24/1972	Maquon, IL	Burlington Northern	0	4		head-on	no	none		yes	yes
6	5/24/1972	***	Special Study - Train Accidents Attributed to the "Negligence of Employees"	***	***	***	***	***	reiterate R-70-20 reiterate R-71-45		***	***
7	10/30/1972	Chicago, IL	Illinois Central Gulf	332	45		rear-end	no	R-73-30	FRA	yes	yes
8	11/10/1972	Movlan, PA	Penn Central	7	0		rear-end					yes
9	1/19/1973	Port Jefferson, NY	Long Island RR	3	0		rear-end					yes
10	2/21/1973	Taft, LA	Texas and Pacific	2	3		head-on	no	none		yes	yes
11	3/9/1973	Newburg Jct, NY	Erie Lackawanna	4	0		rear-end					yes
12	3/14/1973	Cheverly, MD	Penn Central	11	0		rear-end					yes
13	5/25/1973	New York, NY	Long Island RR	0	0		side					yes
14	6/8/1973	Mount Vernon, NY	Penn Central	144	1		rear-end					yes
15	6/25/1973	Indio, CA	Southern Pacific	0	2		rear-end	no	reiterate R-73-8		yes	yes
16	11/2/1973	Evanston, IL	Chicago Transit Authority	33	0		rear-end					yes
17	12/1/1973	Cotulla, TX	Missouri Pacific	0	3		misaligned switch	no	none		yes	yes
18	5/8/1974	Cleveland, OH	Penn Central	0	2		misaligned drawbridge	no	none		yes	yes
19	9/1/1974	Mustang, OK	St. Louis-San Francisco	3	1		head-on	no	none		yes	yes
20	9/13/1974	Chicago, IL	Chicago Transit Authority	35	0		rear-end					yes
21	11/18/1974	Chicago, IL	Chicago Transit Authority	13	0		rear-end					yes
22	1/2/1975	Botanical Gardens, NY	Penn Central	265	0		rear-end	yes	R-75-06 R-75-36	MTA FRA	yes	yes
23	5/30/1975	Meeker, LA	Texas and Pacific	0	3		rear-end	no	R-76-03 reiterate R-71-45	FRA	yes	yes
24	6/6/1975	Lestonia, OH	Penn Central	7	1	$1,250,000	rear-end	no	none		no	yes
25	10/17/1975	Wilmington, DE	Penn Central	25	0		rear-end	no	R-76-24	FRA	no	yes
26	7/5/1975	Hurricane, AK	Alaska RR	62	1	$558,000	rear-end	no	none		yes	yes
27	8/1/1975	Boston, MA	Massachusetts Bay Transportation Authority	154	0	$425,000	rear-end	no	none		no	yes
28	10/17/1975	Wilmington, DE	Penn Central	25	0	$817,866	rear-end	no	none		no	yes
29	1/9/1976	Chicago, IL	Chicago Transit Authority	380	1	$267,000	rear-end	no	none		no	yes
30	2/4/1976	Pettisville, OH	Penn Central	2	4	$1,165,000	head-on	no	reiterate R-76-03		yes	yes
31	7/13/1976	New Canaan, CT	Conrail	30	2		rear-end	no	none		yes	yes
32	8/18/1976	Cleveland, OH	Greater Cleveland Regional Transit Authority	20	0	$61,000	rear-end	no	none		yes	yes
33	2/4/1977	Chicago, IL	Chicago Transit Authority	266	11	$1,200,000	rear-end	no	none		no	yes
34	6/12/1977	Baltimore, MD	Conrail	4	0	$300,000	rear-end	no	none		yes	yes
35	7/8/1977	Cleveland, OH	Greater Cleveland Regional Transit Authority	60	0	$100,000	head-on	no	none		yes	yes
36	6/9/1978	Seabrook, MD	Conrail & Amtrak	176	0	$248,050	rear-end	no	R-78-39	Amtrak	yes	yes
37	1/31/1979	Muncy, PA	Conrail	3	2	$1,304,200	rear-end	no	reiterate R-76-03		no	yes
38	3/29/1979	Ramsey, WY	Union Pacific	3	2	$1,121,000	rear-end	no	reiterate R-76-03		no	yes

	A	B	C	D	E	F	G	H	I	J	K	L
1	DATE OF ACCIDENT	LOCATION	RAILROAD(S)	INJURED	FATAL	Property Damage	ACCIDENT TYPE	PTC in PC	PTC RELATED REC(S)	RECIPIENT(S)	PTC Preventable under current FRA regulations	PTC Preventable under current NTSB recommendations
39	4/20/1979	Edison, NJ	Amtrak	73	0	$353,600	head-on	no	none		yes	yes
40	7/24/1979	Thousand Palms, CA	Southern Pacific	4	1	$1,479,700	rear-end	no	none		yes	yes
41	10/1/1979	Royersford, PA	Conrail	0	2	$562,000	rear-end	no	reiterate R-76-03		no	yes
42	10/12/1979	Harvey, IL	Amtrak & Illinois Central Gulf	44	2		misaligned switch	no	none		yes	yes
43	10/16/1979	Philadelphia, PA	Conrail	524	1	$1,940,312	rear-end	no	none		no	yes
44	2/12/1980	Orleans Road, WV	Baltimore & Ohio	5	1	$1,688,200	head-on	yes	reiterate R-73-08		yes	yes
45	4/2/1980	Lakeview, NC	Amtrak & Seaboard Coast Line	123	0	$1,145,492	head-on	no	none		yes	yes
46	7/17/1980	North Wales, PA	Southeastern Pennsylvania Transportation Authority & Conrail	67	0	$1,475,000	rear-end	no	none		no	yes
47	9/6/1980	Welch, WV	Norfolk & Western	0	3	$1,446,553	side	no	reiterate R-76-03		yes	yes
48	10/16/1980	Hermosa, WY	Union Pacific	2	2	$993,000	rear-end	no	reiterate R-76-03		no	yes
49	11/7/1980	Dobbs Ferry, NY	Amtrak & Conrail	84	0	$915,000	head-on	no	none		yes	yes
50	2/9/1981	Germantown, MD	Baltimore & Ohio	4	0	$701,000	head-on	no	none		yes	yes
51	7/3/1981	Brooklyn, NY	New York Transit Authority	140	1	$543,200	rear-end	no	none		no	yes
52	8/11/1981	Beverly, MA	Boston & Maine and Massachusetts Bay	32	4	$1,683,200	head-on	no	none		yes	yes
53	12/28/1981	New Johnsonville, TN	Louisville & Nashville	1	2	$998,313	rear-end	no	R-82-98	Louisville & Nashville	no	yes
54	3/29/1982	Bristol, PA	Amtrak	32	0	$832,000	head-on	no	none		yes	yes
55	10/3/1982	Possum Grape, AR	Missouri Pacific	1	2	$1,047,000	side	no	none		yes	yes
56	9/14/1983	Sullivan, IN	Seaboard System	3	2		rear-end	no	none		no	yes
57	2/26/1984	Saltsburg, PA	Conrail	3	0	$784,719	rear-end	no	none		no	yes
58	4/13/1984	Wiggins, CO	Burlington Northern	2	5	$3,891,428	head-on	no	reiterate R-76-03	FRA	yes	yes
59	4/22/1984	Newcastle, WY	Burlington Northern & Atchison, Topeka and Santa Fe	2	2	$1,358,993	rear-end	no	reiterate R-76-03	FRA	no	yes
60	6/14/1984	Motley, MN	Burlington Northern	4	3	$3,931,146	head-on	no	none		yes	yes
61	7/23/1984	Queens, New York, NY	Amtrak	140	1	$3,199,000	head-on	no	none		yes	yes
62	1/21/1985	Gary, IN	Chicago, South Shore & South Bend	87	0	$2,433,000	head-on	no	none		yes	yes
63	2/25/1985	Robbins, SC	Seaboard System	3	0	$66,455	rear-end	no	none		yes	yes
64	7/10/1985	Cleveland, OH	Greater Cleveland Regional Transit Authority	50	0		rear-end	no	none		no	yes
65	8/2/1985	Westminster, CO	Burlington Northern	0	5	$4,000,000	head-on	no	none		yes	yes
66	5/7/1986	Brighton, MA	Boston & Maine and Conrail	153	0	$102,210	rear-end	no	R-87-16	FRA	no	yes
67	7/10/1986	North Platte, NE	Union Pacific	3	1		rear-end	no	R-87-19	UP	no	yes
68	10/9/1986	Fall River, WI	Amtrak	30	1		overspeed	no	none		yes	yes
69	1/4/1987	Chase, MD	Amtrak & Conrail	174	16		rear-end	no	R-87-01 R-87-02	Amtrak Amtrak	yes	yes
70	2/6/1987	East Concord, NY	CSX	7	2	$2,009,950	head-on	no	none		yes	yes
71	6/15/1987	Yuma, AZ	Southern Pacific	0	1		head-on	no	none		no	yes
72	10/12/1987	Russell, Iowa	Amtrak	122	0		misaligned switch	no	none		yes	yes
73	1/14/1988	Thompsontown, PA	Conrail	2	4	$6,015,000	head-on	no	none		yes	yes
74	1/29/1988	Chester, PA	Amtrak	24	0	$3,397,000	collision	yes	none		yes	yes
75	7/30/1988	Altoona, Iowa	Iowa Interstate	2	2	$1,000,000	head-on	no	none		yes	yes

	A	B	C	D	E	F	G	H	I	J	K	L
1	DATE OF ACCIDENT	LOCATION	RAILROAD(S)	INJURED	FATAL	Property Damage	ACCIDENT TYPE	PTC in PC	PTC RELATED REC(S)	RECIPIENT(S)	PTC Preventable under current FRA regulations	PTC Preventable under current NTSB recommendations
76	8/9/1990	Sugar Valley, GA	Norfolk Southern	3	3	$1,269,000	collision	no	R-91-25 R-91-31 R-91-32 reiterate R-87-16	FRA AAR Railway Progress Institute	yes	yes
77	11/7/1990	Corona, CA	Atchison, Topeka and Santa Fe Railway Company	2	4	$4,400,000	head-on	no	none		yes	yes
78	12/12/1990	Boston, MA	Amtrak and MBTA	453	0	$12,500,000	overspeed / collision	yes	none		yes	yes
79	7/2/1991	Cleveland, OH	Greater Cleveland Regional Transit Authority	15	0	$5,500	rear-end	yes	R-93-1 R-93-2 R-93-3 reiterate R-91-37	Greater Cleveland Regional Transit Authority State of Ohio	no	yes
80	8/30/1991	Ledger, MT	Burlington Northern	4	3	$19,000,000	head-on	yes	R-93-12 R-93-13 R-93-14 R-93-15	FRA AAR AAR Railway Progress Institute	yes	yes
81	9/17/1991	Knox, IN	Norfolk Southern	5	1	$3,500,000	head-on	no	R-92-09	Norfolk Southern	yes	yes
82	1/18/1993	Gary, IN	Northern Indiana Commuter Transportation District	95	7	$854,000	collision	no	none		yes	yes
83	11/11/1993	Kelso, WA	Burlington Northern & Union Pacific	0	5	$4,605,000	head-on	yes	R-94-13 R-94-14 R-94-15 R-94-16 R-94-17 R-94-18 reiterate R-87-16 reiterate R-93-12	FRA FRA FRA AAR BNSF UP	yes	yes
84	6/8/1994	Thedford, NE	Burlington Northern	2	2	$2,500,000	rear-end	yes	reiterate R-87-16 reiterate R-32-12		no	yes
85	2/9/1995	Brooklyn, NY	New York City Transit	15	0	$1,500,000	rear-end	no	R-96-11	NYCT	yes	yes
86	6/5/1995	Brooklyn, NY	New York City Transit	71	1	$2,300,000	rear-end	no	none		yes	yes
87	2/9/1996	Secaucus, NJ	New Jersey Transit	69	3	$3,329,000	head-on	no	none		yes	yes
88	2/16/1996	Silver Spring, MD	MARC & Amtrak	26	11	$7,500,000	head-on	yes	R-97-13 R-97-24 R-97-25 R-97-26 R-97-32 R-97-39 R-97-40 R-97-41 reiterate R-87-16	FRA FTA FTA CSX Maryland MTA AAR AAR AAR	yes	yes
89	3/11/1996	Philadelphia, PA	Southeastern Pennsylvania Transportation Authority	1	0	$80,800	rear-end	no	none		yes	yes
90	5/12/1996	Pleasant Hill, IL	Gateway Western	2	0	$1,261,850	side	no	none		yes	yes
91	8/20/1996	Smithfield, WV	CSX	2	2	$3,848,914	head-on	no	none		yes	yes
92	8/30/1996	Beaumont, CA	Southern Pacific Transportation	0	0	$176,000	rear-end	no	none		no	yes
93	2/21/1997	Odem, TX	Union Pacific	2	0	$31,000	rear-end	no	none		no	yes

	A	B	C	D	E	F	G	H	I	J	K	L
1	DATE OF ACCIDENT	LOCATION	RAILROAD(S)	INJURED	FATAL	Property Damage	ACCIDENT TYPE	PTC in PC	PTC RELATED REC(S)	RECIPIENT(S)	PTC Preventable under current FRA regulations	PTC Preventable under current NTSB recommendations
94	5/14/1997	Branson, MO	Missouri and Northern Arkansas & Branson Scenic	2	0	$410,625	misaligned switch	no	none		no	yes
95	6/22/1997	Devine, TX	Union Pacific	2	4	$6,015,000	head-on	yes	reiterate R-87-16		yes	yes
96	7/2/1997	Delia, KS	Union Pacific	1	1	$5,141,000	side	yes	none		yes	yes
97	9/29/1997	Hummelstown, PA	Conrail	0	1	$571,700	rear-end	no	none		yes	yes
98	3/25/1998	Butler, IN	Norfolk Southern & Conrail	2	1	$616,200	side	no	none		yes	yes
99	7/16/1998	Geneseo, KS	Central Kansas Railway	0	0	$842,028	rear-end	no	none		yes	yes
100	1/17/1999	Bryan, OH	Conrail	0	2	$5,300,000	rear-end	yes	R-01-06	FRA	yes	yes
101	3/23/1999	Momence, IL	Conrail & Union Pacific	4	0	$1,791,000	head-on	yes	none		yes	yes
102	2/13/2000	BWI Airport	Maryland Transit Admin	18	0	$924,000	overspeed	no	none		yes	yes
103	8/15/2000	BWI Airport	Maryland Transit Admin	17	0	$935,000	overspeed	no	none		yes	yes
104	2/5/2001	Syracuse, NY	Amtrak & CSXT	62	0	$280,600	rear-end	yes	none		no	yes
105	6/17/2001	Chicago, IL	Chicago Transit Authority	21	0	$30,000	rear-end	no	none		no	yes
106	8/3/2001	Chicago, IL	Chicago Transit Authority	118	0	$136,138	rear-end	no	none		no	yes
107	11/15/2001	Clarkston, MI	Canadian National	2	2	$1,400,000	head-on	no	none		yes	yes
108	12/13/2001	Pacific, MO	Union Pacific	4	0	$10,000,000	rear-end	no	none		no	yes
109	4/23/2002	Placentia, CA	BNSF & Metrolink	162	2	$4,600,000	head-on	yes	R-03-23 reiterate R-01-06	AAR	yes	yes
110	5/28/2002	Clarendon, TX	BNSF	3	1	$8,000,000	head-on	yes	none		yes	yes
111	6/12/2002	Aurora, IL	Metra	47	0	$292,000	head-on	no	none		no	yes
112	6/17/2002	Baltimore, MD	Amtrak & MARC	6	0	$740,000	side	yes	none		yes	yes
113	10/21/2002	Des Plaines, IL	Union Pacific	2	0	$1,020,000	side	no	none		yes	yes
114	2/13/2003	Scotts Bluff, NE	BNSF	2	1	$2,400,000	side	no	none		yes	yes
115	10/12/2003	Chicago, IL	Metra	47	0	$5,000,000	overspeed	yes	R-05-13 reiterate R-01-06	Metra	yes	yes
116	11/15/2003	Kelso, WA	BNSF & Union Pacific	2	0	$2,700,000	side	yes	none		yes	yes
117	2/21/2004	Carrizozo, NM	Union Pacific	0	2	$1,964,543	head-on	no	none		no	yes
118	5/19/2004	Gunter, TX	BNSF	1	4	$2,000,000	head-on	no	none		yes	yes
119	6/28/2004	Macdona, TX	Union Pacific	41	3	$5,700,000 $150,000 enviro	head-on	yes	none		yes	yes
120	1/6/2005	Graniteville, SC	Norfolk Southern	556	9	$6,900,000	misaligned switch	no	none		yes	yes
121	7/10/2005	Anding, MS	Canadian National	0	4	$9,500,000 $616,800 enviro	head-on	yes	R-07-01 (alerter) R-07-07	FRA CN	no	yes
122	9/15/2005	Shepherd, TX	Union Pacific	2	1	$1,514,000	misaligned switch	no	none		yes	yes
123	9/17/2005	Chicago, IL	Metra	117	2	$6,350,000	overspeed	yes	none		yes	yes
124	10/15/2005	Texarkana, AR	Union Pacific	0	1	$2,400,000	rear-end	no	none		yes	yes
125	1/18/2006	Lincoln, AL	Norfolk Southern	3	0	$5,200,000	rear-end	yes	none		yes	yes
126	7/1/2006	Abington, PA	Southeastern Pennsylvania Transportation Authority	38	0	$179,700	head-on	no	none		no	yes
127	1/9/2007	Woburn, MA	Massachusetts Bay Transportation Authority	12	2	$560,841	work zone authority	no	none		yes	yes
128	11/10/2007	Bertram, CA	Union Pacific	0	2	$2,000,000	rear-end	yes	none		yes	yes
129	11/30/2007	Chicago, IL	Norfolk Southern & Amtrak	71	0	$1,299,000	rear-end	yes	none		no	yes
130	5/28/2008	Newton, MA	Massachusetts Bay Transporations Authority	8	1	$8,600,000	rear-end	yes	R-09-08 R-09-14	FTA MBTA	no	yes
131	9/12/2008	Chatsworth, CA	Metrolink/Union Pacific	102	25	$12,000,000	head-on	yes	none		yes	yes
132	11/20/2008	Rialto, CA	Metrolink/BNSF	4	0	$25,000	side	yes	none		yes	yes

	A	B	C	D	E	F	G	H	I	J	K	L
1	DATE OF ACCIDENT	LOCATION	RAILROAD(S)	INJURED	FATAL	Property Damage	ACCIDENT TYPE	PTC in PC	PTC RELATED REC(S)	RECIPIENT(S)	PTC Preventable under current FRA regulations	PTC Preventable under current NTSB recommendations
133	5/8/2009	Boston, MA	Massachusetts Bay Transportation Authority	68	0	$9,600,000	rear-end	yes	none		no	yes
134	7/18/2009	San Francisco, CA	MUNI	48	0	$4,500,000	rear-end	no	none		yes	yes
135	7/14/2009	Bettendorf, IA	DM&E	0	2	$1,500,000	misaligned switch	no	R-12-27	FRA	yes	yes
136	9/30/2010	Two Harbors, MN	Canadian National	5	0	$8,100,000	head-on	no	none		yes	yes
137	4/17/2011	Red Oak, IA	BNSF	0	2	$8,700,000	rear-end	yes	R-12-20 R-12-24	FRA AAR	no	yes
138	5/8/2011	Hoboken, NJ	PATH	32	0	$352,617	overspeed	yes	none		yes	yes
139	5/24/2011	Mineral Springs, NC	CSX	2	2	$1,600,000	rear-end	yes	none		yes	yes
140	1/6/2012	Westville, IN	CSX	2	0	$5,000,000	rear-end & raking	yes	none		yes	yes
141	6/24/2012	Goodwell, OK	UPRR	1	3	$14,800,000	head-on	yes	R-13-23 R-13-27	FRA All RR (2008 RSIA)	yes	yes
142	7/21/2012	Barton County, MO	Kansas City Souther & BNSF	2	0	$7,750,000	side	yes	none		yes	yes
143	5/25/2013	Chaffee, MO	UPRR & BNSF	2	0	$11,000,000	side	no	none		yes	yes
144	12/1/2013	Bronx, NY	Metro-North	61	4	$9,000,000	overspeed	yes	none		yes	yes
145	12/30/2013	Keithville, LA	BNSF	4	0	$7,800,000	head-on	no	none		yes	yes
146	3/24/2014	Chicago, IL	CTA	34	0	$11,196,796	overspeed	no	R-15-21 R-15-24	FTA CTA	no	yes
147												
148												
149												
150												
151												
152												
153												
154												
155												
156												
157												
158												
159												
160												
161												
162												
163												
164												
165												
166												
167												
168												
169												

The CHAIRMAN. Thank you, Ms. Dinh-Zarr.
Mr. Stadtler?

STATEMENT OF DJ STADTLER, VICE PRESIDENT OF OPERATIONS, AMTRAK

Mr. STADTLER. Thank you, Mr. Chairman, and good morning and thanks very much for the invitation to testify on behalf of the men and women of Amtrak and on behalf of our CEO, Mr. Boardman.

Amtrak has played a prominent role in the development of positive train control, and in partnership with industry, we developed two of the first three systems approved by FRA for operation in the United States. Our Advanced Civil Speed Enforcement System, or ACSES, was introduced in 2000. It is the only PTC system that is approved by the FRA for 150 mile per hour operation. The Incremental Train control System, or ITCS, is currently in service on the 97 miles of Amtrak-owned railroad on our Michigan Line between Porter and Kalamazoo. That was the third such system to be approved and the only system, other than ACSES, that is currently approved for the operation at speeds in excess of 90 miles per hour.

The type of PTC system installed on any given rail line segment is determined by the owning railroad, which installs the necessary wayside equipment. Thus, while Amtrak uses ACSES and ITCS on our own territory, when we are operating on host railroads, our onboard PTC equipment must be compatible with the wayside PTC system used by the host. Interoperable Electronic Train Management System, or I-ETMS, is used by essentially all of our host responses. So our diesel fleet will be equipped with I-ETMS for operation on host rails by the mandatory deadline of December 2015.

The owning railroad is legally responsible for PTC installation. But terminal railroads such as KCT, Kansas City Terminal, and the Terminal Railroad Association of St. Louis deserve mention, because questions about the cost of PTC will likely affect passenger service. As Class III railroads, KCT and TRA are exempt from the PTC installation requirement except if a line is used by passenger trains. Those hosts have maintained that because Amtrak's trains are the trains that trigger the PTC requirement, Amtrak will be responsible for the cost of PTC installation, which amounts in the case of KCT to about $30 million. Because Amtrak cannot afford this and neither can the State of Missouri, we have notified KCT that Amtrak service over KCT territory will terminate by the end of the year unless an alternative is found. We do not wish to cease service, but, if this issue is not resolved soon, it could end in either the rerouting or termination of the Southwest Chief and the River Runner.

PTC systems typically enforce both speed restrictions and stops at signals. ACSES has an extra degree of redundancy for enforcing stops at interlocking signals, and the speed regulation is based on transponders installed in the track. Because the Michigan Line for which ITCS was developed has many grade crossings, ITCS includes a different feature to activate gates and flashers early in advance of high speed trains, providing a better margin of safety. Both ACSES and ITCS are overlay systems, which work in conjunction with the existing signal system and provide an additional

level of protection. The base for both is a conventional railroad automatic block signal, or ABS system, which is what is installed on the vast majority of the freight railroad-owned lines over which Amtrak operates. ABS signals tell an engineer whether to proceed at full speed or at restricted speed or to stop, but it does not incorporate any enforcement mechanism or speed control. ACSES, on the other hand, works in conjunction with the existing system on the Northeast Corridor, the automatic train control system, or ATC, and enforces stop indications at signals. ITCS has to provide some of the features that ATC provides, since it is designed to work with systems that do not already provide signal enforcement, which our Northeast Corridor ATC system does. ITCS is designed to operate those crossings in advance of a train arrival, because the basic signal system on the Michigan Line, which is powered by circuits in the tracks, is built on a physical infrastructure spaced for slower trains.

PTC installation is currently complete on the Amtrak-controlled segments of the Northeast Corridor, although it is only operational in certain segments. By December 2015, ACSES will be in operation throughout the NEC sections that Amtrak operates and maintains. We are working with the State of Michigan, which owns the Michigan Line segment between Kalamazoo and Dearborn that adjoins the Amtrak-owned segment, to complete ITCS installation there.

One issue that has slowed the implementation of ACSES on the Northeast Corridor has been the matter of radio spectrum acquisition. ACSES currently operates with radios in the 900 megahertz bandwidth, but our experience and the rail industry consensus suggested that we need to migrate to a bandwidth in the 220 megahertz range. Amtrak attempted to purchase the necessary bandwidth in the open market, but the acquisition proved to be a challenging and time-consuming process, and our several requests to the FCC for a bandwidth allocation out of its inventory were not accepted. After 5 years of procurement efforts, we were able to complete the necessary commercial transactions to purchase spectrum on the open market. We have been testing our system on the North End for many months, and we sought special temporary authority from the FCC to test on the South End, which we received on May 29. With that authority, we can test all of our wayside base stations from D.C. to New York at their full designated power to be sure that they communicate appropriately with the trains along the entire South End from New York to Washington and then to assure that the data that needs to be passed between the trains and the wayside computers will also work without causing interference to any nearby household television reception. Once that testing demonstrates that our system settings are appropriate, we will go into full operation on all equipped trains on the NEC.

Again, I thank you for the invitation, and I look forward to answering your questions.

[The prepared statement of Mr. Stadtler follows:]

PREPARED STATEMENT OF DJ STADTLER, VICE PRESIDENT OF OPERATIONS, AMTRAK

Good morning, and thanks very much for the invitation to testify on behalf of the men and women of Amtrak and our CEO, Mr. Boardman. Amtrak has played a

prominent role in the development of Positive Train Control (PTC), and in partnership with industry, we developed two of the first three systems approved by the FRA for operation in the U.S. Our Advanced Civil Speed Enforcement System (ACSES), introduced in 2000, is the only PTC system approved by FRA for 150mph operation. The Incremental Train Control System (ITCS), currently in service on the 97 mile Amtrak-owned segment of our Michigan Line between Porter and Kalamazoo was the third such system to be approved, and is the only system other than ACSES currently approved for operation at speeds in excess of 90 mph.

The type of PTC system installed on any given rail line segment is determined by the owning railroad, which installs the necessary wayside equipment such as radios, transponders, or wayside interface units, as well as the radio and server networks, which tie in to the existing dispatching system. Amtrak owns relatively little of the infrastructure we operate over—about 97 percent of our route mileage is owned by host railroads. Thus, while Amtrak uses ACSES and ITCS on its own territory, when operating on host railroads Amtrak's onboard PTC equipment must be compatible with the wayside PTC system used by the host. Interoperable Electronic Train Management System (I–ETMS) is used by essentially all of Amtrak's host railroads, so Amtrak's diesel fleet will be equipped with I–ETMS for operation on host rails by the mandatory deadline. Amtrak plans to install I–ETMS on certain Amtrak-owned trackage such as Chicago Union Station, where our tracks connect with host railroad-owned lines.

The owning railroad is legally responsible for PTC installation, but the Kansas City Terminal (KCT) and Terminal Railroad Association of St Louis (TRRA) deserve mention, because questions about the cost of PTC will likely affect passenger service. As Class III railroads, KCT and TRRA are exempt from the PTC installation requirement, except if a line is used by passenger trains. Both KCT and TRRA are owned by Class I railroads. This distinction is important, because even though they handle significant quantities of hazardous material and PTC would be required if they were considered Class I; because they're considered Class III, the PTC requirement is triggered by the operation of passenger trains. These hosts have maintained that because Amtrak's trains trigger the PTC requirement, Amtrak is responsible for the cost of PTC installation, which amounts in the case of KCT to $30 million. Because Amtrak cannot afford this, and neither can the state of Missouri, we have notified KCT that Amtrak service over KCT territory will terminate by the end of the year unless an alternative is found. We do not wish to cease service, but if this issue is not resolved soon, it could end in either the rerouting or termination of the *Southwest Chief* and the *River Runner*.

PTC systems typically enforce both speed restrictions and stops at signals. ACSES has an extra degree of redundancy for enforcing stops at interlocking signals, and the speed regulation is based on transponders installed in the track, a necessary feature for the level of reliability needed at very high speeds. Because the Michigan Line for which ITCS was developed has many grade crossings, ITCS includes a feature to activate gates and flashers early in advance of high speed trains, to provide a better margin of safety. Both ACSES and ITCS are "overlay" systems, which work in conjunction with the existing signal system and provide an additional level of protection. The base for both is a conventional railroad automatic block signal (ABS) system, which is what is installed on the vast majority of the freight railroad-owned lines over which Amtrak operates. ABS signals tell an engineer whether to proceed at full speed or restricted speed, or to stop, but it does not incorporate any enforcement mechanism or speed control. ACSES, on the other hand, works in conjunction with the existing (Automatic Train Control) ATC system which is already in service on the NEC, and enforces stop indications at signals. ITCS has to provide some of the features that ATC provides, since it is designed to work with systems that don't already provide signal enforcement, which our NEC ATC system does. ITCS is designed to operate those crossings in advance of a train arrival because the basic signal system on the Michigan Line, powered by circuits in the tracks, is built on a physical infrastructure spaced for slower trains. ITCS is approved by FRA for 110mph operations.

PTC installation is currently complete on the Amtrak-controlled segments of the NEC, although it is operational only in certain segments. By December 2015, ACSES will be in operation throughout the NEC sections Amtrak operates and maintains. There will, however, be a 56 mile gap on the segment owned by the states of New York and Connecticut, and maintained and operated by Metro-North Railroad; there is also a small gap in Queens, New York at Harold Interlocking, which is owned and maintained by the Long Island Rail Road. We are working with the state of Michigan, which owns the Michigan Line segment between Kalamazoo and Dearborn that adjoins the Amtrak-owned segment, to complete ITCS installation there. That ITCS installation will probably be operated and maintained by Am-

trak under contract, but the state is responsible for the cost of installation, since it owns the railroad.

One issue that has slowed the implementation of ACSES on the Northeast Corridor has been the matter of radio spectrum acquisition. ACSES currently operates with radios in the 900MHz bandwidth, but our experience (and rail industry consensus) suggested that we needed to migrate to a bandwidth in the 220MHz range. Amtrak attempted to purchase the necessary bandwidth on the open market, but the acquisition proved to be a challenging and time consuming process, and our several requests to the FCC for a bandwidth allocation out of its inventory were not accepted. After five years of procurement efforts, we were able to complete the necessary commercial transactions to purchase spectrum on the open market. We have been testing our system on the North End for many months and we sought Special Temporary Authority from the FCC to test on the South End, which we received on May 29. With that authority, Amtrak can test all of its wayside base stations from DC to New York at their full designated power to be sure that they communicate appropriately with the trains along the entire south end (New York to Washington), and then to assure that the data that needs to be passed between the trains and the wayside computers will also work without causing interference to any nearby household television reception. Once that testing demonstrates that our system settings are appropriate we can go into full operation on all equipped trains on the NEC.

The CHAIRMAN. Thank you, Mr. Stadtler.

Mr. Lauby?

STATEMENT OF ROBERT C. LAUBY, ASSOCIATE ADMINISTRATOR FOR SAFETY AND CHIEF SAFETY OFFICER, FEDERAL RAILROAD ADMINISTRATION, U.S. DEPARTMENT OF TRANSPORTATION

Mr. LAUBY. Thank you, Chairman Thune and Ranking Member Nelson, for inviting me to appear before you today to discuss passenger rail safety.

I want to start by extending our deepest sympathies to the victims and their loved ones of the May 12 Amtrak accident in Philadelphia. Safety drives everything that we do at FRA, and I can assure you that we will take every step we can to prevent this type of tragic accident from ever happening again.

FRA continues to investigate this accident, along with NTSB. While it will take time to complete the investigation, FRA will not hesitate to take any actions that will improve the safety of Amtrak or other passenger rail operations in the interim.

There has been a significant amount of public discussion about what could have prevented this accident, which technology, which new regulations. The reality is that positive train control is specifically designed to prevent overspeed accidents. If we believe the cause of this incident was overspeed, then it would have been prevented by positive train control.

As this committee is well aware, PTC is absolutely essential to achieve the kind of safety that we expect on our rail system. Despite the challenges facing full implementation of PTC—and there certainly are many—FRA's role is to enforce the December 31, 2015 deadline that Congress imposed.

FRA has been actively pushing the railroads to have PTC fully implemented before the deadline. We have met with the railroads for years on this particular issue. We have provided technical assistance to assist the railroads in understanding the PTC requirements and the methods to implement it. We have hired staff to assist and oversee the implementation of the technology. We have urged the timely submission of PTC development plans and safety

plans, and we have monitored progress with individual railroads and with the Association of American Railroads. We have worked directly with the FCC to assist on issues related to spectrum, and as you see, FRA has been fully engaged with the industry to make PTC implementation a reality. Acting Administrator Feinberg also established a PTC Implementation Team that is aggressively managing this critical, congressionally mandated safety technology.

For more than 3 years, FRA has been sounding the alarm that most railroads have not made sufficient progress to meet the December 2015 deadline. FRA highlighted its concerns about PTC implementation in its August 2012 PTC report to Congress, as well as in the GROW AMERICA Act.

We have also urged year after year that more funding be directed at commuter railroads and Amtrak to implement PTC systems. For the past 2 years, FRA has requested $825 million to assist commuter railroads with implementation of PTC, as well as additional funding to aid with PTC implementation on the Amtrak network.

Despite a lack of Federal funding directed at commuter railroads, FRA is using the resources it has available now to assist railroads in implementing PTC. For example, FRA has just issued a $967 million Railroad Rehabilitation and Improvement Financing program loan to the New York Metropolitan Transit Authority. This MTA authority is one of the Nation's largest commuter railroad providers.

We have also focused over $400 million of our high speed intercity passenger rail program on PTC installation.

Additionally, our budget request for rail development programs have consistently made PTC installation an eligible activity.

If on January 1, 2016, railroads required to implement PTC systems are in violation of the statutory deadline, FRA will take appropriate enforcement actions to achieve compliance as quickly as possible. To address those concerns, the GROW AMERICA Act proposes that FRA be granted authority to review, approve, and provisionally certify PTC plans and grant merit-based extensions to the current statutory deadline on a railroad-by-railroad basis.

Provisional certification would give FRA the authority to establish conditions to ensure that railroads raise the bar on safety while they work toward full PTC implementation.

The public policy implications of railroads failing to meet the PTC deadline are very serious. If Congress provides FRA the authority and flexibility, as requested in the GROW AMERICA Act, then implementation of PTC can be managed safely, efficiently, and effectively.

We appreciate this committee's attention and focus on this issue, and we look forward to working with the Committee to make the American rail network as safe as possible.

Thank you for your attention. I will be happy to answer your questions.

[The prepared statement of Mr. Lauby follows:]

PREPARED STATEMENT OF ROBERT C. LAUBY, ASSOCIATE ADMINISTRATOR FOR RAILROAD SAFETY AND CHIEF SAFETY OFFICER, FEDERAL RAILROAD ADMINISTRATION, U.S. DEPARTMENT OF TRANSPORTATION

Thank you, Chairman Thune and Ranking Member Nelson for inviting me to appear before you today to discuss passenger rail safety. I want to start by extending our deepest sympathies to the victims and their loved ones of the May 12th Amtrak accident in Philadelphia. Safety drives everything we do at the Federal Railroad Administration (FRA) and when an accident claims innocent lives and injures from so many it is truly painful for the FRA family. I assure you that FRA will take every step it can to prevent accidents like this from happening again.

FRA continues to investigate the circumstances surrounding the accident. While it will take time to complete the investigation, FRA has not and will not wait to take actions that will improve the safety of Amtrak and other passenger rail operations. For example, on May 16, 4 days after the accident, Acting Administrator Sarah Feinberg directed Amtrak to take several actions before allowing its operations to resume north of Philadelphia. We followed those directives with an Emergency Order (Emergency Order 31) on May 21. Amtrak has complied with those directives thus far, and FRA will ensure that Amtrak follows through to fully implement them.

When we released the May 21 Emergency Order, we also stated that we were considering taking additional steps at other passenger railroads that may have similar curve and speed issues. We continue our work on those directives and plan to release additional information about that work.

And while the cause of this accident has not been officially determined, we know that overspeed was a significant factor and that human error may be involved. Human error, or human factor, accidents as described in our accident database remain the leading cause of all rail accidents.

They are also the most difficult to address. Despite those difficulties, FRA is preparing a package of actions that we will finalize in the coming weeks and months aimed at addressing human factor safety issues—safety issues such as speeding, distraction, fatigue and training. These actions may include additional emergency orders, safety advisories, rulemakings, voluntary agreements, or other initiatives.

Beyond those next steps, I want to assure you that FRA is firmly committed to taking additional actions—as many as it takes—to mitigate the risks and hazards identified in the ongoing investigation.

There has been a significant amount of public discussion about what could have prevented this accident. Which specific technology? Which new regulation? The reality is that Positive Train Control (PTC) is specifically designed to prevent overspeed accidents. If the cause of this incident was overspeed, it would have been prevented by PTC. As this Committee is well aware, PTC is the single most important railroad safety technological development in more than a century, and it is absolutely necessary to ensuring the kind of safety that we expect on our rail system. Safety is FRA's highest priority and despite the challenges facing full implementation of PTC, FRA's role is to enforce the December 31, 2015, deadline that Congress imposed, and to ensure that railroads implement PTC as safely and efficiently as possible.

When railroads submitted their Initial PTC Implementation Plan (PTCIP) in 2010, they stated they would meet the 2015 deadline per the requirements of the Railroad Safety Improvement Act (RSIA). All the submitted plans assumed that there would be few, if any technical and programmatic issues related to the design, development, integration, deployment, and testing that would require resolution.

In 2013, U.S. Class I[1] railroads operated approximately 162,000 miles of track, 60,000 miles of which potentially require the installation of PTC[2] under the current laws and regulations. Intercity passenger and commuter railroad operations account for an additional estimated 8,400[3] miles of track that is required to be equipped with PTC.

FRA has been actively pushing the railroads to have PTC fully implemented by the deadline. We have met with the railroads for years on this issue, we have hired staff to assist and oversee the implementation of the technology, we have urged the

---

[1] BNSF Railway, CSX Transportation, Grand Trunk Corporation (Canadian National Railway U.S. subsidiary), Kansas City Southern Railway, Norfolk Southern Railway Combined Railroad Subsidiaries, Soo Line Corporation (Canadian Pacific Railway U.S. subsidiary), and Union Pacific Railroad.

[2] "Class I Railroad and U.S. Freight Railroad Statistics" Association of American Railroads, 2014. This equates to roughly 95,700 miles of the U.S. rail network of roughly 140,000 miles.

[3] 2012 Transit Way Mileage-Rail Modes, American Public Transportation Association, *http://www.apta.com/resources/statistics/Pages/NTDDataTables.aspx,* accessed 15 Dec 2014.

timely submission of PTC development and safety plans, we have discussed progress with individual railroads and with the Association of American Railroads (AAR), and we have worked directly with the FCC to resolve issues related to spectrum. Acting Administrator Feinberg also established a PTC Implementation Team that is aggressively managing this critical, Congressionally-mandated safety technology that will reduce the risk of human factor caused accidents and save lives.

For more than three years, FRA has been sounding the alarm that most railroads have not made sufficient progress to meet the December 2015 deadline. We have noted that the certification and installation of PTC systems are significant undertakings. FRA highlighted its concerns about PTC implementation in its August 2012 PTC report to Congress, as well as in the GROW AMERICA Act.[4] Among those are the following challenges:

- Design Specification Availability
- Back office Servers and Dispatch System Availability
- Track Database Verification
- Installation Engineering
- Communications Spectrum Availability
- Radio Availability
- Reliability and Availability
- Funding

FRA has long stated that a lack of public sector funding may cause unwanted delays in fully implementing PTC. FRA has requested funding for PTC development and implementation grants in every budget request dating back to Fiscal Year (FY) 2011. For the past two years, as part of the GROW AMERICA Act, FRA has requested $825 million to assist commuter railroads with the implementation of PTC, as well as additional funding to aid with the implementation of PTC on Amtrak's national network.

Despite a lack of Federal funding directed to commuter railroads, FRA is using the resources it has available now to assist railroads in implementing PTC. For example, FRA issued a $967.1 million loan through the Railroad Rehabilitation and Improvement Financing (RRIF) program to the New York Metropolitan Transportation Authority, the Nation's largest commuter railroad provider, to facilitate the deployment of the technology.

In addition to the same practical and logistical project management challenges affecting the freight railroads, intercity and commuter passenger railroads face other challenges due to their public sector nature and heavy reliance upon operating subsidies. These railroads must advance PTC system implementation within a fiscal environment already constrained by the limited availability of capital funds. FRA expects that when PTC technology is fully mature, it will have a positive, transformative impact on railroad safety and operating efficiency in the decades to come.

If, on January 1, 2016, railroads required to implement PTC systems are in violation of this statutory deadline, FRA will take appropriate enforcement actions consistent with its statutory authority and regulatory oversight responsibilities to achieve compliance. Stakeholders and the Congress have asked FRA for guidance on how to approach concerns about railroads not meeting the mandated deadline. To address those concerns, the GROW AMERICA Act the Department submitted to Congress in April 2014 and March 2015 proposed that FRA be granted authority to review, approve, and provisionally certify PTC plans on a railroad-by-railroad basis. FRA asked for this authority so that it could continue to assist the railroads to get PTC implemented as quickly as possible for it is only through implementation of PTC that accidents like the derailment of Amtrak train 188 can truly be prevented.

Provisional certification would also give FRA the authority to establish conditions to ensure railroads raise the bar on safety and establish appropriate back stops even as they continue to work towards full PTC implementation. GROW AMERICA would also provide FRA the authority to establish implementation milestones, use alternative methods of protection in lieu of PTC systems to achieve safety improvements and require coordination between the U.S. Department of Transportation and the Federal Communications Commission (FCC) to assess required spectrum needs and availability to implement PTC systems. GROW AMERICA also proposes to pro-

[4] The Secretary of Transportation submitted the GROW AMERICA Act to Congress on March 30, 2015. "GROW AMERICA" stands for "Generating Renewal, Opportunity, and Work with Accelerated Mobility, Efficiency, and Rebuilding of Infrastructure and Communities throughout America.

vide more than $3 billion over 6 years to help pay for PTC implementation on publicly-funded commuter railroads and Amtrak routes.

To summarize, FRA has actively supported deployment of PTC through the issuance of performance-based regulations and technical assistance documents to aid railroads, manufacturers, and suppliers to achieve full PTC functionality and interoperability. Over the course of several decades, FRA and the railroad industry have sponsored and conducted numerous research and technology demonstration projects to evaluate or improve upon signal and train control technologies that have evolved into what is now known as PTC. Since 2000 FRA has published over 50 technical reports, several *Research Results*, and numerous other reports to support its rulemaking activities. FRA has also built a PTC system test bed at its Transportation Technology Center in Pueblo, CO. This facility is available to the railroad industry as they work to successfully integrate and test all of component technologies necessary to achieve implementation.

The difficulties being encountered, while not insurmountable, are highly complex and require a significant investment of time, people, and resources to successfully resolve. The public policy implications of railroads failing to meet the PTC deadline are serious. FRA has been dedicating resources and working diligently to support the industry for years to achieve full PTC implementation where required by the statutory deadline. If Congress provides FRA the authority and flexibility as requested in the GROW AMERICA Act, then PTC implementation can be managed safely, efficiently, and effectively.

In conclusion, safety will always be FRA's first priority. We appreciate this Committee's attention and focus on issues related to railroad safety. Again, I want to express our deepest sorrow for the victims and their families. We look forward to working with this Committee to improve our programs and make the American rail network as safe, reliable, and efficient as possible. I am happy to respond to your questions.

The CHAIRMAN. Thank you, Mr. Lauby.

Mr. Mathias?

STATEMENT OF CHARLES MATHIAS, ASSOCIATE CHIEF, WIRELESS TELECOMMUNICATIONS BUREAU, FEDERAL COMMUNICATIONS COMMISSION

Mr. MATHIAS. Chairman Thune, Ranking Member Nelson, and distinguished members of the Committee, thank you for inviting me today to testify.

Like the rest of the Nation, we at the FCC are deeply saddened by the tragic Amtrak derailment in Philadelphia.

Promoting the safety of life and property through the use of wire and radio communication is a top FCC priority. As the Nation's communication agency, the FCC helps coordinate spectrum acquisition by freight and commuter railroads. We also manage the statutorily required historic preservation and environmental reviews of poles, antennas, and associated infrastructure to be used to support positive train control, or PTC, systems.

In the absence of specific statutory direction for the FCC to clear and reallocate spectrum for PTC purposes, the FCC has been working closely with the railroads since 2008 to identify spectrum available on the secondary market. The FCC has acted swiftly upon request to approve multiple spectrum transactions, including the freight railroads' acquisition of spectrum nationwide, Amtrak's acquisition of spectrum in the Northeast Corridor, as well as requested waivers to better enable and test PTC deployment.

To be clear, the Commission plays no role in designing or assessing the railroads' choice of PTC technology. Overseen by the Federal Railroad Administration, the railroads are responsible for PTC design and deployment, and the FRA has sole oversight authority

to approve those systems and ensure they are rigorously tested and working properly.

The country's major freight railroads have led the way in securing spectrum for PTC. Through private transactions, they acquired nationwide spectrum in the commercial 220 to 222 megahertz spectrum band just months before the act became law. These railroads quickly focused on utilizing the spectrum when the PTC mandate was established. When they did, the freight railroads effectively drove other railroads, including Amtrak and the commuter rails, to spectrum in and around the 220 band for their PTC operations as well.

For most of the country, this strategy appears to have been successful. The FCC has proactively facilitated and continues to facilitate freight and passenger railroads' successful acquisition and lease of spectrum on secondary markets. We have also granted the railroads extensive technical waivers, for example, for more transmitter power to use spectrum for PTC purposes.

Spectrum acquisition in the Northeast Corridor differs from the rest of the country because Amtrak and the freights are deploying two different PTC systems that were not from the outset engineered to be compatible in the same spectrum band. So unlike in a market such as Chicago where the railroads intend to share the same block of spectrum and use a single PTC system, in the Northeast Corridor the choice to deploy two systems requires spectrum far enough from the others to avoid interference.

On May 29, 2015, Amtrak and the freight railroads advised FCC staff that using their separate PTC radio systems on the Boston to New Haven portion of the Northeast Corridor in the same spectrum block could result in harmful interference that could cause both systems to function improperly or stop working altogether. FCC staff will continue to work with Amtrak, the commuter rails that use the Amtrak system in the Northeast Corridor, and the freights to help identify solutions to these problems.

PTC infrastructure deployments are also an FCC priority. Federal environmental and historic preservation law requires the FCC to assess the potential impacts of agency undertakings, including the potential impact on property significant to tribal nations. To facilitate this process, in May 2014 the Advisory Council on Historic Preservation issued fast-track rules for future PTC pole deployments.

Under the fast-track approach, the majority of proposed poles are exempt from historic preservation review. The Commission has the capacity to receive 1,400 exempt and non-exempt pole applications every 2 weeks. By the beginning of June, the freight railroads could have submitted as many as 40,000 poles for our review. In fact, the railroads have only submitted around 8,100 poles, or about 21 percent of our total capacity.

Going forward, issues in the Northeast Corridor are complex and pose significant challenges. We stand ready to work with Amtrak, the commuter rails, and the freight rails to facilitate resolution of their evolving deployment of the two systems.

We appreciate the Committee's interest in this issue and its efforts to ensure the successful deployment of PTC systems. The FCC

is committed to working collaboratively with all parties to get PTC deployed.

I look forward to answering any questions you may have, and thank you.

[The prepared statement of Mr. Mathias follows:]

PREPARED STATEMENT OF CHARLES MATHIAS, ASSOCIATE CHIEF, WIRELESS TELECOMMUNICATIONS BUREAU, FEDERAL COMMUNICATIONS COMMISSION

Chairman Thune, Ranking Member Nelson, and distinguished members of the Committee, thank you for inviting me to testify before the Committee today. Like the rest of the nation, we at the FCC are deeply saddened by the tragic Amtrak derailment in Philadelphia. We send our condolences to the families of those who lost their loved ones and our gratitude to the first responders for their efforts. I want to assure you that the FCC is doing—and will continue to do—its part to facilitate the implementation of Positive Train Control, or PTC.

Promoting the safety of life and property through the use of wire and radio communication is a top FCC priority. Since passage of the Rail Safety Improvement Act of 2008 (Act), we have worked directly with freight, passenger, and commuter rails to help them obtain spectrum licenses and complete statutorily-required historic preservation and environmental reviews prior to deploying infrastructure to implement PTC. We have also worked closely with existing spectrum licensees, our Federal partners, including the National Transportation Safety Board (NTSB) and the Department of Transportation's Federal Railroad Administration (FRA), as well as Tribal Nations and state officials to facilitate the implementation of Positive Train Control.

The FCC'S Role in PTC

As the Nation's expert agency on communications, the FCC helps facilitate spectrum acquisition by freight and passenger railroads. We also manage the statutorily required historic preservation and environmental reviews of the poles, antennas, and associated infrastructure used to support PTC systems.

PTC requires spectrum for communications between the stationary PTC radios along the railway and moving trains on the tracks. The railroads have targeted previously-allocated commercial spectrum to deploy PTC. In the absence of specific statutory direction for the FCC to clear and reallocate this spectrum away from its current use for PTC purposes, which would be a time-consuming and potentially litigious process under any circumstances, the Commission has encouraged railroads to acquire the targeted commercial spectrum from existing licensees who previously purchased spectrum licenses in FCC auctions. Since Congress passed the Act in 2008, the FCC has been working closely with the railroads, including Amtrak, to identify available spectrum on the secondary market and to approve secondary market transactions quickly.

The Commission plays no role in designing or assessing the railroads' choice of PTC technology. The railroads, overseen by the FRA, are responsible for designing and deploying PTC systems. The FRA has sole authority to approve those systems and ensure they are rigorously tested and working properly.

PTC is a Priority for Chairman Wheeler

Since his arrival at the FCC in November 2013, Chairman Wheeler has made facilitating PTC deployment a top priority. Under his direction, the Commission staff developed a more streamlined process for required historic preservation and environmental reviews. It also crafted a one-of-a-kind settlement to allow the freight railroads to use the PTC facilities they had already constructed without required approvals. Chairman Wheeler has also encouraged Commission staff to develop creative approaches to meet the railroads' spectrum needs, such as facilitating an efficient secondary market by matching existing licensees with railroads needing spectrum, encouraging the freight and commuter rails to develop interoperable systems, examining spectrum sharing and lease arrangements, and waiving power level limits to enable PTC systems to operate more effectively.

Overall PTC Challenges

All of us share the goal of successful PTC implementation from coast to coast. Significant progress has been made, and the FCC stands ready to act swiftly and effectively within our statutory authority. But it is important to acknowledge key, structural challenges. I would like to touch on them briefly.

As you know, the Act does not designate specific spectrum bands for PTC, nor does it direct the FCC to allocate specific spectrum for PTC. Absent such direction from Congress—and consistent with decades of successful, market-driven spectrum policy—the FCC encouraged the railroads to turn to secondary markets for spectrum, especially given that much of the spectrum the rails chose for PTC had previously been auctioned and licensed to other private parties in major rail markets.

In addition, the Act does not provide a funding mechanism for PTC spectrum acquisition, which can make acquiring spectrum in the private market expensive and challenging, especially for smaller railroads, like commuter lines, and also for Amtrak.

Freights Establish Primary PTC Spectrum Band

While challenges exist, it is instructive to take a brief look at the country's major freight railroads, which have targeted and secured channels in the commercial 220–222 MHz spectrum band for PTC. Because of their complex communication needs, the freight railroads have been active participants in the Nation's secondary spectrum markets for many years.

The country's major freight railroads acquired nationwide spectrum in the commercial 220–222 MHz spectrum band just months before the Act became law through transactions with private parties that had previously acquired spectrum licenses in FCC auctions or through secondary market transactions. The freight railroads quickly focused on utilizing this spectrum when the PTC mandate was established. Several of the major freights collectively acquired an ownership interest in a company that is developing PTC technology and equipment, and also created a spectrum coordinator—known as "PTC–220"—to manage the spectrum. In doing so, the freight railroads effectively drove other railroads, including Amtrak and commuters, to spectrum in and around the 220 MHz band for their PTC operations as well.

For most of the country, this strategy appears to have been successful. Whether through secondary market purchases or leases with PTC–220, the freights, Amtrak and the commuter rails have cooperated to find spectrum to meet their needs. They have reached agreements that address several challenges related to PTC, including sharing both spectrum and infrastructure as well as achieving interoperability. A good example of this collaboration is the planned PTC deployment in Chicago. There, 11 railroads, including the freights, Amtrak, and commuter rails, will use common PTC–220 spectrum and infrastructure to ensure the safe transport of passengers and cargo across the Nation's busiest rail market.

Our work in facilitating spectrum access across the country is ongoing. For example, we are actively reviewing recently proposed spectrum transactions in several markets, and we continue to assist railroads in their efforts to identify partners for secondary market transactions.

Northeast Corridor

The Northeast Corridor is a difficult and congested spectrum market. The freights largely met their anticipated needs in this area through their initial 220–222 MHz Band license purchases. Amtrak approached the FCC on several occasions beginning in 2011 about obtaining spectrum to deploy PTC in the Northeast Corridor. The FCC has had similar interaction with commuter rails in the area.

In the absence of sufficient inventory or specific statutory direction, FCC staff encouraged the railroads operating in the Northeast Corridor to investigate obtaining spectrum from existing licensees in the secondary market.

In fact, Amtrak and several commuter rails have been successful in obtaining spectrum through the secondary market. Once Amtrak and the existing private party licensees finalized their commercial agreements, FCC staff quickly approved the spectrum transactions and related requests for waiver of certain FCC rules. In the case of Amtrak, the FCC approved its use of spectrum from Boston to New Haven overnight, and its use of spectrum from Washington, D.C., to New York City in two days.

Interference Concerns

Spectrum acquisition in the Northeast Corridor is more complicated than in the rest of the country because Amtrak and the freight railroads are deploying two different PTC systems that were not engineered to be compatible. The systems can operate without difficulty when geographically separate from each other, but when operating in close proximity on the same spectrum, as in the Northeast Corridor, the systems can encounter significant challenges. So, unlike in a market such as Chicago, where the railroads will share the same block of spectrum and use a single PTC system, in the Northeast Corridor each PTC system requires spectrum far enough from the other's to avoid the interference that could affect proper operations.

Amtrak and the freight railroads assured the FCC that they would design their respective systems to operate with respect to each other on a non-interference basis. However, on May 29, 2015, Amtrak and the freight railroads advised FCC staff in a joint meeting that using their separate PTC radio systems on the Boston to New Haven portion of the Northeast Corridor in the same spectrum block would result in harmful interference. This could degrade or disable communications on both systems, causing either or both to function improperly or stop functioning altogether.

FCC staff will continue to work with Amtrak, the commuter rails that use the Amtrak system in the Northeast Corridor, and the freights to help identify and review possible solutions to these recently identified problems arising out of the railroads' system design choices.

Infrastructure

PTC infrastructure concerns played no role in the accident in Philadelphia. Amtrak's physical infrastructure in the Northeast Corridor is already in place.

PTC-related infrastructure review has been a priority in other areas of the country, however. Long-standing Federal environmental and historic preservation laws—the National Environmental Policy Act (NEPA) and the National Historic Preservation Act (NHPA), respectively—require the FCC (and every Federal agency) to assess the potential impacts of agency "undertakings," including possible impact on properties significant to Tribal Nations. This means the FCC must ensure that PTC deployments are reviewed by Tribal Nations and State Historic Preservation Offices in a manner that allows for appropriate consideration of potential impacts.

In 2013, FCC staff became aware that the freight railroads had installed approximately 10,000 PTC poles around the country without complying with the FCC's review requirements under NEPA and NHPA. Recognizing the need for railroads to comply with the PTC mandate, the agency worked as required by statute with all stakeholders—freight railroads, Tribal Nations, state officials, the Advisory Council on Historic Preservation (ACHP), and other Federal agencies—to resolve the deployed pole issue and develop a "fast track" review process for future pole deployments.

This process was made more complex by the fact that Tribal Nations in key deployment areas resisted discussions about future PTC deployments until the deployed pole issues were resolved. In May 2014, the FCC signed agreements with all seven major freight railroads that created a $10 million Cultural Resource Fund to account for previous non-compliant deployments. The fund is providing direct support to Tribal Nations and State Historic Preservation Offices to support cultural and historic preservation projects.

Also in May 2014, the ACHP issued a set of "fast track" rules for future PTC pole deployments. Under this approach, the majority of proposed PTC poles are presumptively exempt from historic preservation review, subject only to basic checks on their eligibility for the exemption. The Commission has the capacity to receive 1,400 pole applications (including exempt and non-exempt poles) every two weeks. As of June 3, 2015, the freight railroads *could have* submitted as many as 38,500 poles for Tribal and state review. The railroads have actually submitted a total of only 8,143 poles, or about 21 percent of the system's capacity.

Going Forward

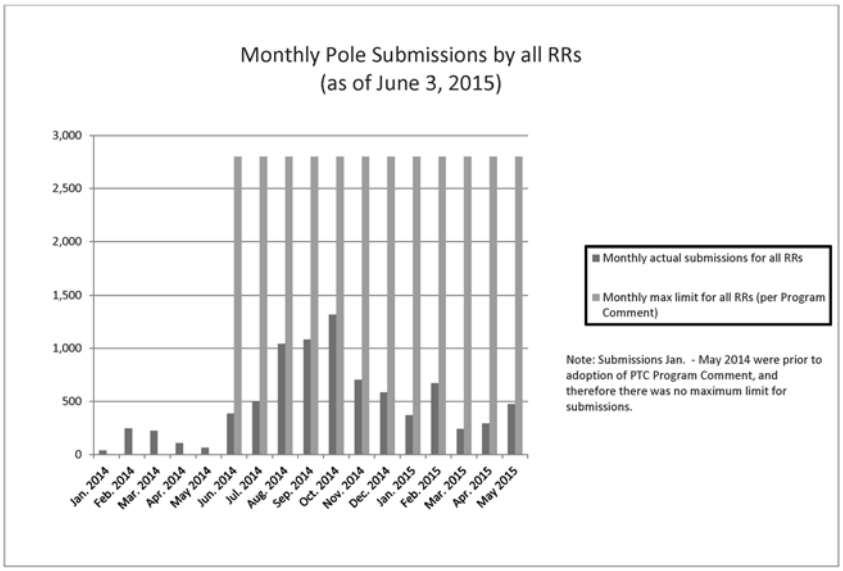
The PTC spectrum situation in the Northeast Corridor is complex and poses significant technical challenges for the railroads. We stand ready to work with Amtrak, the commuter rails, and the freight railroads to facilitate resolution of the technical and spectrum issues arising from the decision to deploy separate PTC systems in the same frequency band in the Northeast Corridor.

Conclusion

We appreciate the Committee's interest in this issue and its efforts to ensure the successful deployment of PTC systems. The FCC is committed to working collaboratively with all parties to facilitate the deployment of PTC.

I look forward to answering any questions you may have.

ATTACHMENT



The CHAIRMAN. Thank you, Mr. Mathias. I appreciate all your remarks and testimony.

I want to direct a couple of questions to Mr. Lauby, and as I mentioned in my opening remarks, in recent years the FRA and the GAO have issued reports stating that most railroads are not going to meet the December 31, 2015 statutory deadline for PTC. The FRA safety team reviewed 41 PTC implementation plans, and it ultimately has responsibility for approving any final PTC safety plans necessary for railroads to receive the full certification and to be able to operate in revenue service.

So I want to kind of get, just as a metric of where we are on some of the various railroads around the country, passenger, freight, et cetera, and ask just a few questions.

One is of the roughly 28 commuter railroads that are required to have PTC, how many do you expect will have a fully functional, interoperable, and certified PTC system by the December 31, 2015 deadline?

Mr. LAUBY. Thank you for your question, Senator.

We have been working closely with APTA to get information on the different commuter railroads to see where they are. APTA reports that 71 percent of the commuter railroads will not make the December 31, 2015 date, which means that 29 percent will. They have also indicated that 71 percent of the commuter railroads—about half of those will be able to make a 2018 implementation date.

Another way to look at the situation on commuter railroads is to look at the money expended. APTA is reporting that the total cost of PTC will be about $3.48 billion, and as of today, the commuter

railroads have spent about $950 million. So you can see that at least on spending, they are not even a third of the way through.

Beyond that, there are additional costs related to PTC that APTA has reported to us. The estimate is about $83 million a year is required to maintain that system.

The CHAIRMAN. OK. Let us shift over to Class I freight railroads, which do host commuter, Amtrak, and short-line operations. How many of those do you expect to have a fully functional, operational, and certified PTC system by the statutory deadline?

Mr. LAUBY. According to the Association of American Railroads and our work with the individual railroads, we do not expect any of the Class I's to be in a position to have fully functional PTC across the board by December 31, 2015. The information we have to date is that installing wayside interface units, which is the part of positive train control that needs to be installed in the switches and the signals along the right-of-way, will not be completed until 2018, and that full operation of PTC is not expected until December 31, 2020.

The Class I railroads have estimated that the total cost will be about $9 billion, and their spending to date has been $5 billion. So they are a little bit over halfway from what we can tell.

The CHAIRMAN. All right.

Now, shortline railroads, as I understand it, do not have to have PTC installed until December 31, 2020, which is when you mentioned the freight railroads would have it fully. So how would you plan to certify PTC interoperability when different railroads, using the same track, are deploying PTC at different rates and have different regulatory deadlines?

Mr. LAUBY. It is difficult. Amtrak faces that challenge right now. They can equip their locomotives, but they cannot operate in PTC mode on their long distance lines until the host railroads actually equip the lines with positive train control. So that has got to be in place first before the system will work.

The CHAIRMAN. The FRA's 2012 report on implementation I thought was highly useful in evaluating the statutory deadline. A little less than 2 months ago, Sarah Feinberg stated that FRA is working to complete and transmit an updated PTC implementation report to Congress before June 2015. We have not received that yet. I am wondering if the Committee can expect to receive the updated report sometime this month.

Mr. LAUBY. We are working on that report. Right now it is in internal clearance. We expect to have it done shortly.

Just to give you some highlights of the report, the issues that we identified in 2012 are still there, but at this point, we feel that the items that we identified in GROW AMERICA are the types of authorities that we need moving forward and that with those authorities, we will be able to manage implementation of PTC in a manner that is both efficient and gets us to a compliant system as soon as possible.

The CHAIRMAN. My time has expired. I turn to the Ranking Member, Senator Nelson.

Senator NELSON. Mr. Lauby, the American people are not going to put up with waiting for 5 years. So what is the magic number of years?

Mr. LAUBY. Senator, I think Congress has to determine what the magic number of years is, and as they have done with the Rail Safety Improvement Act of 2008, December 31, 2015 was indicated as the date. The only authority that FRA has moving forward is to enforce that particular date to require that railroads meet that date, and if they are not, to take enforcement action. And that is pretty much what we are facing right now. Our authority is only to enforce the Rail Safety Improvement Act and the related regulations. We have no authority to change the date.

Senator NELSON. OK. Let me ask you this. Mr. Lauby and Ms. Dinh-Zarr, if there is going to be an extension, what do we do to make sure that the railroads are aggressively moving to implement the PTC? Ms. Dinh-Zarr?

Dr. DINH-ZARR. Thank you, Ranking Member Nelson.

As you know, the NTSB would like to see PTC implemented as soon as possible because every day that passes, we are fearful of another deadly crash happening.

Senator NELSON. OK. But that is the question.

Dr. DINH-ZARR. Yes, sir. So as you stated, I think it is very important to be very transparent in knowing what steps were taken by each railroad and what steps were not taken by each railroad, should the mandate, which has come forth from Congress, which if the deadline is not met by the railroad.

Senator NELSON. Mr. Lauby, do you have some suggestions?

Mr. LAUBY. If we want to prevent these tragic accidents like what we experienced in Philadelphia on Amtrak 188, we need to get PTC in place as quickly as possible on as much track as possible. As we begin to roll out PTC and implement it on different lines, we will be able to prevent those types of accidents. To do that, we need to be fully engaged with the railroads. We need to have the ability to extend the deadline. We need to have the ability to negotiate the deadline. We need to have the ability to put interim safety measures in place. We need to have the railroads' full attention going forward in order to get this done as quickly as possible. And to FRA, that is absolutely key.

Senator NELSON. And you do not have that ability now?

Mr. LAUBY. We do not have that authority. The only authority we have is to enforce the December 31, 2015 deadline.

Senator NELSON. Then that is something that is the responsibility of us.

And you mentioned your ability to track the progress of the implementation. Any suggestions there?

Mr. LAUBY. We need to receive realistic implementation plans from the railroad industry. We received 41 implementation plans back in 2010, which were approved, but because of the mandate for December 31, 2015, every one of those show successful implementation of PTC at that date.

Senator NELSON. Do either one of you have any suggestions? We have heard things like two-man crews or inward-facing cameras as a way to prevent the accidents. Do you believe these measures would have prevented this Amtrak crash?

Mr. LAUBY. I would like to talk a little bit about two-person crews. We think at FRA that multiple-person crews enhance the safety. What we have in a train crew is we have an expert crew

that depends on teamwork and depends on crew resource management in order to properly operate that train. So we think multiple-person crews are important but also realize that they are already in place on the passenger railroads in this country. The emphasis that was shown in our safety advisory needs to be communication between a conductor and a locomotive engineer to——

Senator NELSON. Ms. Dinh-Zarr, what about inward-facing cameras?

Dr. DINH-ZARR. Yes, Senator Nelson. Inward-facing cameras are very important in determining the reason for a crash afterwards, and two-person crews—there are many crashes that we have investigated and we try to base all of our recommendations on evidence and data. And there are many crashes that involved two-person crews that have not been prevented that would have been prevented by PTC.

Senator NELSON. Thanks.

The CHAIRMAN. Thank you, Senator Nelson.

Senator Blunt?

STATEMENT OF HON. ROY BLUNT,
U.S. SENATOR FROM MISSOURI

Senator BLUNT. Thank you, Chairman.

Ms. Dinh-Zarr, in terms of cause of the Philadelphia accident, do we know any more about that yet, and was there a determination made by your organization in the last day that cell phone usage appears not to have happened?

Dr. DINH-ZARR. Yes, thank you, Senator, for that question.

Yes, sir. We have determined that there was no talking or texting or data usage involved. However, as you are aware, there are 400,000 pieces of data involved in the analysis. And, because of the extent of that, things like use of an app or other use of the phone has not been determined. But we have determined that much. And we are working with the records to find——

Senator BLUNT. And I think that determination had not been made when there was a House hearing. So that is new information about——

Dr. DINH-ZARR. That is, yes.

Senator BLUNT.—using a cell phone as a phone. We believe that did not happen.

Dr. DINH-ZARR. Yes, sir. As of today.

Senator BLUNT. Mr. Stadtler, you mentioned that people who own the railroad are responsible for implementing these new safety measures, positive train control, or whatever the alternative is. How much railroad does the Government own or does Amtrak own?

Mr. STADTLER. Amtrak owns the portion of the Northeast Corridor—pretty much all of the Northeast Corridor from Boston down to Washington, D.C., with the exception of about 56 miles from New Rochelle to New Haven. We also own a stretch of the railroad in Michigan.

Senator BLUNT. And how much of the passenger traffic in the country occurs on the Northeast Corridor?

Mr. STADTLER. From a mileage point of view, a very small portion of it.

Senator BLUNT. How much of it in terms of passengers?

Mr. STADTLER. I do not have that answer.

Senator BLUNT. You do not know how many of the passengers use the Northeast Corridor as opposed to every other part of Amtrak?

Mr. STADTLER. I do not have that off the top of my head, no, sir.

Senator BLUNT. I cannot believe that. But I would like to know that. So will you find out and get that back to us?

Mr. STADTLER. Certainly.

Senator BLUNT. Do you have a guess?

Mr. STADTLER. I would say at least a third is on the Northeast Corridor, in fact, probably even more than a third. In fact, I would say if you talk about touching the Northeast Corridor, it is——

Senator BLUNT. I am talking about—yes, the commuters that touch the Northeast Corridor. That would be right.

Mr. STADTLER. I am only going to speak for Amtrak. I do not have the commuter number. But more than half of our ridership would touch the Northeast Corridor.

Senator BLUNT. OK.

Do you have a reason why the northbound lane did not have the improvements that the southbound lane had where the accident occurred?

Mr. STADTLER. Yes. So the system that is in place now in that area is automatic train control, and automatic train control is designed to prevent train collisions. And what that basically does is it takes the signal and it lets the engineer know if the railroad ahead is clear of other trains. It is not designed to enforce speed control.

Senator BLUNT. So coming south on that same stretch of the railroad, there would have been nothing that would have impacted the speed?

Mr. STADTLER. What happened was in 1990, there was an accident in Back Bay, Boston, and after that accident, a group of safety experts, Amtrak, FRA, the freights, got together and said what can we do to prevent this type of overspeed accident from occurring again. We did an inventory of the curves, and anywhere where the overturn speed in the curve—so when you go through the curve—and the curve in Frankford is a 50 mile an hour curve, but the train is not expected to derail at 50. It is 98 or 96 miles an hour that the train would derail.

So what we did—this group looked at every curve where the approach speed was greater than the overturn speed, and at those places, we used the automatic train control system to force the engineer to slow down. If you're approaching this curve coming southbound, as you point out, the approach speed is 110 miles an hour. So at that speed, the train would overturn if the engineer failed to slow down. Going northbound, the approach speed is only 80. So if you went into that curve at 80, you would not derail.

Senator BLUNT. Has anything been done to change the speed control on the northbound part of this curve since the accident?

Mr. STADTLER. Yes. Immediately after the accident, the FRA issued directives that had us implement that same control at the northbound.

Senator BLUNT. And that has been done already?

Mr. STADTLER. That was done before we returned it to service, yes.

Senator BLUNT. So that could have been done in any 60-day period before the accident as well.

Mr. STADTLER. That is correct.

Senator BLUNT. Mr. Lauby, do you know what the original estimate of your organization was of what the implementation year should have been for positive train control?

Mr. LAUBY. I was not in this position at FRA. I do not know exactly what the recommendation was at the time.

Senator BLUNT. Do you have any idea what it was?

Mr. LAUBY. No.

Senator BLUNT. So you came to this hearing to talk about this and nobody told you the history of what your organization had said on positive train control?

Mr. LAUBY. Well, I know the history of the Rail Safety Improvement Act, which we have been working on for 4 years, and we know——

Senator BLUNT. I think your organization—I have been told at least—said originally it would be 2018 before this could be implemented.

I think Mr. Mathias also—we have had FCC in here before. One of the big obstacles to most of the system is changing to essentially a tower-based system with some of the challenges at the FCC. Have those challenges now been dealt with?

Mr. MATHIAS. Yes, sir. We have implemented a fast-track system that was adopted by the Advisory Council on Historic Preservation, which would be the agency responsible for this that enables the railroads to process their pole deployments quickly. We have the capacity——

Senator BLUNT. When did you implement that?

Mr. MATHIAS. We implemented that a year ago in 2014.

Senator BLUNT. A year ago. And the law was originally passed when, Mr. Chairman? Somebody help me on this.

The CHAIRMAN. 2008.

Senator BLUNT. 2008. So a year ago, you fast-tracked the essential tower sitings at FCC.

Mr. MATHIAS. Yes, sir.

Senator BLUNT. And prior to that, how long did every tower—give me an estimate of how long every tower took to approve.

Mr. MATHIAS. I think we had a national programmatic agreement in effect that required several months or more, depending upon the individual approving parties, and we have reduced that in many instances down to 30 days, and for certain poles that need to have a more comprehensive review, it is 50 days.

Senator BLUNT. And there are over 32,000 towers?

Mr. MATHIAS. We were told by the railroads that that was the total expectation for their pole deployment.

Senator BLUNT. But you are now doing that much quicker than you were a year ago.

Mr. MATHIAS. Yes, we were. About 11,000 poles were deployed without the required review, and we dealt with that. Subsequently the railroads have submitted around 8,100 poles to us for deploy-

ment. We have the capacity to have received up to 40,000. So we are ready for business and we can take more work.

Senator BLUNT. And the end date—Mr. Stadtler, as I understand it—my last question will be, if I understand this right, there is a different system that will be put in place in the Northeast Corridor than most of the rest of the country where you use freight rail. Is that right?

Mr. STADTLER. That is correct.

Senator BLUNT. And your obstacle has been spectrum?

Mr. STADTLER. On the Northeast Corridor, that has been a big——

Senator BLUNT. And have you announced when you are going to have the Northeast Corridor completed?

Mr. STADTLER. The portion of the Northeast Corridor that we own and maintain from Boston to Washington——

Senator BLUNT. All but 50 miles. Is that right?

Mr. STADTLER. Correct, 56—will be done by the statutory deadline of December 2015.

Senator BLUNT. Have you ever announced before that it would be done by a specific date?

Mr. STADTLER. We have, since the legislation, been working toward the deadline of 2015.

Senator BLUNT. There was never a prior announcement that you would be done at the end of another year except this year?

Mr. STADTLER. Not to my knowledge, no, sir.

Senator BLUNT. Thank you, Chair.

The CHAIRMAN. Thank you, Senator Blunt.

Senator McCaskill?

STATEMENT OF HON. CLAIRE MCCASKILL, U.S. SENATOR FROM MISSOURI

Senator MCCASKILL. So, Mr. Lauby, what happens if we do not extend the deadline of December 2015? What position will you take in terms of enforcement? Will they just continue to operate in violation of the law, or will you force all of these rail lines just to shut down?

Mr. LAUBY. Senator, thank you for that question.

I think that it would be problematic if we shut down every rail line. When I talk about enforcement, we have a full raft of authorities that we can use, everything from an emergency order that could be used to shut down a railroad to compliance agreements——

Senator MCCASKILL. I know you can, but I am asking what is going to happen. What will you do if we do not extend the deadline? What will you do on December 15 with the railroads that are operating without PTC?

Mr. LAUBY. We are going to have an enforcement strategy that leads us to implementation of PTC as quickly as possible.

Senator MCCASKILL. So, I do not understand the answer to that question.

Mr. LAUBY. Well, we will use our authorities that we have, everything from emergency orders to fines to enforcement discretion, to negotiate with the railroads and make sure that PTC is implemented as quickly as possible.

Senator MCCASKILL. You know, I think you get my question. Right?

Mr. LAUBY. I do.

Senator MCCASKILL. If we do not do this, the day is going to come and then people are going to be calling your office and say, what are you going to do? Are you going to start by fining them? Are you going to start by warning them? Are you going to start by—have you all discussed what you are going to do? Obviously, I would hope you have discussed it at this point, because this deadline is looming, and obviously they are not going to be in compliance. I mean, that is as obvious as the nose on my face.

Mr. LAUBY. Senator, we discuss our enforcement options every day on what we are going to do on January 1. We are also preparing as part of our report to Congress, this latest status report, some options on how we would approach this.

Senator MCCASKILL. I think we really need to talk about it, because as we are trying to figure out whether to extend this deadline, none of us wants the railroads to not work at this as hard as they know now and all of you to work at it as hard as you know how. But I think we need to understand what are the consequences of us not acting. Are we helping safety if we do not delay the deadline? Are we hampering safety if we do not delay the deadline? Are we diverting resources away from what should be going toward the implementation into fines or other kinds of things? I think the scenario of what will occur if we do not needs to be more fleshed out.

So whatever help you can give us with that in terms of being more specific about what you would do, because you all pretty much know right now, if we do not delay it, who is going to not be in compliance and to what extent. So whatever plans you have—it would be great if you would share it with us. Maybe it would spur us to more thoughtful action.

Mr. LAUBY. Senator, we will cover that in our status report. We do consider these situations on every enforcement action that we take and our enforcement is not to punish the railroads. It is to get them into compliance as quickly as possible.

Senator MCCASKILL. That is great.

Mr. LAUBY. All that is considered.

Senator MCCASKILL. On the FCC stuff, this problem we had figuring out the phone records—this is not the first time that we have had a problem. I think we had a Coast Guard captain that was—it came out that he was using his cell phone. As it turns out, it was not true because the text messages and the phone calls were in different time zones, and this notion that all of the calls are routed to the same tower—it depends on capacity. All of this you know better than I do.

Has there been any thought at the FCC about talking to the carriers about having their records more uniform? I mean, this has gotten to be a real labyrinth of figuring out whether or not someone was using either text or an app or a phone call at the time of some kind of accident or crime, or something that is the subject of a thorough investigation. Have you all thought about that at the FCC?

Mr. MATHIAS. Senator, I appreciate your concern, and unfortunately, I am not the right person at the FCC to ask. What I would

like to do is to get back to you with an answer with the right people.

Senator MCCASKILL. Yes, that would be great because I think we kind of need to know that. It took 4 weeks for them to figure out whether or not this conductor was using his phone. That is a long time to figure that out. I think we just found out earlier this morning.

And then finally, quickly I would like something for the record, because my time is up. I am really worried about passenger traffic in Kansas City, in St. Louis, Amtrak service. This is a big problem. As you know, both of those trains are being widely used. Ridership is way up in Missouri. It is a vital link between Kansas City and St. Louis for tens upon thousands of Missourians. And we have a standoff here that I do not know how we are going to get resolved. You referenced it in your testimony where you have got Class I railroads that own Class III railroads that are not required to put it in, but because Amtrak goes through there, they are required to put it in. So, therefore, they are saying they do not have to pay for it and there is no way Amtrak in Missouri can pay $30 million for this. I mean, they are scraping pennies every year to get by and have to take a subsidy from the Missouri State legislature to do so.

So I am hoping that big Amtrak has some ideas on how we can get everybody to the table and get this resolved quickly, because I have a feeling that Senator Blunt and I are going to be blamed, not that we do not deserve a lot of blame for a lot of things. But I have a feeling that if all of a sudden over the Christmas holidays, everyone starts learning there is no more Amtrak service in Missouri, that is going to be a big deal.

Mr. STADTLER. I agree. There are a lot of riders there and it is an issue we do need to get resolved.

Senator MCCASKILL. So I know that I can speak for Senator Blunt in this regard, that both of us stand ready to be helpful anyway we can.

Mr. STADTLER. Thank you.

Senator MCCASKILL. Thank you.

The CHAIRMAN. Thank you, Senator McCaskill.

Senator Manchin is up next.

STATEMENT OF HON. JOE MANCHIN,
U.S. SENATOR FROM WEST VIRGINIA

Senator MANCHIN. Thank you, Mr. Chairman.

There is so much going on here and what has happened. First of all, my deepest sympathy goes out to the families of the loved ones and all those who were injured and those that lost their lives from this tragic accident.

I want to focus more on from flying an airplane—and basically we are moving anywhere from 10,000 feet and below at 250 miles an hour legally. Above 10,000, it is uncontrolled. But we are in total control of the atmosphere.

So now on the trains, we are seeing like it is almost impossible for us to have this positive control. And what it sounds like to me is situational awareness. I do not know. In a train, do you all have GPS screens, situational awareness, like I know where I am at, the same as I do in my car?

Mr. STADTLER. Right now on the passenger trains, we do not have that, no.

Senator MANCHIN. That is the simplest, cheapest thing. It is in every car, if you know what I am talking about. You set your GPS. It tells you where you are. I think the guy just lost his situational awareness thinking he was out of the turn before he was into the turn, it sounds like. I mean, just everything leads to that.

So do you all have any plans of putting just situational awareness into your trains?

Mr. STADTLER. We have an extensive training program where all of the engineers must be certified on the physical characteristics of the railroad that they are allowed to operate on.

Senator MANCHIN. I know that. But I am just saying the technology is so simple and it is so advanced. It just baffles me.

I have got to be honest with you. It looks like you all, for the sake of budget constraints, bottom line, profit margins, return on investments—is making decisions that basically should never have been made without us putting the hammer on you all to do it differently. And, we should not have to. It is advancing technology. It advances so rapidly. We are talking about positive train control.

My goodness, when I am flying, I am in control. I am the pilot in command responsible. I understand that. But you got to give me the wherewithals. I got TCAS. I got everything going on. I know where everybody is. I know what I am supposed to do. But, you talk at night and you are up there and it is bad weather, and he is supposed to know every little crook and turn in the train track?

Mr. STADTLER. I would strongly disagree that we are making any decisions that would impact safety for business reasons.

Senator MANCHIN. I would hope you would.

Mr. STADTLER. Safety is the most important thing at Amtrak, and the safety of our passengers, our crews is the most important thing.

Senator MANCHIN. And I ask you this question. Have you all ever at a high level—at your level, have you ever spoke about the technology that is available that could make it much safer at a very low cost?

Mr. STADTLER. Two answers to that. The first one is what the engineer does have in the cab now is the signal that they are operating under shows up right in the cab. So that goes right into the cab. But, we have been focused at the highest levels of Amtrak on getting positive train control in place on our network.

Senator MANCHIN. Well, you can imagine the frustration you are hearing from everybody on this panel right now. Until this deadly accident, you were able to do it before you put it back in service. It could have been done before and prevented the accident.

Mr. STADTLER. That is using the automatic train control system, which is not designed to enforce speed. And what we did back in 1990, the safety group got together and determined where the highest risk——

Senator MANCHIN. I am just saying that until—you know, we have a timetable for this to be put in. Until we meet that timetable, you can meet it. The most inexpensive way, situational awareness, is a visual screen that everybody pretty much has on

their automobile today. Something as simple as that, sir, might be a solution that could maybe really saving lives.

Let me just go into another area that I want to talk to. Should we add trains carrying crude by rail to the list of PTC-required systems?

Dr. DINH-ZARR. Thank you, Senator, for that question.

Absolutely that is a recommendation of the NTSB.

Senator MANCHIN. What timetable do we have on that?

Dr. DINH-ZARR. That is up to the Congress. Just as for passenger rail and any other rail, crude-carrying rail—we support the fastest implementation of PTC possible.

And I should mention, Senator, that PTC is in a way a type of situational awareness technology because we leave the technology up to the railroad companies to use, but it provides a system of knowing where the train is at all times for both the engineer, and should an emergency situation happen.

Senator MANCHIN. My time is running out, and I want to be reasonable with this in this request. Could you report back to this committee—if I could ask officially from the Committee, Mr. Chairman—what evaluations you have on immediate safety procedures you could put in with technology or anything that is available that you could consider? I am not asking you to spend money on redundancies or things that will be outdated. But with the technology that is available now that might make the whole rail system much safer than what we have. Because I know we are talking about the time element, can we meet the time element with the PTC, is that possible, or on a case-by-case approach versus an extension quickly as humanly possible on PTC. It seems like we are going to be missing all these deadlines anyway. Can you get back with us and tell us what you are considering, what the discussions and what your timetable would be to implement other technologies that might be a heck of a lot safer for you?

Mr. STADTLER. If you are directing that to Amtrak, Amtrak can certainly——

Senator MANCHIN. I would say Amtrak. Passenger too. But I would also say from NTSB basically on train and rail safety, if you can do it on freight trains too? The crude has increased 5,500 percent.

Dr. DINH-ZARR. Yes, sir. Senator, we would be happy to provide you any information you'd like.

Senator MANCHIN. I would really like to. I mean, the timetables that you are going to be able to meet on this because we have an awful lot of crude moving through West Virginia. We just had an accident there. It could have been devastating. Thank God we had no deaths or injuries, but it could have been devastating. So we are very much concerned about that. And these are happening at low speeds.

I am sorry, Mr. Chairman. My time is up. But I would like to get with you all further in details on this.

The CHAIRMAN. Thank you, Senator Manchin.

I mistakenly overlooked Senator Blumenthal. Senator Blumenthal, you are up.

STATEMENT OF HON. RICHARD BLUMENTHAL,
U.S. SENATOR FROM CONNECTICUT

Senator BLUMENTHAL. Thanks, Mr. Chairman, and thank you for having this hearing, which I think is profoundly important.

I want to begin where Senator McCaskill ended, just to say, in terms of blame, that Congress should be and will be blamed if we postpone the deadline for 5 or 7 years as right now the proposal is to do. And let me just suggest very strongly—Ms. Dinh-Zarr, you used the term "transparent accountability"—if there is any postponement, my strong feeling is that it ought to be in accordance with the alternative legislation that has been proposed, which would be a year-by-year postponement in that deadline with the burden on railroads to show why they are failing to meet that deadline, meeting a burden of proof that is stringent and strong and requires them to show how they are going to meet that deadline in the future, and a maximum postponement for only 3 years.

I think most of the riders who are beginning the journey from Washington, D.C. to New York today just a few blocks from here would be absolutely dumbfounded and outraged by a lot of this discussion. We are a nation that put a man on the moon. We are operating a vehicle remotely on Mars, but our railroads have not yet implemented a technology that is existing, it is feasible and practical and affordable.

The kind of tragedy at Philadelphia is not only preventable, but predictable. It is predictable in every one of our states not only for commuters and rail riders, but also for freight. The tanker cars that are being transported now with potentially lethal and explosive materials also need this kind of positive train control.

So I think that the FRA has been as much part of the problem as the solution. And, Mr. Lauby, I would like a commitment from you that the FRA will, in fact, impose fines on railroads that have failed to implement positive train control if they fail to do so by 2015. We are talking about fines, not shutting down railroads, but fines that you have the power to do, $25,000 a day up to $105,000 a day in the event that there is grossly negligent failure to implement this technology, fines that are appropriate. I would like a commitment from your agency that you will enforce this law.

Mr. LAUBY. Senator, I cannot make that commitment today.

Senator BLUMENTHAL. Why can you not make that commitment today, that the FRA will implement and enforce a law?

Mr. LAUBY. I can make a commitment that we will enforce the law.

Senator BLUMENTHAL. So you will impose those fines where appropriate?

Mr. LAUBY. We will use all the tools that we have at our discretion in order to make sure that we get compliance as quickly as possible. And that can include fines. That can include everything that is in our toolbox.

Senator BLUMENTHAL. Will you make a commitment that you will implement other recommendations for rail safety that have been made by the NTSB? I think there are 60 or 70 outstanding. Is that correct, Ms. Dinh-Zarr?

Dr. DINH-ZARR. That is correct.

Senator BLUMENTHAL. That is correct. Will you make that commitment?

Mr. LAUBY. Senator, we take every one of those recommendations seriously. We are working through them and trying to satisfy as many of those recommendations as possible.

Senator BLUMENTHAL. Well, if I were a rider listening to this testimony, I would be dumbfounded and outraged. The recommendations have been outstanding for years, and they have not yet been implemented. Why is that?

Mr. LAUBY. Senator, we look at all our work. We prioritize our work. We try to move forward where we can make progress on issues that we feel have the biggest safety impact. And we have a long list of initiatives that we move forward with, and we prioritize them and we move forward as quickly as we can. We look at every one of NTSB's recommendations. We see how it can be implemented. We also see if it has any other safety implications that need to be considered or if we need to do research to better understand the issue and make sure we have——

Senator BLUMENTHAL. I know, Mr. Lauby, since my time is about to expire—I apologize for interrupting. I know that you are the messenger, and you are coming to us with a message that I find completely unacceptable about delay and nonfeasance, as I have said repeatedly. And we have heard much the same language from witnesses in your position in the past.

But I think the overriding fact here is that there is nothing new or novel about these accidents. As Ms. Dinh-Zarr said so eloquently, going back to Darien, Connecticut 45 years ago, the need for this technology was clear. There is nothing new or novel about the crashes and derailments, and there is nothing new or novel about the technology. What we have seen here is a failure of will.

And I think that the blame will be on Congress and on the agencies in the Federal Government that have responsibility for enforcing this law. Enforcement is about expectations. Right now, the expectation is that this law will not be enforced. And my fear is that that expectation will be self-fulfilling.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Senator Blumenthal.

Senator Peters?

STATEMENT OF HON. GARY PETERS,
U.S. SENATOR FROM MICHIGAN

Senator PETERS. Thank you, Mr. Chairman.

Nearly 3 weeks ago, I rose on the Senate floor to commemorate the life of Rachel Jacobs. Earlier that morning, I had attended her funeral. It was an incredibly sad event, one of the saddest I have ever attended. Rachel was tragically killed in the horrific Amtrak crash that we are here to talk about here today. She was only 39 years old when her life was tragically cut short. She was the beloved daughter to dear friends of mine, Gilda and John Jacobs. She was a wife. She was a mother to a beautiful 2-year-old son and the CEO of an education startup in Philadelphia. And although she lived in New York, she never forgot her roots in the Detroit area. She was the cofounder of Detroit Nation, an organization that engages former residents of the Detroit area in cities and commu-

nities across our great country. We have suffered an incredible loss in our area and our families with the passing of Rachel Jacobs, and my heart certainly goes out to her family and to the families of the seven other victims of this tragedy.

This accident was likely caused by human error. We are still grappling to get more information as a result of that. And certainly, positive train control is designed to address the kind of human error that may have been the contributing factor to this error, which means that it could have prevented this accident.

And what is so troubling to me is the NTSB has been saying since 1990—since 1990—that we need PTC on our rail networks in order to prevent accidents, like the one that we just saw and to save lives. And I know implementing this is costly and I know it is complicated, as we have heard here, but we have to move forward with the utmost haste to get this job done.

Every day we delay, we increase the odds of another tragic accident. And anybody here who is advocating for a delay in PTC, I would just ask them to put themselves in the shoes if they have to look in the eyes of that father, her mother who lost a child or a spouse or to see that young kid. This is an issue that we cannot accept failure at. We have to deal with.

And it is clear from the testimony today that we have a ways to go, but what is really troubling to me is that we had a situation with the automatic train control from Amtrak that potentially could have prevented this accident as well. It is my understanding and what I have heard from the testimony today is that back in 1991, 400 people were injured in an overspeed derailment. So Amtrak then took steps to address speed on various curves. And to think that even though we do not have positive train control, that this ATC could have prevented this accident—and the fact it was installed on the southbound track and not on the northbound is even more disturbing that it could have been prevented.

My question to you, Mr. Stadtler—and we have heard that you have since made these corrections on that curve—what the expense, time commitment necessary to make that change on that curve?

Mr. STADTLER. First, let me respond. The safety of our passengers and our crew is the most important thing to Amtrak, and we deal with it and talk about it every day. We are heartbroken and saddened by the incident, and it was devastating to us as well. And from the beginning we took responsibility for our part in the accident. And I too—my heart and thoughts and prayers go out to all the families of the deceased and the victims injured.

I do not have the cost of putting that in. I will say that the limitation of the system is such that it is designed for avoiding train collisions and not for overspeed. The limitations make it so you can only do certain reductions. So you can only force the engineer to go down to 45 miles an hour, 30 miles an hour, or 20 miles an hour. So it is not a feasible system to use for speed control up and down the corridor. Part of the reason why when we looked at the curves back in 1990–1991 was the limitation of the system made it so we only identified the highest risk curves. The railroad was safe for 28 years. It has been 28 years since a fatal derailment. Again, this tragic event made us relook at the criteria under which

we applied those corrections. We have worked with the FRA through their emergency order to identify other curves. There are about six more that we have protected.

But to your point, positive train control is the system that will prevent these accidents.

Senator PETERS. But this system could have slowed this train down had it been identified?

Mr. STADTLER. Had we put a code correction in place at that curve——

Senator PETERS. Which is a pretty minor change to put a code correction in?

Mr. STADTLER. It is. At that particular location, it is pretty minor. I would say that is a fair statement.

Senator PETERS. So a minor correction on this track could have prevented this accident and saved these lives?

Mr. STADTLER. Again, there are numerous places up and down the corridor that have the high risk curves that were identified by this safety group with Amtrak.

Senator PETERS. Why was this not identified as a high risk curve when, obviously, we had a terrible tragedy on this curve?

Mr. STADTLER. The methodology, when we made those decisions, looked at the approach speed and if the approach speed was high enough to cause the derailment in the curve because the approach speed going northbound was 80, and the speed of 80 in that curve would not have caused a derailment. It was not deemed to be a high risk curve.

Senator PETERS. So you do not consider the fact there might be human error or an engineer is traveling faster than the speed limit?

Mr. STADTLER. At the time of the decision, the theory was we thought the human error—we assumed the human error would not be slowing down for the curve. We did not take into account the fact that the person may be speeding—the engineer could be speeding going into it.

Senator PETERS. So now you are correcting that matrix throughout the system on the corridor?

Mr. STADTLER. We have complied with the emergency order and we are working on identifying the curves where the situation exists that the FRA identified, and we are making additional corrections.

Senator PETERS. And when will all those be completed?

Mr. STADTLER. Some of them are completed now. We are working with the FRA on a mitigation plan, but it will be soon.

Senator PETERS. When do you expect that? You say soon. What does that mean?

Mr. STADTLER. I do not have the answer for all of them, but it is within weeks.

Senator PETERS. Obviously, it has to be as soon as possible, and then we have to work on positive train control.

I know I am out of time, but, Chairman Thune, I would certainly hope that we need to have another hearing after the NTSB has come back with their findings, if we could have a hearing to really delve into this because this is, obviously, of extreme importance to so many people.

The CHAIRMAN. Thank you, Senator Peters.

Senator Booker?

STATEMENT OF HON. CORY BOOKER,
U.S. SENATOR FROM NEW JERSEY

Senator BOOKER. Thank you, Mr. Chairman.

We are obviously here with heavy hearts, and everyone has expressed that from our people giving testimony to other Senators about the regret and condolences we give to the families of those that were killed, and all those who were injured and are still recovering.

I would like to really just drill down to some of what the key issues are in preventing us from getting PTC implemented.

And the first is, Mr. Lauby, you highlighted in your testimony that people are having trouble or railroads are having trouble, implementing PTC because of the cost. The cost of funding PTC is a big challenge, and I guess I am wondering do commuter railroads have enough money to implement positive train control? What are the concerns you are hearing from them with their limited budgets?

Mr. LAUBY. Thank you for that question, Senator.

The cost is certainly a driving factor for the commuter railroads. The commuter railroads are public agencies. They operate budgets similar to the way the Federal Government does where they have to look 3 years ahead to get funds. The cost of PTC is quite high, $3.48 billion for the public commuter agencies, and at this point they have spent $950 million. So they have a long way to go. We feel that the Government has a role in funding this positive train control improvement.

Senator BOOKER. I am sorry to interrupt you. The Federal Government has a role to play.

Mr. LAUBY. We have asked for $825 million specifically to support positive train control implementation on public commuter rail agencies. We have asked for that in 2015 and 2016.

Senator BOOKER. So Amtrak along the Northeast Corridor will have their PTC implemented by the end of this year. Correct?

Mr. LAUBY. Correct.

Senator BOOKER. And were they able to do that, Mr. Lauby, in your estimation by robbing Peter to pay Paul in preventing investments in other areas? How did they get it done in the Northeast Corridor by the deadline or by the end of this year and other folks are not able to?

Mr. LAUBY. Well, to Amtrak's credit, Amtrak started long ago with the voluntary application of the ACSES system. They were developing it before the PTC mandate was ever issued on RSIA. We have been working with them for years on that.

Senator BOOKER. And financing mechanisms. The MTA was recently approved by the FRA, about $987 million in rail financing. I am looking at this myself with some legislation we are looking to introduce to make this program more accessible. Is that a possible way to help finance PTC implementation?

Mr. LAUBY. It is. It is based on loans. Someone has to pay those loans, but the more funds that are accessible to the commuter railroads, the quicker we will get this in place.

Senator BOOKER. Right. And I guess I share a lot of the frustrations as expressed, and I appreciate the panelists for enduring what is understandable frustration amongst my colleagues and I, but I also do not want to shirk the responsibility that we have. We are debating right now more than a half a trillion dollars for national defense, and when I think of defense of this country, it is also this idea that we should be defending people in the homeland from tragedies that are occurring because of an infrastructure that has fallen way behind our global competitors. America is number one. That is what I believe. But yet, we have an infrastructure that is ranked well out of the top 10 compared to other nations that have faster moving trains, more efficient, safer, faster ports, better aviation infrastructure, and roads and bridges are crumbling, threatening our Nation.

And so I understand that there is a lot of responsibility, frankly, that is represented by the people that are giving testimony here, but the fact that one of the biggest reasons I am hearing is because of a lack of resources, often small changes that could be being made that we are not investing. That is very frustrating to me.

Two more quick questions in the limited time.

As soon as the accident happened, Amtrak was ordered to put a lot of other safety measures in place. And that should not be isolated, obviously, to just the Northeast Corridor. Our entire Nation should do the common sense safety implementation. The things that were done post-accident could have been done pre-accident, and I want to make sure they are being done all across our commuter rail systems in America.

Mr. LAUBY. Senator, we issued a safety advisory yesterday that takes many of the solutions that improve safety on the Amtrak corridor and asked the other commuter railroads to consider making changes to implement those same types of solutions.

Senator BOOKER. Just real quick, Mr. Mathias. The congestion within the Northeast Corridor in the New York-New Jersey region or in the Northeast Corridor in general—are you concerned about interference as an issue for the implementation of positive train control? Is that a real issue that we in Congress should be focusing on as well?

Mr. MATHIAS. Thank you, Senator. Interference is a concern in any spectrum-related activities. It is a concern in this case not only train to train, but also potentially trains interfering with adjacent TV stations. For this reason, spectrum licensees engineer their systems carefully. They work these problems out. And in this case, Amtrak, as well as the freight rails, have assured us that they are designing their systems to operate so that they do not interfere with each other. To the extent that they do, we stand ready to engage with them, to help them find solutions.

Senator BOOKER. Mr. Chairman, thank you very much.

The CHAIRMAN. Thank you, Senator Booker.

Senator Cantwell?

STATEMENT OF HON. MARIA CANTWELL,
U.S. SENATOR FROM WASHINGTON

Senator CANTWELL. Thank you, Mr. Chairman, and thanks for holding this important hearing.

And I do too want to express my sympathies to the families who have lost loved ones in these accidents.

I wanted to go to you, Mr. Lauby, because in the State of Washington, operating entities for both the commuter and passenger rail service expect to be ready to operate the PTC by the end of the year. So I know my colleagues have talked about a couple of different issues, but I am talking now about the actual testing, because the Federal Railroad Administration will have to do the testing to get that operational. So are we going to be ready to have that testing done with those entities so that this can be operational by the end of the year?

Mr. LAUBY. The testing itself is conducted by the individual railroads. The process is that the railroads provide the test plans to FRA. FRA approves the test plans. The tests are conducted with some oversight by FRA. We are not on every train, but we are engaged with the test engineers. Once the tests are completed, the results of those tests are used to support system certification and the safety plan that moves forward to certifying the entire system.

Senator CANTWELL. So has the FRA laid out the type of testing that will be required for both the commuter and the freight rails?

Mr. LAUBY. The type of testing is laid out in the regulation, and the type of testing—we have technical experts that work with all the authorities to help them make that determination and understand those requirements.

Senator CANTWELL. So you do not believe that FRA is any part of an issue that would be a delay in this implementation by the end of the year?

Mr. LAUBY. No, Senator, I do not.

Senator CANTWELL. And what about—my colleague from West Virginia mentioned this issue, particularly as it related to a larger emergency concern on the movement of crude by rail, which is voluminous both in his state and in mine. And in Washington, BNSF is part—since they own so much of the track, is a part of the partnership in the system implementation of positive train control. So you do not see any delay in being able to apply that either on the crude by rail system?

Mr. LAUBY. Many of the crude by rail routes are going to be on track that would be PTC-equipped, because these are really on the high capacity tracks. It is not true in all cases. We have talked about potentially a requirement for PTC on the crude by rail routes. The accidents that we have had, even in Senator Manchin's State, have not been caused by train-to-train collisions. They would not have been PTC-preventable so far, but there is a risk of train-to-train collisions with crude oil and any type of train. So that is something to be considered. But again, many of the crude oil routes are already covered or will have PTC installed on them.

Senator CANTWELL. But in a runaway train scenario, they would be very helpful. Correct?

Mr. LAUBY. In a runaway train where we have a failure of the brakes or failure to control the train, PTC will not stop that collision either.

Senator CANTWELL. In a locked mechanic type of situation where—for whatever safety procedures were not followed and then the train started moving down the track?

Mr. LAUBY. If the brakes will not hold the train on a grade, PTC basically relies on the train brakes to enforce the signal restrictions or the speed restrictions. If the brakes do not work, PTC would not be effective.

Senator CANTWELL. So back to BNSF and the Northwest. So you believe by the end of this year, there is no reason why the Pacific Northwest, both on commuter and on freight, should not be able to operate positive train control?

Mr. LAUBY. I can give you some details and update, but I do not know of any specific challenges that we have in not supporting that program. If BNSF is ready to implement there, if the commuter railroads are ready to implement there, then I do not see anything standing in the way.

Senator CANTWELL. Certainly not FRA's testing?

Mr. LAUBY. Not FRA's test, and again, it is not FRA's testing. It is the railroads' testing. They have to complete it. They have to provide a safety plan so that that system can be certified.

Senator CANTWELL. Thank you.

The CHAIRMAN. Thank you, Senator Cantwell.

Senator Markey?

STATEMENT OF HON. EDWARD MARKEY,
U.S. SENATOR FROM MASSACHUSETTS

Senator MARKEY. Thank you, Mr. Chairman, very much.

Right now, every one of us, all of us, in this room, Senators, Amtrak, the Federal Railroad Administration, NTSB, the FCC—we need to do everything we can to facilitate the quick installation of positive train control, PTC, along our Nation's railroads.

PTC really stands for protecting train customers, preventing train collisions. That is what it really stands for. And it has not been implemented fully and it has to be in a timely fashion.

And that is why I have cosponsored with Senators Feinstein and Blumenthal and Nelson the Positive Train Control Act, which would hold railroads accountable for implementing PTC systems as quickly as possible.

A recent study estimates that Amtrak needs $21 billion in capital investments just to get the corridor to a state of good repair and lay the foundation for future demand.

Well, last night, the House Republicans voted to cut Amtrak's budget by over $200 million, and that is unacceptable because by cutting Amtrak funding, they are playing a dangerous game of railway Russian roulette, making tough decisions necessary by the people who are sitting at this table in terms of what will, in fact, get funded.

So, Mr. Stadtler, how important is it that we see continued investment in Amtrak to ensure continued upgrade of the Northeast Corridor and throughout the country? If the appropriations bill the House passed last night becomes law, what types of critical safety technology tradeoffs will Amtrak have to make, and what other negative impacts will customers experience as a result of these misguided cuts?

Mr. STADTLER. Thank you, sir.

Continued funding is obviously critical. Consistent funding is critical as well. As has been well documented up and down the cor-

ridor, we have aging infrastructure that has been under-invested in. We have 100-year-old bridges all up and down the corridor, and we have lacked the resources to upgrade them and maintain them on a regular basis. We have always put safety first. We have used the limited funding we have to make sure that we will have positive train control in place by the legislated deadline. We have used the funding we have to equip our locomotives off the corridor to ensure that we are ready when the freights are ready to have train control in place. But you are right. With limited funding, it presents us with very difficult decisions moving forward.

Senator MARKEY. Well, Mr. Stadtler, you mentioned concerns that there are places where Amtrak and the freight railroads use different potentially interfering spectrum for their PTC systems, including on the crowded Northeast Corridor between New Haven and Boston. What steps has Amtrak taken to ensure that that interference will not be a problem?

Mr. STADTLER. We are working very closely with the FCC. We are working very closely with the freight railroads that have the I-ETMS system on their right-of-way that is in close proximity to our right-of-way. We are doing significant testing and working closely so when there are interference issues, we use one of the many mitigating tools to reduce the risk there.

Senator MARKEY. Well, let me go to you, Mr. Mathias. What is the FCC doing in order to make sure that these separate systems do not wind up interfering with each other?

Mr. MATHIAS. Senator, we are fully engaged with all the parties, including with Amtrak and the freights, to encourage their discussions and the work of their engineers to work out these issues. Should those issues not be able to be engineered away, we are standing ready to help them find additional spectrum, if that is required, either through acquisition or, potentially, through exchanges of comparable spectrum.

Senator MARKEY. So how close are we to making the decision as to whether or not the engineering issues can be resolved, and as a result, you would have to move on to finding additional spectrum?

Mr. MATHIAS. Senator, we had our first discussions about this issue with both Amtrak and freight rail officials less than 2 weeks ago. We have already had follow-up meetings. It is too early to say, but we are clearly moving quickly on this. We understand the importance and the criticality to PTC deployment.

Senator MARKEY. Do you have a goal, Mr. Stadtler or others, in terms of when this issue should be finally resolved?

Mr. STADTLER. We are using the 220 megahertz now frequency on the North End between New Haven and Boston, and we will have that implemented by December. Because the freights are a little bit behind us, we do not envision any issues that will prevent us from putting our system in place, and we will just work closely with them as they implement to ensure that issues are mitigated.

Senator MARKEY. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Senator Markey.

Senator Klobuchar?

STATEMENT OF HON. AMY KLOBUCHAR,
U.S. SENATOR FROM MINNESOTA

Senator KLOBUCHAR. Thank you very much, Mr. Chairman. Thank you to all of you.

I was at an export meeting, and I saw Secretary Foxx there. And I think everyone is very focused on what happened with this crash and the sad, tragic loss of life. And it just puts a renewed focus on our Nation's infrastructure. We, of course, had this already in Minnesota years ago with our bridge collapse, and we have seen a number of derailments in the Midwest because of increased use. We just had a bridge just fall down in the middle of—a very small bridge near International Falls, Minnesota. There were no injuries, but a train went right into the river just because we have infrastructure needs. So my focus right now honestly is on infrastructure funding, our transportation bill.

But beyond that, I know a lot of my colleagues have specifically asked about the PTC issues, and I want to go back to something that Senator Markey was just talking about with you, Mr. Mathias, and that is spectrum. As more and more consumers and technologies come to rely on wireless technologies, whether it is PTC or connected cars or increased demand for mobile broadband, are we going to continue to see demand for more spectrum? And as we know, it is a competitive market in terms of auctions, and how do you see the FCC balancing the spectrum of needs from safety enhancements like PTC and the other commercial demands? And do you think the PTC system currently has enough spectrum to operate national?

Mr. MATHIAS. Senator, thank you for that question.

Obviously, the FCC is fully engaged in finding and making available to the public the spectrum that everybody needs for these advancing systems.

With respect to PTC, we believe—we have been informed by the freight railroads, that they have met their needs across the country. We understand that Amtrak as well has their needs in the Northeast Corridor, and we believe that the commuter rails in many locations, including in Puget Sound and San Francisco and Los Angeles and San Diego and Chicago, where 11 railroads are using the same system and the same spectrum, and even in the Northeast Corridor—we think that they do have the spectrum or certainly are close to getting it.

Senator KLOBUCHAR. Thank you.

Mr. Stadtler, Amtrak operates a 21,300-mile system that provides service to vibrant communities in 46 States, and the network reaches about 40 percent of America's rural population. What is Amtrak doing to ensure it continues to provide reliable service and safe service in rural America?

Mr. STADTLER. Safety is our number one priority every day. We are working very hard to put positive train control in place on the infrastructure that we own and have responsibility for. And in the areas where we do not have the responsibility for the wayside infrastructure, we do have the responsibility to equip our fleet with interoperable radios and electronics, and we are committed to doing that and we will have that done by December of 2015.

Senator KLOBUCHAR. So you think that it will be the same in the urban and rural areas, or do you think there will be a difference?

Mr. STADTLER. Where there are requirements for PTC under the rule that applies in the rural areas, absolutely.

Senator KLOBUCHAR. A December 13 GAO report found that FRA faces several rail safety challenges, including that the inspectors only have the capacity to inspect less than 1 percent of all railroad activities. The FRA, as you know, partners with states to oversee the inspections of the tracks and the signals. We only have a handful of inspectors in our state, and I know there is a specific need for more track inspectors. I have tried to get increased funding for more rail inspectors, because I believe it will help with derailments. In your view, is there a sufficient number of track inspectors to oversee the tracks that we have in our country, Mr. Stadtler?

Mr. STADTLER. We do not actually own the track inspectors. So I would defer that to FRA.

Senator KLOBUCHAR. OK.

Mr. LAUBY. Yes. We can always use more track inspectors. As the report said, we were able to touch 1 percent of the railroad system. Additional track inspection is important. We have initiatives going on right now to try to address some of the track issues that we have seen with the crude oil routes and some of the more recent derailments. But we are taking a more active look at crude oil routes. We are hiring additional track inspectors right now to dedicate to those routes to provide a higher level of safety.

Senator KLOBUCHAR. Thank you very much. Thank you to all of you.

The CHAIRMAN. Thank you, Senator Klobuchar.

Senator Gardner?

STATEMENT OF HON. CORY GARDNER,
U.S. SENATOR FROM COLORADO

Senator GARDNER. Thank you, Mr. Chairman, for holding this hearing today.

I just want to go back over some of Mr. Stadtler's testimony. Just so you know, Mr. Stadtler, I think in May of this year, the State of Colorado committed to spending $1 million for track maintenance along the Southwest Chief line. I think the State of New Mexico has matched Colorado's effort by also committing $1 million to track maintenance. Kansas has also agreed to support the effort. There are other efforts ongoing to support this line.

In your testimony, you state that the dispute between the Kansas City terminal and Amtrak over who is required to take on the cost may lead to closure of the line. Have you actually exhausted all options? Have you looked at every nook and cranny of your budget? Have you taken every step possible to avoid having the line rerouted or closed?

Mr. STADTLER. I would say we have not exhausted all options. We are working closely with KCT and with the Class I railroads that own KCT. Even though KCT is a Class III, it is owned by Class I's. As you know, KCT has hundreds of freight trains that go through there every day, and we have about a half a dozen passenger trains. I would not say, though, we have exhausted all op-

tions. We have already contributed $5 million toward PTC at the Kansas City Terminal, and we continue to actively search a resolution.

Senator GARDNER. Could you provide my office with a list of the steps and measures that you have discussed and looked into and then possible solutions as well that you are considering?

Mr. STADTLER. Certainly.

Senator GARDNER. And do you believe that an extension of the deadline for implementation would assist in resolving this dispute of some kind?

Mr. STADTLER. I do not believe that this specific situation has anything to do with the deadline. No.

Senator GARDNER. Why not?

Mr. STADTLER. Because KCT has been pretty active in getting train control in place. I cannot speak to their schedule, but I do not believe there is a deadline issue there.

Senator GARDNER. Maybe we could continue the conversation on that, because I think there are alternatives that we could pursue to make sure that the outcome of what you outlined in your statement does not actually materialize in regards to this particular line.

Do you believe that long-distance lines—I mean, if you go to Colorado, if you go to southwest Kansas, if you look at the impact this has on those communities, and the Arkansas Valley in Colorado, southwest Kansas, do you believe that this line has a positive economic impact on those communities?

Mr. STADTLER. Absolutely, and it is one thing, to your point, that you see when you ride the long-distance trains. You get to these small cities, and you see such a large percentage of folks that rely on the train every single day to get to where they need to go. They have no other transportation options. So I think it is vital, yes.

Senator GARDNER. And has that been part of the consideration that you have made when talking about your alternatives and possible actions you could take?

Mr. STADTLER. It is absolutely part of the equation. There is no doubt.

Senator GARDNER. I think this is important that we find a solution to this, that we find a way that we can make this work. It would be devastating in the case of these communities to have the consequences of your testimony indeed come to fruition.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Senator Gardner.

Senator Johnson?

STATEMENT OF HON. RON JOHNSON,
U.S. SENATOR FROM WISCONSIN

Senator JOHNSON. Thank you, Mr. Chairman. I apologize for not being here. We were actually having a confirmation hearing on the next TSA Administrator, which was reasonably important.

But I really want to explore technology. I am not sure who the best person is to ask this question. But now that we have got Google Maps, we have got Google's driverless car—PTC was passed back in 2008, 7 years ago. That is almost an eon ago in terms of the technology advancements. Are we really looking at the right

technology? Are we spending money on something that is already obsolete before we implement it? Whoever feels capable of answering it, please do.

Mr. LAUBY. You know, it is very valuable technology. When we look at the types of accidents that it can prevent, what PTC really does is it is a backup for the locomotive engineer. Our railroad system in this country is very manual. It depends on the locomotive engineer to stay awake, stay alert, and make the right decisions, control the train appropriately. And if he makes a mistake, there is no backup without this positive train control system. So if we are interested in preventing accidents and putting technology in place that can prevent accidents, this technology is the right one to take care of human error, which is 38 percent of the accidents we see.

Senator JOHNSON. But again, one of the issues has been the assigning of spectrum. This does not need spectrum. Does it? One of these map functions—this tied in with the Governor on a locomotive. Is there a simple way of addressing this problem? Are we just tied into an old technology solution and just continue to barrel down this path when there is better technology, there is more advanced technology that could be implemented far cheaper and far more quickly? Go ahead.

Dr. DINH-ZARR. Thank you, Senator. I will be very brief.

PTC is actually a performance standard. It is a performance measure. So the railroad companies can use any technology they would like, and they have chosen to use this type of technology, which we also believe at the NTSB will save lives if it is implemented in a timely manner.

Senator JOHNSON. Mr. Mathias, you were wanting to hop in here.

Mr. MATHIAS. I was pointing, not to hop in, but thank you, Senator. I would just add that the device that you held up does use spectrum to communicate with the satellites. It tells it where it is. So it is not a——

Senator JOHNSON. But it is already assigned, and we are not having to wait for additional. Again, I am no technologist here, but in numerous hearings here we are always talking about the assignment of spectrum. And there seems to be an awful lot of complication involved in setting up the PTC. Am I just missing something here?

Mr. MATHIAS. The FCC's role is to work with the railroads to help them find the spectrum they need. They have chosen to deploy their system in a commercial band in the neighborhood of around 220 megahertz. There are licensees in there already. So what we have had to do is had to help them find people who would be willing to work with them on a market basis to give them the spectrum so that they could use it. It seems to be working well, and in most of the country, we understand that the railroads have the spectrum they need. So we do not think that that is an issue.

Senator JOHNSON. But it does not seem particularly working well. This was mandated to be completed by 2015, and a lot of people are not going to be able to do it. I mean, this is 7 years in implementation. It does not seem that easy.

Again, I am still not getting an answer to the question. Is there a better technology that would be easier, cheaper, or something

that would work as well, if not better, than what was contemplated, again 7 years ago?

Dr. DINH-ZARR. So the simple answer to that, Senator, is no. PTC is the best answer. It is the safety measure that will prevent these type of crashes, these type of accidents. There are other alternative measures, but they are reactive rather than predictive. So they may take place after someone has passed the red signal, for example, you know, when there is about to be a collision. So that is the importance of PTC is that it is a predictive type of technology or technologies that will prevent these crashes before they happen.

Senator JOHNSON. Anybody else have anything to add?

Mr. LAUBY. Senator, I think that the spectrum issue has largely been worked out for the Class I's. There are still challenges with the commuter railroads. The information I have had from APTA shows that about 54 percent of the commuter railroads still do not have all the spectrum they need to operate. We have a good relationship with FCC. We will continue to work with them to make sure that those issues are addressed.

Senator JOHNSON. OK, thank you.

Thank you, Mr. Chairman.

The CHAIRMAN. Thank you, Senator Johnson.

Just as a couple of closing notes—and by the way, I would ask this maybe one last quick question because there are lots of safety measures that can and should be taken, and this was referenced a little bit earlier today, but I am just curious and perhaps, Ms. Dinh-Zarr, you could respond to inward-looking cameras and their effectiveness, not only when it comes to determining after the fact what has happened, but also as a preventive measure just to keep folks paying attention in the locomotive. So could you comment on that safety measure and whether or not you see that as something that could be implemented that would be very effective at least in the near interim until some of these other technologies are able to be implemented?

Dr. DINH-ZARR. Thank you, Chairman. Thanks for the good question about the inward-facing cameras.

The NTSB has recommended that inward-facing cameras are implemented along with audio recordings as well. And that is absolutely an implementation that would make trains safer. It would record, obviously, the happenings that we are not able to observe directly. It also provides more information so that we can prevent crashes, so we can see what happens, as you mentioned. So absolutely we recommend it and we think it is a good safety advancement to have that.

The CHAIRMAN. Mr. Lauby, can you comment on that?

Mr. LAUBY. Yes. I believe that inward-facing cameras are something that can be used to enhance safety. We have been working with the industry as they have rolled out some of their systems.

We have had a railroad safety advisory committee group that has tried to draft some regulations around that. Unfortunately, we were not able to reach consensus with that group, and so at this point, FRA is continuing to move forward and has, at least in headquarters, a draft rule that would require inward-facing cameras in the future.

The CHAIRMAN. What percentage of rail accidents are human-caused?

Mr. LAUBY. About 38 percent, Senator.

The CHAIRMAN. And can you break down others? Equipment, rail?

Mr. LAUBY. Track is the second big one. That is about a third, 35 percent or so. Equipment and other types of issues, signals—that takes up the last third. But human factors is really the driving factor.

The CHAIRMAN. Well, Mr. Lauby, it is pretty critical that we get this updated PTC report as soon as possible. That would be very helpful in terms of shaping the discussions we have about what is reasonable in terms of this technology and its implementation.

Mr. Stadtler, if you would continue to update the Committee on your progress on the necessary ATC modifications as well.

We want to do everything we can, obviously, to make sure something like this never happens again. And obviously, we know that there are technologies like PTC that are available. The question I guess is, again, how do we get those implemented and certified in a way that ensures that we are promoting safety and not making things less safe? And I think that is going to require a good amount of coordination from a lot of folks. So we look forward to hearing that report, Mr. Lauby, and hope you can get that to us as soon as possible, because this is something we are going to have to deal with in the very near future.

The hearing record will remain open for 2 weeks, during which time Senators are asked to submit any questions for the record, and upon receipt, the witnesses are requested to submit their written answers to the Committee as soon as possible.

I want to thank our panel today for their responses, for their insights, and I think this has been very helpful.

This hearing is adjourned.

[Whereupon, at 11:55 a.m., the hearing was adjourned.]

A P P E N D I X

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. STEVE DAINES TO DJ STADTLER

Question. In your testimony, you mention Amtrak anticipates it will meet the Positive Train Control (PTC) deadline of December 31 along the Northeast Corridor (NEC). You also mention hurdles Amtrak faces in the Midwest. In my home state of Montana, the Empire Builder, connecting Chicago with Seattle and Portland, is a critical part of our transportation infrastructure along the highline. More than 118,000 people boarded and alighted in Montana last year (FY 2014). Would you discuss the time frame for PTC deployment on western passenger rail lines, specifically the Empire Builder? What hurdles remain and how is Amtrak coordinating with freight railroads who own the track?

Answer. Thank you for your comments regarding the importance of the Empire Builder to the State of Montana. As you are probably aware, the host railroads that own the tracks used by the Empire Builder are BNSF (in Montana) and Canadian Pacific and Metra (east of St. Paul, MN and in the Chicago area). PTC requires wayside components installed along the tracks by the host, and on-board components installed on the train. Amtrak expects to have our locomotives equipped to operate the Empire Builder and all our other routes nationwide by the December 31, 2015 congressionally mandated PTC deadline. However, we cannot comment on the readiness of other railroads' PTC installations. The primary hurdles that remain for PTC operations on host railroads are completion of the wayside installations by the hosts, training of Amtrak crews, and completion of PTC back-office servers to coordinate communications among all the PTC components. Amtrak requests periodic updates from our host railroad partners on their plans for installation and operation of PTC.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. STEVE DAINES TO CHARLES MATHIAS

Question 1. Amtrak's Office of Inspector General (OIG) report found Amtrak's most serious challenge in implementing Positive Train Control (PTC) was acquiring radio frequency spectrum along the Northeast Corridor (NEC). Mr. Stadtler mentioned in his testimony the need for Amtrak to migrate from the 900MHz to the 220MHz bandwidth along the Northeast Corridor in his testimony.

As you stated, the Federal Communications Commission (FCC) facilitates spectrum acquisition. What is the FCC doing to facilitate spectrum acquisitions outside of the NEC? Would you please discuss spectrum issues for PTC in rural areas, such as along the Empire Builder?

Answer. We understand from Amtrak that Amtrak will be relying on PTC–220, the spectrum management entity established by the Class I Freight Railroads, for its spectrum needs outside the Northeast Corridor. We understand from PTC–220 that there is adequate spectrum for this purpose. In particular, Amtrak has confirmed that it will be using spectrum from a PTC–220 member to support PTC service for the Empire Builder.

Question 2. At times, obtaining spectrum from existing licenses in secondary markets has been unsuccessful. What are the challenges to acquiring the necessary spectrum while also protecting property rights of the spectrum holder?

Answer. The Commission respects the rights of all spectrum holders. For this reason, we have directed the railroads to the secondary spectrum market where they can negotiate at arm's length with existing spectrum holders to meet their PTC spectrum requirements. The Commission continues to be actively engaged with all parties to facilitate these transactions and ensure that PTC spectrum needs are met.

○