Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C.

In re Petition of the	)	
	)	
HIGH-SPEED RAIL SAFETY	)	
COALITION	)	
	)	RM-
to establish new rules governing	)	
the marketing and operation of	)	
certain equipment essential to	)	
the operation of high-speed rail services	)	

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

To: The Commission

PETITION FOR RULEMAKING

HIGH-SPEED RAIL SAFETY COALITION

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EXECUTIVE SUMMARY

The High-Speed Rail Safety Coalition -- consisting of the National Railroad Passenger Corporation ("AMTRAK"), the largest passenger rail carrier in the northeast corridor ("NEC"); New Jersey Transit, the third largest commuter rail carrier in the U.S.; and Alstom Signaling, Inc., and Union Switch & Signal Inc., manufacturers and vendors of a broad array of, e.g., railroad safety and switching equipment -- petition the Commission to adopt a new regulatory scheme to facilitate the expeditious deployment of certain equipment critical to the initiation of high-speed rail service and enhanced safety for commuter rail services in the NEC.

The Federal Railroad Administration ("FRA") has mandated the installation of an "advanced civil speed enforcement system" ("ACSES") in the NEC by October 1, 1999. This equipment, which has been in use in high-speed rail service for many years in Europe, enables trains to receive time-critical safety information and to override operating systems in the event of human or mechanical failure.

The ACSES equipment consists of a transmitter/antenna located underneath the locomotive (or other control car) which receives the relevant safety information from a transponder located at strategic points in the track bed. The transmitter queries the transponder using a signal at 27.115 MHz (this signal also represents the transponder's sole power source) and the transponder responds with a data burst in the 4.5 MHz band. Because of the unique operational characteristics of the system -- e.g., considerable shielding from the locomotive, operation only in trackbeds, train speed -- the Commission can be confident that the ACSES can co-exist with other services.

The frequencies, power levels, and use of the ACSES do not correspond to any existing Commission allocation. Thus, it is essential that a new regulatory scheme be created to accommodate ACSES, and that this be accomplished in an expedited manner.

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To: The Commission

PETITION FOR RULEMAKING

Pursuant to Section 1.401 of the Commission's Rules, 47 C.F.R. § 1.401, the High-Speed Rail Safety Coalition (the "Coalition") hereby requests that the Commission establish a regulatory framework that will permit the expeditious deployment of certain communications equipment essential both to the development of high-speed intercity rail service and the enhancement of commuter rail safety in the United States.

As will be discussed in greater detail below, this equipment, which is critical to the safe operation of high-speed rail service, does not fit into any regulatory category presently established by the Commission's Rules (e.g., Parts 15, 18, or 90). As such, Coalition members are unable to deploy this equipment, which is necessary to meet a specific mandate of the Federal Railroad Administration ("FRA") that certain specified equipment, necessary for the implementation of high-speed rail service in the northeast corridor ("NEC"), be installed by October 1, 1999.

I. THE COALITION

The Coalition consists of the National Railroad Passenger Corporation ("Amtrak"), New Jersey Transit ("NJT"), Alstom Signaling, Inc. ("Alstom"), and Union Switch & Signal Inc. ("US&S"). Amtrak is the main carrier of intercity passenger traffic in the NEC, which encompasses areas of Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, and the District of Columbia. NJT, which is the third largest commuter rail carrier in the country, operates extensive commuter rail service within the State of New Jersey and southern New York. Alstom and US&S are vendors of the subject equipment.

II. THE EQUIPMENT

A. Overview

The equipment described below frequently is referred to as an "advanced civil speed enforcement system," or "ACSES."[1/] This equipment is based on well-proven technology used extensively in European high-speed rail systems (e.g., the French TGV trains and Swedish X-2000) for a decade or more.

1/ This is the label employed by the FRA in its July 10, 1998, Final Order directing the deployment of these systems in the NEC by October 1, 1999. See Automatic Train Control and Advanced Civil Speed Enforcement System; Northeast Corridor Railroads, 63 Fed.Reg. 39343 (July 22, 1998) ("FRA Order") (a copy is attached hereto as Appendix A). Some manufacturers use the term "advanced speed enforcement system," deleting the word "civil" from the name. In light of the FRA's use of the ACSES label, the instant Petition will do likewise, unless the context requires greater specificity. It must be emphasized, however, that, as used herein, the term "ACSES" or "ACSES-type system" is meant to encompass all relevant systems sharing the same basic functions and general technical characteristics.

The ACSES consists of two basic components: (1) a "transponder" (the "Transponder Unit") mounted at appropriate points in the railroad track bed[2/]; and (2) a transmitter/antenna (the "Transmitter/Antenna Unit") mounted under each locomotive or other car in which the relevant control equipment is situated (hereinafter, "locomotive" or "engine").[3/]

The Transponder Unit carries information that is critical to the high-speed operation of the trains (e.g., distance to a curve, maximum speed at a curve, braking points, distance to signals requiring a train to stop, etc.).[4/] As a train passes over the Transponder Unit, the Transmitter/Antenna Unit mounted under the locomotive transmits a query to the Transponder Unit which, using the electromagnetic energy from that transmission as its sole power source, responds with its predetermined message. Failure of the train to respond appropriately (e.g., to a message directing a speed reduction prior to an upcoming curve) may (depending, of course, on the circumstances and system programming) cause the train's computer system to halt the train.

2/ Dimensions for these units vary slightly among manufacturers, but in general, they weigh approximately ten pounds and are approximately eighteen inches long, twelve inches wide, and two inches thick.

3/ With the variations noted above, the units weigh approximately seventy pounds and are approximately twenty-five inches in length and width and seven inches thick.

4/ Some systems employ Transponder Units which are hard-wired to a railroad's signal system and which can update a given Transponder Unit's data.

B. Technical Specifications

Two of the leading distributors of ACSES-type equipment in the U.S. are Alstom and US&S.[5] For purposes relevant here, their respective systems are identical; minor variations in features should not affect the establishment of an appropriate regulatory scheme.

1. Transmitter/Antenna Unit (Mobile, Locomotive-Mounted)

a. ALSTOM SIGNALING, INC.

Transmitter Model No. 19366

Antenna Model No. 19364

Power Supply: 12 Volts DC supplied by train

Power Input: Approximately 25 Watts to the final RF stage

Transmitter Frequency:	F=27.115 MHz (situated within the 27.120 MHz ± 163 kHz ISM Band)
Emission:	P0, Pulsed 87.5% Duty Cycle (17.5 microseconds On, 2.5 microseconds Off)

[5] The Coalition is aware of at least two others, Siemens and ADtranz, but those companies are not active in the NEC project that is of immediate concern to the Coalition. While the Coalition has attempted to cast its rulemaking request widely enough to cover systems not presently involved in the NEC project, it cannot be certain that it has been successful in this regard. Obviously, public comment in response to the Petition should help shape appropriate technical parameters.

b. UNION SWITCH & SIGNAL INC.

Transmitter/Antenna Model No.: L320430010

Power Supply: Approximately 32-72 Volts DC supplied by train

Power Input: Approximately 25 Watts to the final RF stage

Transmitter Frequency: F=27.115 MHz (situated within the 27.120 MHz ± 163 kHz ISM Band)

Emission: P0, Pulsed 85.0% Duty Cycle (17.0 microseconds On, 3.0 microseconds Off)

2. <u>Transponder Unit (Fixed, Ground-Mounted)</u>

a. ALSTOM SIGNALING, INC.

Model No. 79545468

Power Supply: No DC power supplied

Power Input: Approximately 13 milliWatts (when RF signal is detected from Transmitter/Antenna Unit)

Re-transmitted Frequency: F= 4.5 MHz, B/W =56-80 kHz (F is situated in the designated Government and Non-Government Band at 4.438-4.650 MHz, where the Primary Allocations are to "FIXED and MOBILE except aeronautical mobile

(R)" services. Current assignments include FCC Rule Parts 87, 23, 80 and 90)

Emission: P0, Pulsed at 87.5% Duty Cycle (17.5 microseconds On, 2.5 microseconds Off)

b. UNION SWITCH & SIGNAL, INC.

Model No. L320440000

Power Supply: No DC power supplied

Power Input: Approximately 13 milliWatts (when RF signal is detected from Transmitter/Antenna Unit)

Re-transmitted Frequency: F= 4.425 MHz $\pm$125 kHz

B/W = 325 kHz (F is situated in the designated Government and Non-Government Band at 4.438-4.650 MHz, where the Primary Allocations are to "FIXED and MOBILE except aeronautical mobile (R)" services. Current assignments include FCC Rule Parts 87, 23, 80 and 90)

Emission: P0, Pulsed at 85.0% Duty Cycle (17.0 microseconds On, 3.0 microseconds Off)

C. Installation and Maintenance

The ACSES-type Transmitter/Antenna and Transponder Units will be professionally installed and maintained by the supplier's and/or by the railroad's personnel, who will be specifically trained to perform such installations and maintenance functions. The operation of ACSES-type systems will be under the

complete control of railroad companies that have long held Commission licenses under the Railroad Radio Service (47 C.F.R. § 90.91 et seq.) as well as other services. Moreover, these systems are subject to FRA regulations covering the maintenance and inspection of signal systems.

D. ACSES Field Test Results

Alstom and US&S have each conducted a series of on-location field test measurements of performance for their individual Transmitter/Antenna Units and combined Transmitter/Antenna Unit and Transponder Unit systems. Utilizing standard test procedures for Part 15 devices set out in ANSI C63.4-1992 (which, as discussed infra, tend to greatly overstate the level of emissions that would be generated by a typically configured operational system), the following results were obtained.

For the 27.115 MHz Transmitter/Antenna Unit, alone, the typical field strength with measurements taken at 3 meters distance on 16 radials around the perimeter of the locomotive at approximately 1 meter above ground level, reveal a maximum converted average field strength of less than 32.0 milliVolts/meter at the fundamental frequency. The harmonic measurement readings, for up to the 10th harmonic, come in at less than approximately 3.3 milliVolts/meter on average. No spurious readings were detected.

For the 4.5 MHz Transponder Unit (activated by the 27.115 MHz Transmitter/Antenna Unit) Quasi-Peak readings of the fundamental show levels below approximately 1.1 milliVolts/meter at 3 meters distance around the locomotive perimeter. The measurement of spurious and harmonic emissions taken at up to the 10th harmonic show no detectable readings related to the 4.5 MHz fundamental

frequency. However, under some conditions along certain radials, a "bleed-through" of harmonics of the 27.115 MHz Transmitter/Antenna Unit activating frequency could be detected, showing RF emission levels up to approximately 16 milliVolts/meter at the 3 meter distance.

As discussed below, under normal operating conditions, the speed of the train and the distance to any receiver located along the railroad right-of-way should ensure that other licensed services suffer no harmful interference from ACSES operations.

E. Operational Characteristics

The system configuration places the Transmitter/Antenna Unit approximately 12 to 16 inches from the Transponder Unit as the train passes over it (the variation stems from, e.g., the design of the locomotive undercarriage). The natural shielding provided by the locomotive chassis helps to minimize RF emissions at elevations above the railroad track bed.

In order to ensure the successful operation of these systems regardless of weather or other environmental conditions, ACSES-type systems are designed to be quite robust, both physically and technically. The operating environment involves repeated vibration from a variety of sources, e.g., locomotives weighing hundreds of tons and traveling at speeds up to 150 mph. The amount of dirt and debris (plus sleet, snow, rain, etc., depending on the season) that regularly accumulates on the track bed necessitates that these systems have enough power to "burn through" these interference sources. Failure to build in this capability would render the system ineffective, with potentially disastrous consequences.

Obviously, the effect of emissions from the Transmitter/Antenna Unit will vary with train speed, with the result that any interfering signals will be present for only a brief period of time. With regard to the Transponder Units, they are located only at critical points in the track bed and thus transmit only when queried by a train immediately overhead. As detailed supra, the emissions from the Transponder Units are minimal.

Thus, while it is conceivable that someone "listening" at 27.115 MHz immediately adjacent to the railroad right-of-way might "hear" a carrier of limited duration, field test data discussed supra strongly suggest that "interference" will not extend beyond the right-of-way. In short, ACSES-type systems can co-exist with other licensed services.

III. THE FRA MANDATE

As noted supra, on July 22, 1998, the FRA Order was released, which mandated the deployment of ACSES-type systems in the NEC by October 1, 1999. As the FRA Order makes clear, the expeditious development of high-speed passenger service is critical to the financial success of railroads such as AMTRAK; financial independence for AMTRAK is one of the paramount surface transportation goals of the Administration. Moreover, all other rail carriers that use AMTRAK routes, in whole or in part, for the provision of their own services -- e.g., such as NJT (and others) -- also must employ ACSES-type systems on their own trains.

Put briefly, there is a federal mandate to have in place, no later than October 1, 1999, this critical safety system, which is necessary to support high-speed rail services in the NEC. Even assuming arguendo that, in the long term, it would

make economic sense to underwrite the cost of designing and developing an alternative to ACSES-type systems (e.g., using different frequencies, power levels, technical architectures, etc.), there simply is no time to do so now. FRA recognized the availability of proven off-the-shelf, high-speed rail technology and mandated its use, at least for the near term.

IV. REGULATORY ISSUES

Obviously, neither the industry nor the Commission has the opportunity to write on a clean slate in the instant context. ACSES-type systems operate on set frequencies and at set power levels, neither of which conforms to an existing allocation. Redesign within the time constraints set out in the FRA Order -- particularly given the overarching safety concerns involved -- would be neither prudent nor practicable.

These systems appear from most perspectives to fall, most logically, under Part 90, but, as noted above, the frequencies and power levels do not conform to any existing Part 90 allocation. These systems also have certain characteristics similar to some that fall under Part 18 of the Rules, but do not appear fully consonant with those provisions.

A. Operational Authorization

Under these circumstances, the Coalition proposes the creation of a new allocation under the Railroad Radio Service, covering the relevant frequencies and power levels, with adequate flexibility in terms of bandwidth, output power, and the like to accommodate variations on the basic ACSES theme. An example of the minor differences that may need to be accommodated is illustrated by the slight

variations in the technical specifications set out above for the Alstom and US&S systems.

Unlicensed operational authority should be permitted; blanket licensing could be employed as an acceptable alternative. The Commission can be comfortable with such a deregulatory approach for a number of reasons. First, ACSES-type systems are used only by railroads and only within trackbed rights of way. Second, the operators of these systems already are, without known exception, Commission licensees (under Part 90 as well as other services, e.g., Part 94). Third, operators must have flexibility with regard to the number and location of the trackbed Transponder Units, as well as the ability to add new locomotives into service where ACSES has been deployed, without awaiting a new FCC license. The Commission can have a high degree of confidence with respect to both the location and precise operation of these systems, and their benign characteristics vis-à-vis other licensed services.

B. Equipment Authorization

ACSES-type systems are designed as first-order safety systems for high-speed intercity and commuter railroads. As such, they act as part of the locomotive's data processing system, addressing speed-related safety and train control matters. More importantly, from the perspective of the Commission's equipment authorization rules, that is all that these systems are good for; they are large, cumbersome pieces of steel, with certain electronics embedded within, which have no function independent of one another and have no consumer application of any kind.

Thus, the Coalition submits that the most rational equipment authorization category would be verification, under 47 C.F.R. §§ 2.902, 2.951-2.956. Verification would require manufacturers to confirm system RF performance matters, using good engineering practice, and maintain all such equipment-related records. However, significantly, verification would allow all necessary equipment modifications to be incorporated as needed. Waiting for the follow-up FCC grants of approval required by, e.g., type acceptance or certification procedures, could seriously jeopardize crucial public safety-related performance improvements. Should a concern ever arise, the Commission will know immediately where to find the relevant equipment, its users and manufacturers, due to the uniqueness of these systems' RF operating signatures and limited numbers and scope of geographic deployment.

CONCLUSION

As the result of the foregoing, the Coalition requests that the Commission initiate a rulemaking proceeding to establish rules governing the marketing and use of ACSES-type systems.

Respectfully submitted,

HIGH-SPEED RAIL SAFETY COALITION

By_____

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December 4, 1998

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Ph. 1 (800) 273-0596 (703) 644-0075 Fax (703) 644-3186

CERTIFICATION

December 4, 1998

I, Edward E. Thomas, under penalty of perjury, do hereby certify as follows:

1. I have been the Owner/Proprietor of Airwave Rules & Regulations Co. since its inception on April 1, 1987.

2. I have furnished RF spectrum consulting services on behalf of ALSTOM SIGNALING, INC. ("Alstom") and UNION SWITCH AND SIGNAL, INC. ("US&S") in connection with the instant Petition for Rulemaking and Request for Interim Authority ("Filings").

3. Such RF spectrum consulting services have included individual compilations, reviews, and analyses of ACSES-Type equipment performance data supplied by Alstom and US&S, and evaluations of associated regulatory compliance matters.

4. I have participated on behalf of Alstom and US&S in the preparation of the instant Filings and certify that the technical data set out therein is accurate to the best of my knowledge and belief.

Edward E. Thomas

Edward E. Thomas, President

Air Carriers and foreign air carriers may submit copies of written comments previously provided to Walla Walla Regional Airport, under section 158.23 of Part 158.

FOR FURTHER INFORMATION CONTACT: Mary Vargas, (425) 227-2660; Seattle Airports District Office; SEA-ADO; Federal Aviation Administration; 1601 Lind Avenue, S.W., Suite 250; Renton, Washington 98055-4056. The application may be reviewed in person at this same location.

SUPPLEMENTARY INFORMATION: The FAA proposed to rule and invites public comment on the application 97-02-U-00-ALW to use only PFC revenue at Walla Walla Regional Airport, under the provisions of 49 U.S.C. 40117 and Part 158 of the Federal Aviation Regulations (14 CFR Part 158).

On July 14, 1998, the FAA determined that the application to use only the revenue from a PFC submitted by Port of Walla Walla, Walla Regional Airport, Walla Walla, Washington, was substantially complete within the requirements of § 158.25 of Part 158. The FAA will approve or disapprove the application, in whole or in part, no later than October 13, 1998.

The following is a brief overview of the application.

Level of the proposed PFC: $3.00

Proposed charge effective date: November 1, 1993

Proposed charge expiration date: November 1, 2014

Total requested for use approval: $1,187,280

Brief description of proposed project: 31,000 square foot passenger terminal building with all associated infrastructure.

Class or classes of air carriers which the public agency has requested not be required to collect PFC's: None.

Any person may inspect the application in person at the FAA office listed above under **FOR FURTHER INFORMATION CONTACT** and at the FAA Regional Airports Office located at: Federal Aviation Administration, Northwest Mountain Region, Airports Division, ANM-600, 1601 Lind Avenue S.W., Suite 315, Renton, WA 98055-4056.

In addition, any person may, upon request, inspect the application, notice and other documents germane to the application in person at the Walla Walla Regional Airport.

Issued in Renton, Washington on July 14, 1998.

David A. Field,

Manager, Planning, Programming and Capacity Branch, Northwest Mountain Region.

[FR Doc. 98-19419 Filed 7-21-98; 8:45 am]

BILLING CODE 4910-13-M

DEPARTMENT OF TRANSPORTATION

Federal Railroad Administration

[FRA Docket No. 87-2, Notice. No. 7]

RIN 2130-AB20

Automatic Train Control and Advanced Civil Speed Enforcement System; Northeast Corridor Railroads

AGENCY: Federal Railroad Administration (FRA), Department of Transportation (DOT).

ACTION: Final order of particular applicability.

SUMMARY: FRA issues an order of particular applicability (order) applying to certain trains operating on the track controlled by the National Railroad Passenger Corporation (Amtrak) on the Northeast Corridor (NEC) between Washington, DC, and Boston, Massachusetts. The order requires all trains operating between New Haven, Connecticut and Boston (NEC-North End) to be controlled by locomotives equipped to respond to a new advanced civil speed enforcement system (ACSES) in addition to the automatic train control (ATC) system currently required on the NEC. On the NEC between Washington, DC and New York, New York (NEC-South End), where access to the high-speed track is prevented by switches locked in the normal position and a parallel route to the high-speed track is provided at crossovers from adjacent tracks, and where no junctions providing direct access exist, ACSES-equipped trains may operate to a maximum speed not to exceed 135 miles per hour (mph). This order also contains performance standards for the cab signal/ATC and ACSES systems on the NEC, and authorizes increases in certain maximum authorized train speeds and safety requirements supporting improved rail service.

DATES: This order becomes effective on August 21, 1998.

FOR FURTHER INFORMATION CONTACT: W.E. Goodman, Staff Director, Signal and Train Control Division, Office of Safety, FRA, 400 Seventh Street, SW, Washington, DC, 20590 ((202) 632-3353), Paul Weber, Railroad Safety Specialist, Signal and Train Control Division, Office of Safety, FRA, 400 Seventh Street, SW, Washington, DC, 20590 ((202) 632-3354), or Patricia V. Sun, Office of Chief Counsel, FRA, 400 Seventh Street, SW, Washington, DC 20590 ((202) 632-3183).

SUPPLEMENTARY INFORMATION:

Statutory Authority

FRA has both discrete and plenary legal authority to require all trains operating on the NEC to be equipped with automatic train control devices. FRA has broad legal authority to "prescribe regulations, and issue orders for every area of railroad safety * * *" 49 U.S.C. 20103. Section 20502 of Title 49, United States Code specifically provides that "[w]hen the Secretary of Transportation decides after an investigation that it is necessary in the public interest, the Secretary may order a railroad carrier to install * * * a signal system that complies with the requirements of the Secretary." As originally enacted and prior to formal codification, this provision referred to "automatic train stop, train control, and/or other similar appliances, methods, and systems intended to promote the safety of railroad operation * * ." This authority has been previously invoked to require the installation of signal systems on 49 specific railroads and to require all railroads desiring to operate at high speeds to install signal systems of varying degrees of sophistication consonant with those higher speeds.

Proceedings to Date

On November 20, 1997, FRA published a Proposed Order of Particular Applicability (proposed order) that would require all trains operating on the NEC-North End to be controlled by locomotives equipped to respond to a new advanced civil speed enforcement system in addition to the automatic train control system currently required on the NEC (62 FR 62097).

The proposed order called for written comments to be received by January 20, 1998, and requests for a public hearing to be received by December 22, 1997. On February 17, 1998, FRA held a public hearing at the request of several commentators.

Background—Development of the NEC

Amtrak provides service over the NEC from Washington, DC, to Boston, Massachusetts. Amtrak owns or dispatches most of the NEC, which it shares with several commuter authorities and freight railroads. Current speeds on the NEC-North End range up to 110 mph.

Amtrak is currently undertaking a major improvement project on the NEC, with particular emphasis on completion of electrification, installation of concrete ties and high-speed turnouts, elimination of some remaining highway-rail crossings, and other modifications concentrated between New Haven and Boston. These improvements are designed to facilitate service utilizing high-speed trains (HSTs) at speeds up to 150 mph. During 1999, Amtrak will begin taking delivery of HSTs expected to qualify for operation through curves at higher levels of unbalance (and thus higher speeds) than conventional trains.

Through this order, FRA ensures that planning for high-speed service will not occur in isolation from measures that could reasonably address increased traffic densities, and drive future innovative technology.

Regulatory Approvals Required

In general, new signal and train control systems must comply with FRA's Rules, Standards and Instructions Governing the Installation, Inspection, Maintenance, and Repair of Signal and Train Control Systems, Devices, and Appliances (49 CFR Part 236). FRA will implement any exceptions on a case-by-case basis through the waiver process as provided by 49 CFR Part 235. Train operations in excess of 110 mph must be authorized by FRA after examination of pertinent safety considerations in accordance with 49 CFR 213.9(c) (operating speed limits). Metroliner service on the NEC is already conducted in accordance with such an authorization.

In addition, NEC operations are subject to special requirements of the Rail Safety Improvement Act of 1988, which mandated that all NEC trains be equipped with "automatic train control systems designed to slow or stop a train in response to external signals." Sec. 9, Pub. L. No. 100–342, implemented at 52 FR 44510 (Nov. 19, 1987), 53 FR 1433 (Jan. 19, 1988), and 53 FR 39834 (Oct. 12, 1988).

Summary of the Proposed Order

The proposed order would implement ACSES on the NEC-North End by October 1, 1999, allowing Amtrak to increase its maximum operating speed on this segment of the NEC from 105 mph to 150 mph. In addition to Amtrak, the Connecticut Department of Transportation (ConnDOT), Consolidated Rail Corporation (Conrail), the Massachusetts Bay Transportation Authority (MBTA), and the Providence and Worcester Railroad Company (P&W), which also operate on this territory, would be required to equip their locomotives and cab cars with ACSES. (On July 23, 1998, the Surface Transportation Board is expected to approve the division of Conrail between the Norfolk Southern Corporation (NS) and the CSX Corporation (CSX); NS and CSX have yet to announce a date for this division. NS and CSX, as successors to Conrail, will be subject to this order to the extent that they operate on this segment of the NEC.)

FRA initially discussed the features and functions of ACSES with the Northeast Corridor Safety Committee in September of 1994, and Amtrak continued to brief the affected railroads as system development proceeded. ACSES would enforce permanent speed restrictions caused by curves, bridges and other factors, positive stops at interlocking home signals and control points, work limits, and temporary slow orders, through transponders similar to those used by European railroads. Transponders are devices containing encoded information on such factors as location and distance to the beginning of a speed restriction, type of speed restriction, target speed, average grade, distance to the next transponder, and message verification information. Transponders would be installed at all approaches to interlockings within high speed territory, including those where trains could mistakenly pass an interlocking signal and encroach onto high speed track, as part of a train control system which would be independent of the on-board cab signal/automatic train control system, but would interface with it to provide displays to train crews on factors such as civil speed restrictions, trains located ahead, and interlocking conditions. A data radio network would be used to download temporary movement restrictions, among other functions.

Equipped rail vehicles would continuously transmit a signal which, when received by a transponder, would cause the transponder to transmit back its encoded message. Those messages, including speed and braking conditions, would be received in the train's cab, interpreted by an on-board computer, and passed along to the train's engineer for appropriate action. If necessary, automatic braking would take place.

Amtrak would also expand its existing 4-aspect cab signal system, which provides for "restricted speed", 30 mph, 45 mph, and the maximum authorized speed for the equipment on which it is installed, to a 9-aspect system, which provides for additional aspects of 60 mph, 80 mph, 100 mph, 125 mph, and 150 mph. The current 4-aspect system employs a 100 Hz carrier frequency coded at the rates of 75, 120, and 180 pulses per minute; the 9-aspect system would employ an additional carrier frequency of 250 Hz, and an additional code rate of 270 pulses per minute. Amtrak developed this 9-aspect system to provide four independent functions: (1) Operation of high-speed trainsets at a new maximum speed of 150 mph; (2) higher speed diverging signal aspects, upgrading the previous 45 mph diverging aspect; (3) an enforced 30 mph diverging aspect; and (4) closer headways by adding three enforced speeds between the existing 45 mph and 125 mph enforced speeds.

On the NEC-South End, the proposed order would require ACSES wherever speeds exceeded 125 mph (the current maximum speed), with only high speed trains equipped where crossovers could be locked to avoid incursion. The proposed order contemplated, but did not require, implementation of ACSES by all NEC users (except possibly the Metro-North Commuter Railroad Company), including Amtrak, commuter railroads, and freight carriers. To minimize the impact on users, ACSES would be implemented incrementally as funding became available, so that operational benefits could begin immediately as each portion of line and each vehicle became equipped.

Summary of Modifications to the Proposed Order

In response to comments and technical changes in the proposed order FRA has made modifications in this final order, the more significant of which are highlighted below. The proposed order stated that comments received after the close of the comment period would be considered to the extent possible. Amtrak has continued to refine and adapt its design specifications, as proposed in Amtrak's February 17, 1998 supplemental comments, May 8, 1998 letter (copies of both are in the docket), and subsequent conversations with FRA (memorializations of which are also in the docket). This order contains modifications responsive to Amtrak's proposed design specification changes, which are discussed below. A detailed analysis of the comments appears elsewhere in this order.

Major Modifications

(1) Use of Temporary Transponders in Lieu of Loading Temporary Restrictions

Under ACSES, temporary restrictions flow directly from the computer assisted dispatch center into the data radio channel and thus into the on-board computer, virtually eliminating errors in transmission or recordation and

ensuring that information is acted upon. Were train crew members to enter this data, they could make errors and then be tempted to rely on the "system" to provide the required speed reductions on the cab display in lieu of relying on a paper copy.

In a letter dated May 8, 1998, Amtrak requested permission to use temporary transponders (placed in the gage of the rail) as an alternative to inputting temporary restrictions by direct data radio link into the on-board computer. Typically, Amtrak would place these at locations approaching work zones and other slow order zones. Although FRA considers temporary transponder placement acceptable for last minute slow orders in emergencies where reliable communication to the en route train cannot be assured, FRA believes the better practice is to require temporary restrictions to be automatically loaded into the on-board computer. FRA will allow Amtrak to use temporary transponders as an alternative routinely for the first 12 months after implementation of this order in order to ease transition to this new system. After this period, temporary transponders may be deployed only on an emergency basis unless they are being used as an *additional* safety measure.

(2) Availability of Data Radio Release at Interlockings

FRA proposed to require, and Amtrak expects to provide, a capability that would automatically permit movement of a train past an interlocking signal displaying a stop and proceed or restricting aspect without the necessity of the engineer leaving his or her normal position in the cab to press a release button. To ensure that this capability is in place and fully operational, FRA requires data radio transmitters to be located at interlockings and interfaced with interlocking controllers not less than 12 months following activation (cut in) of ACSES.

Elimination of recurring acknowledgment. Amtrak's original plan included a recurring 15 second audible alarm and a 20 second acknowledgment while operating at restricted speed. In a May 8, 1998 letter, Amtrak proposed to modify this ATC feature, disliked by many locomotive engineers. The modified feature would sound a warning immediately and require acknowledgment within 5 seconds whenever initial movement is detected while the cab signal displays "restricting," in order to prevent a penalty brake application. (FRA assumes that the one-time acknowledgment would be required on downgrade to restricting as well.) Through the use of data radio at the interlockings, this feature would automatically permit movement of a train past an interlocking signal displaying a stop and proceed or restricting aspect without the necessity of the engineer leaving his or her normal position in the cab to press a release button. FRA has agreed to this proposed feature, which Amtrak suggests would be particularly useful when a train is starting from a stop at a station close to an interlocking home signal.

(3) Speeds Over Highway-Rail Crossings

In the proposed order, FRA suggested a speed limit over any highway-rail crossing of 80 mph, for the following reasons:

> Speeds over highway-rail crossings will be limited to 80 mph, the maximum speed planned under the NEC program until very recently. This limit is lower than the 110 mph cap included in current guidelines for high-speed corridors (absent barrier and presence detection systems tied into the signal system), because of the density of NEC operations and the increased possibility that a collision with a motor vehicle might cause a secondary collision between trains operating at very high combined closing speeds. FRA reserves the right to allow higher speeds over individual highway-rail crossings after demonstration by Amtrak that appropriate safety measures have been implemented.

Dense operations on the NEC-North End present special safety concerns, particularly since both intercity and commuter trains will be operating with improved acceleration as electric locomotives and HSTs are deployed—driving up average speeds. This is a two-track railroad throughout its length, with 13 crossings between New Haven and Boston. Although the crossings in question are generally low-volume, most are subject to the movement of large vehicles such as flatbed trucks carrying boats, garbage trucks, fire trucks, and other substantial vehicles known to be capable of derailing a train. The likelihood of a derailment may increase to some extent, even in the case of collision with a relatively light vehicle, if the crossing in question is on a curve and Amtrak is successful in qualifying its HSTs for levels of unbalance up to 9 inches, as provided in a previously issued waiver.

Therefore, in this order, FRA sets a maximum operating speed of 80 mph over any highway-rail crossing where only conventional warning systems are in place, and a maximum operating speed of 95 mph where 4-quadrant gates and presence detection are provided and tied into the signal system. FRA also requires Amtrak to submit for approval plans for site-specific improvements with timetables for each of the 13 crossings on the NEC-North End by January 1, 1999.

(4) Signal and Train Control Enhancements

Providing signalization for high-speed intercity service requires implementation of an enhanced cab signal/speed control system that allows for higher train speeds while providing sufficient gradations of intermediate speeds to allow efficient movement of other scheduled trains operating in the conventional speed range. Reasonable interoperability of existing and upgraded on-board equipment is also necessary to allow for the continued use of existing on-board equipment at conventional speeds only.

9-Aspect Cab Signal System. The cab signal/ATC portion of the upgraded system will employ two carrier frequencies, 100 Hz, compatible with existing equipment, and 250 Hz. Both frequencies will be coded at standard rates of 75, 120, 180, and 270 cycles per minute. Upgraded equipment will be able to take advantage of the 150 mph code rate for maximum authorized speed, the 80 mph code rate for high speed diverging moves, and separate 45/40 and 30 mph speed commands for limited and medium speed turnouts.

ACSES. In contrast to the modified cab signal system, ACSES will provide new safety functions that, with limited exceptions, are not currently provided. For purposes of civil speed control, permanent wayside transponders will be placed in sets (normally two to a set) at convenient, accessible locations in the center of the track approaching speed restriction zones. Most of these transponders will be passive devices requiring no energy source other than that transmitted from a passing train. Each permanent transponder set will contain encoded information about speed restrictions ahead, including: (i) The distance to the beginning of the speed restriction; (ii) The target speed; (iii) The type of speed restriction; (iv) The average grade between the location where the speed reduction must begin and the location where the reduced speed must be reached; (v) The distance to the next permanent transponder set location; and (vi) Necessary sync and check bytes to allow for message verification.

Improvements that Amtrak will gain with the new systems are:

- Train speeds of up to 150 mph;
- A high speed diverging aspect (80 mph);
- The efficient handling of both high speed and conventional trains;

• New intermediate speeds between 45 mph and 150 mph;

• The capability for headway improvement in congested commuter areas; and

• Practical staging from present wayside and on-board equipment.

Commuter and freight railroads will both benefit from enhanced safety of Amtrak operations, given the common operating environment, since Amtrak's implementation of the 9-aspect cab signal system will provide increased flexibility to schedule high speed intercity service in a way that does not conflict with commuter operations. In addition, as ACSES is implemented on commuter and freight trains, the safety of those operations will be enhanced by ensuring that those trains do not pass absolute stop signals or operate at excessive speed approaching stations or bridges. To the extent equipment design permits, commuter operators may take advantage of higher speeds on curves without diminished safety margins with the new flexibility for operation at higher cant deficiencies in FRA's revised Track Safety Standards (63 FR 33992; June 22, 1998).

Amtrak will phase-in installation in order to obtain the maximum benefit from the positive stop and civil speed enforcement system prior to its installation on the Amtrak-dispatched portions of the NEC. The initial installations will protect entry to and operations along the high speed territory. During this initial phase, transponders will not be installed on non-high speed tracks where flanking protection protects against possible encroachment into adjacent high speed tracks. The transponder system will be extended to the balance of the NEC after all installations are in place on high speed tracks and on adjacent tracks where flanking protection does not exist. (This description in no way pre-decides the issue of whether trains of other operators on other portions of the NEC will be required to be equipped.)

(5) Nighttime Operations

As an interim measure to allow for gradual equipping of a railroad's locomotive fleet, FRA had proposed to allow unequipped freight operations to enter the NEC-North End during low-volume night hours. After considering the comments (discussed in more detail below), FRA is not adopting this proposal for two reasons. First, train delays could cause fast trains to invade the window or unequipped trains to fail to clear the window in time. Second, Amtrak expects to conduct most production track work at night, and unequipped trains would not be prevented from entering work zones or passing work groups at excessive speed, resulting in reduced safety benefits. Instead of the proposed time window, FRA will handle any exceptions to this order through waivers or spot amendments to the order.

Proceedings on This Order

FRA sought public comment on the proposed order and related matters, including any authorization that may be required for Amtrak to implement a modified cab signal system on the NEC. FRA has placed in the docket of this proceeding copies of Amtrak's program description for the ACSES system, proposed operating rules for use in conjunction with the system, and other related information, including current Amtrak projections for operating speeds over highway-rail crossings on the NEC-North End. FRA has reviewed the comments and hearing testimony, which have been extremely helpful in resolving these issues.

The following parties testified at the February 17 hearing: The American Public Transit Association (APTA), the Brotherhood of Locomotive Engineers-American Train Dispatchers Division (BLE–ATTD), ConnDOT, Conrail, MBTA, P&W, and Southeastern Pennsylvania Transportation Authority (SEPTA).

In addition, written comments were submitted by the following: Amtrak, APTA, Brotherhood of Locomotive Engineers (BLE), ConnDOT, Conrail, Long Island Railroad (LIRR), MBTA, Metro-North Commuter Railroad Company (Metro-North), National Transportation Safety Board (NTSB or Board), P&W, Representative Patrick J. Kennedy, Senator Edward M. Kennedy, Senator Jack Reed, and SEPTA.

The following also submitted comments in support of P&W's concerns:

Arnold Lumber Co., Atlantic Wire, BB&S Treated Lumber of New England, Colfax Inc., Dominion Rebar, Fortune Plastics Inc., The Narragansett Bay Commission, Seaview Transportation Company, Inc., Ring's End, and Unilever.

While many commentators spoke or wrote on more than one issue, and while most of the comments supported the position(s) of at least one other commentator, the issues themselves were grouped around a few key points, which are discussed below.

General Issues

(1) Scope of Order

Several commentators stated that the proposed order did not define its applicability clearly. SEPTA commented that the proposed order did not specify its applicability south of New Haven, and APTA also requested additional clarification on the order's scope and applicability on the NEC-South End.

As proposed by Amtrak, implementation of the ACSES system would impact all NEC users including Amtrak, commuter railroads, and freight carriers, with the exception of the NEC segment operated by the New York Metropolitan Transportation Authority (MTA) and Metro-North. ACSES would be implemented incrementally as funding becomes available, so that operational benefits would begin immediately as each portion of line and each vehicle becomes equipped.

At this time, FRA mandates that all trains operating on the NEC-North End be equipped with operative on-board equipment that responds to ACSES, as proposed. This order also authorizes higher speeds for such equipped trains on high-speed tracks on the NEC-South End, but other trains utilizing those tracks or adjacent tracks are not required to be equipped. FRA will continue to study the reliability and safety benefits of ACSES as implementation on the NEC-North End is completed, and may later propose to require ACSES on the rest of the NEC as traffic densities increase.

ConnDOT commented that the proposed order contained errors regarding the ownership of the New Haven, Connecticut-New Rochelle, New York section of NEC track. FRA agrees that Metro-North does not own any segment of the NEC, that ConnDOT owns the track between New Haven and the Connecticut-New York border, and that MTA owns the track between that border and New Rochelle. Thus, this order does not address the territory owned by MTA between the Connecticut/New York State line and New Rochelle, or the area owned by ConnDOT between the Connecticut/New York State line and New Haven, both of which are dispatched by Metro-North.

(2) Implementation Schedule

Several commentators felt that the proposed implementation date of October 1, 1999 did not provide sufficient time for financing and equipment installation. MBTA recommended a longer time period to provide sufficient time for responsible design, engineering and prototyping. MBTA also commented that modifications to safety critical systems should not be made on a high speed schedule, and that the proposed

implementation date was unrealistic and would impose premium costs. Conrail commented that the proposed order failed to indicate any target dates or deadlines, which are necessary to determine the migration plan. ConnDOT requested to be removed from the scope and applicability of the order unless full funding is provided and compliance is delayed until 2001. P&W commented that compliance with the proposed October 1999 implementation deadline would be impossible unless Amtrak supplied substitute power and assistance in accomplishing the required retrofits.

The NTSB, however, while recognizing the need for an interim period to allow equipping of locomotives, strongly urged that FRA set a fixed time for compliance.

FRA recognizes that completion of all steps required to implement ACSES by October 1, 1999 depends upon Amtrak rigorously adhering to a well-crafted timetable that allows adequate time for installation of on-board units on all affected operators without depriving those operators of equipment necessary to provide normal service. This should be achievable by combining required inspections and tests with the installation process, provided production runs of on-board equipment commence in a timely way and deliveries are sequenced properly. However, thus far Amtrak has provided FRA with a very limited amount of information concerning its test program and key milestones. Accordingly, this order requires early delivery of a very specific timetable for initial testing and qualification, for installation of on-board equipment on Amtrak, ConnDOT, MBTA, and P&W locomotives, and for final acceptance testing for the system. FRA will evaluate this timetable for reasonableness. To the extent the timetable indicates unacceptable impacts on third parties, or to the extent milestones in this schedule slip, FRA will defer the implementation date as necessary. FRA will keep open the docket of this proceeding to receive any petitions for adjustment of the compliance date.

(3) Financial Responsibility

Commentators expressed the most concern about the overall cost of ACSES, and the related issue of who would bear the cost of equipping non-Amtrak equipment. In addition to the implementation costs of locomotive retrofitting, passive transponders and other related expenses, commentators were concerned about maintenance, equipment down-time, schedule disruptions, and life-cycle expense. Many commentators submitted preliminary estimates of their anticipated costs. MBTA, for instance, has already budgeted the estimated $11 million cost of retrofitting its locomotives with the 9-aspect system into its current locomotive procurement and planned overhaul.

P&W commented that the final order should require the High Speed Passenger Project (Project) to assume the costs of retrofitting locomotives since ACSES is a fundamental component of the Project. P&W indicated that as a small private sector freight operator, it is not subsidized (unlike Amtrak and commuter rail operations), and would not stay competitive with trucking operations on the I-95 corridor if it passed ACSES implementation costs onto its customers. Although P&W objected to paying for ACSES implementation to realize the proposed 150 mph speeds on the NEC-North End, P&W pledged to work with Amtrak to develop an implementation schedule once a retrofit design is available for review.

Senators Edward M. Kennedy and Jack Reed, and Representative Patrick J. Kennedy wrote in support of P&W's views. In his comments, Senator Kennedy reiterated his support for the Project, and agreed with P&W's recommendation that the Project assume P&W's implementation costs.

MBTA also objected to the proposed order, commenting that it would impose unfunded mandates on state authorities. MBTA also recommended that the proposed order be amended to require funding by the Project, and, in addition, to hold MBTA harmless from right of way construction costs.

ConnDOT commented that FRA and Amtrak should provide full funding for ACSES implementation, since this investment in equipment and infrastructure is necessitated by Amtrak's new HST service. ConnDOT indicated that it does not have access to funding required to comply with the order on its Shore Line East operation. Moreover, the tenuous viability of Shore Line East commuter service and the concurrent funding needed for double-sided high speed platforms could force this line of commuter rail service to close. ConnDOT requested that FRA pledge to provide full funding for any mandated conversion to ACSES.

SEPTA commented that NEC commuter railroads have undergone a number of mandatory retrofits in recent years (e.g., speed control, event recorders, ditch lights, and emergency door access), and expect additional required retrofits even though separate funding has never been provided for this work. Since SEPTA capital is limited, requiring commuter railroads to fund systems such as ACSES would force tradeoffs with other safety improvements. SEPTA proposed that the proposed modifications and civil speed enforcement system be funded by Amtrak, as the beneficiary of these proposed requirements.

Conrail commented that the proposed order's purpose is to enable higher speed passenger operations through improved train control systems. Conrail, however, has already invested in the Locomotive Speed Limiter (LSL) system, to provide train control compatible with the NEC cab signal system. While Conrail has a vested interest in improving safety and reducing risk, the additional risks caused by higher speed passenger operations are being introduced by other parties and should not be borne by Conrail. Like other commentators, Conrail urged FRA to structure the final order to provide relief from the cost burden, arguing that ACSES will provide no quantifiable benefits beyond Conrail's current LSL system.

Metro-North requested that its territory be excluded from the final order, stating that it will not operate at high speeds since the catenary and signal systems on the territory between New Rochelle and New Haven are designed for a maximum of 100 mph.

The NTSB, on the other hand, strongly supported the proposed order, since Positive Train Separation (PTS) is one of the Board's "Most Wanted" safety measures. The Board recommended that FRA require implementation of PTS for "all trains where commuter and intercity passenger railroads operate," including the South End.

Allocation of financial responsibility. FRA appreciates that resolving the issue of which organizations bear the ultimate financial responsibility for this safety system is not a simple or straightforward matter. The Project with which this safety enhancement is associated has been aggressively advocated by the Coalition of Northeastern Governors for many years and supported by most members of the northeast congressional delegations. While the Project has national significance, a large share of the benefits will accrue to the region, including potential avoidance of major costs associated with improvement of aviation and highway facilities. As a result of careful planning and aggressive advocacy, the region will enjoy many related improvements to its transportation infrastructure, including the opening of rail access for double

stack intermodal service to the site of the former U.S. Navy facilities at Quonset Point and Davisville, Rhode Island, at a cost to the Federal taxpayer estimated at $55 million.

Amtrak has recognized its stake in this Project by budgeting 100% of wayside costs of ACSES, even though much of the territory involved is actually owned by other public authorities. In addition, Amtrak will bear the cost for equipping its own trains, high-speed and conventional.

Since issuance of the notice of proposed order, Amtrak has communicated with ConnDOT, MBTA, and P&W regarding the logistics of this Project. Although FRA has not been privy to the details of these conversations, copies of letters provided for the docket of this rulemaking affirm that Amtrak has secured an option with its vendor for a sufficient number of on-board equipment sets to the benefit of these other railroads. Amtrak has offered to complete installation at a cost of $40,000, split between approximately $27,000 for the equipment and $13,000 for installation. Amtrak has also offered to assist these railroads by supporting their "efforts to find a source of funding."

FRA is concerned that parties to the rulemaking may have hesitated to make reasonable financial arrangements for this work with the anticipation that FRA would spare them the necessity by allocating that responsibility in this final order. From the point of view of staging the work, FRA has confidence that Amtrak will ensure interim financing to complete equipping of ConnDOT, MBTA, and P&W locomotives. Conrail and its successors (NS and CSX) are major Class I railroads fully capable of handling their own financing. The remaining issue is who will bear the ultimate financial burden, and the considerations pertaining to this question are far more complex than could be developed within the scope of this proceeding.

It seems reasonable to expect that Conrail or its successors will shoulder the cost of this safety improvement and equip as many locomotives as may be appropriate for optimum power utilization over its system. FRA has provided funding under a cooperative agreement with Conrail, NS and CSX for development of an on-board platform capable of providing interoperability among various train control systems, including ACS, ATC, and ACSES. This innovation may help hold down the cost of ACSES compliance.

FRA has carefully considered P&W's comments regarding its role in this safety improvement. FRA appreciates P&W's willingness to cooperate and its concerns regarding the timing of the necessary retrofits (further addressed below), and accepts P&W's representation that at least 22 locomotives will need to be equipped with ACSES and that nighttime operation is not a viable option. However, FRA had not identified from P&W's submission a basis for becoming more directly involved in deciding the matter of financial responsibility.

P&W operates on the NEC largely as a result of an expedited supplemental transaction effected under section 1155 of the Northeast Rail Service Act of 1981 (NERSA) (45 U.S.C. 745). Pursuant to that statute, and under an order of the Special Court established by the Regional Rail Reorganization Act of 1973, Conrail was compelled to surrender certain properties and service rights to a successor railroad that would commit to providing at least 4 years of service on the properties transferred. P&W aggressively pursued that opportunity, with the full knowledge that public planning from the 1960's forward had focused on dramatic passenger service improvements on the NEC between New York and Boston. As recently as the past year, P&W has sought to extend its service rights farther west into Connecticut based upon P&W's claim that the proposed acquisition of Conrail by NS and CSX constitutes a termination of Conrail's residual franchise and activation of rights P&W enjoys under the Special Court's order. As noted above, as an adjunct to the current improvement project, P&W will be the beneficiary of construction of a third track on the NEC between Davisville and "Boston Switch" that will provide the new doublestack access that otherwise would not exist.

MBTA and ConnDOT are also realizing considerable benefits from the improvement project. MBTA is already implementing plans to utilize electric locomotives which will provide improved accelerations, reduced trip times and reduced emission of polluting gases and particulates. ConnDOT and MBTA benefit substantially from Amtrak's substantial investments in the track structure associated with high-speed operations.

All of the operators over the affected territory will enjoy benefits from ACSES, such as the following:

(1) Reduction of risk related to collisions at junctions. This feature may help avoid a collision with a high-speed or conventional passenger train that could result in massive liability.

(2) Reduction of the risk of derailment on curves and secondary collisions following such derailments. Although principally a benefit to high-speed trains, this feature may benefit other passenger operators that wish to take advantage of higher levels of unbalance to achieve improved trip times (which, without ACSES, might be imprudent). Even freight operators may benefit under conditions where cab signals must be cut out due to en route malfunction.

(3) Reduction of risk related to incidents involving roadway workers and their equipment. This benefit should accrue to all operators very nearly in direct proportion to the number of trains they operate.

(4) Improved scheduling and execution of roadway inspections and maintenance associated with the ability to load temporary movement restrictions into the on-board units of trains en route through data radio facilities along the route. This benefit, which may be realized over a period of several years, should help hold down costs and increase efficiency for all operators. If the data radio network is fully exploited, dispatching may also be enhanced through access to real-time train location information.

FRA is aware of contrary arguments for allocation of financial responsibility based upon the institution of high-speed service and the timing of requirements for compliance. These arguments may be worthy of consideration within the full context of the commercial relationships involved, including existing arrangements for allocating costs of operation over the affected NEC segments, contractual arrangements for operation of commuter service, and any relationships established for executing the obligations imposed by this order. Forums such as the Surface Transportation Board, arbitration panels referenced in existing agreements, and courts of appropriate jurisdiction may have a role in determining the ultimate allocation of financial responsibility for implementation of ACSES, should the parties fail to come to mutually acceptable accommodations.

In summary, the arguments related to financial responsibility are complex; and various forums are available to resolve them. It is neither necessary nor appropriate for those determinations to be made in this order, and FRA does not intend by this order to govern the ultimate allocation of financial responsibility for equipping non-Amtrak locomotives and cab cars. However, FRA does require that trains be equipped within a fixed time frame as a condition of operating over the subject territory. This approach is consistent with prior orders of the Interstate

Commerce Commission and FRA actions pertaining to train control, including prior train control orders for the NEC, which have generally required that all trains operating in a designated territory be equipped, without regard to ownership.

(4) ACSES and the Railroad Safety Advisory Committee

In 1996, FRA established the Railroad Safety Advisory Committee (RSAC or the Committee) to implement a more consensual approach to rulemaking. RSAC is comprised of 48 representatives from 27 member organizations, including railroads, labor groups, equipment manufacturers, state government groups, public associations, and two associate non-voting representatives from Canada and Mexico. To address specific tasks, RSAC formed working groups, comprised of knowledgeable persons from the organizations represented on RSAC. Among the current working groups is a group on positive train control (PTC), which was tasked on September 30, 1997, and met for the first time in November. This group is considering three tasks related to development of performance standards for new train control systems, evaluation of costs and benefits of PTC, and consideration of issues related to implement.

Both APTA and Conrail commented that the proposed order contained no input from the PTC working group. Since the final order would define and implement PTC on the NEC-North End, both recommended that FRA not issue the final order until the PTC working group has completed its task. Conrail also commented that the proposed order would impose similar costs for functions that duplicate PTC.

Although FRA and Amtrak have briefed the RSAC PTC Working Group on ACSES and the proposed order in this proceeding, FRA has not tasked the PTC Working Group with development of this order, which pertains to a specific territory already equipped with ACS and ATC (in contrast to most of remainder of the general rail system). ACSES is intended to supplement the existing train control system on the NEC, completing positive train control functions in a manner that is cost effective and capable of execution within the time period necessary to support enhanced service associated with electrification and the delivery of new HSTs.

Though not required to do so, FRA utilized the Northeast Corridor Safety Committee to develop issues related to ACSES at a meeting in September of 1994, and Amtrak has proceeded since that time to bring ACSES to a high state of maturity. The ACSES system is specifically designed to support dense passenger operations at up to 150 mph. Its architecture provides a particularly suitable approach for NEC and related operations (as illustrated by New Jersey Transit's use of a similar approach to rapidly implement a positive stop system on its own lines).

ACSES uses components and strategies already extensively employed in European train control and other applications. ACSES will be applied to equipment that—with the exception of a small number of freight locomotives on the NEC at any given time—is largely dedicated to NEC operations.

By contrast, the RSAC PTC Working Group is considering the potential for train control systems that would be applied principally in non-electrified territory, over most of which freight operations predominate and shared power arrangements permit locomotives to range extensively. For most of the National rail system, there is presently no ACS/ATC infrastructure on the wayside, and many locomotives are not equipped with responsive apparatus. PTC systems for most of the general rail system will likely utilize a much different architecture that the combination of ACS, ATC and ACSES provided in this and related orders. In concert with a train control project sponsored by the State of Illinois and the FRA, the Association of American Railroads' Transportation Technology Center Inc. is just now commencing work on criteria for interoperability of such systems that is expected to extend past the actual cut-in date for ACSES. The extent to which PTC systems designed for general applications may be capable of supporting train speeds above 110 or 125 miles per hour is not currently known, and widespread deployment of these systems will not be possible until test and demonstration projects now underway reach fruition.

In short, awaiting the results of the RSAC PTC Working Group would defer important safety enhancements for territory where the chosen strategy is ready to implement and particularly appropriate. The PTC Working Group was formed to accelerate movement toward implementation of PTC safety functions, not to impede it. FRA looks forward to institution of high-speed service on the NEC-North End late next year, and implementation of ACSES is necessary to ensure the safety of that service within the context of dense passenger and freight operations.

(5) Nighttime operations

P&W commented that it would not be feasible to limit its train operations to night time, the window within which the order proposed to permit non-equipped trains to run on the NEC, since nighttime switching service would result in a dramatic increase in costs, cause operational disruptions for P&W customers, disrupt neighborhoods, and raise serious safety issues. Conrail commented that while the order was unclear as to whether Conrail would be permitted to operate non-equipped trains using time separation from high speed passenger schedules, mandatory time separation is not an acceptable business solution since Conrail already operates during lightly scheduled passenger periods for efficiency. Although the proposed order properly anticipates potential increases in operation by Conrail or its successors, Conrail commented that operations would be adversely impacted if time separations are mandated for trains not equipped with ACSES.

As discussed above, after considering the comments, FRA is not allowing a window within which non-equipped trains could operate during early morning hours when high-speed trains are not on the territory. Any exceptions will be handled through waivers or spot amendments to the order.

Technical Issues

(1) Flanking Protection

BLE–ATTD asked for an interpretation of the term "flanking protection," and a description of how such protection would work. BLE–ATTD also requested clarification as to how flanking protection would work on the NEC-South End, on whether electric lock derails would be used instead of flanking protection in two-track areas, and on who would enter information into the mobile communication package.

Flanking protection is inherent in interlockings where there are parallel tracks. On a four track railroad, for example, with high speed middle tracks, lower speed outer tracks, and crossovers across all four tracks, a train could not overrun a signal on an adjacent track and encroach onto the path of a high speed train if the signal was lined up for the high speed track straight down one of the middle tracks. Flanking protection is not a new concept designed to work with ACSES since it is already in place at interlockings where there is a parallel route to the track being protected in the event of a signal overrun.

(2) Interoperability With Existing Systems

Several commentators were concerned about the impact of the new ACSES system on current signal systems. Conrail questioned whether its existing 4-aspect system would be compatible with the new 9-aspect system, and whether ACSES would interfere with an ongoing Conrail/CSX/NS project to develop an on-board platform to support multiple system configurations. LIRR also questioned how ACSES would interfere with existing ATC systems, and how the proposed order would impact those railroads sharing track with Amtrak at speeds over 100 mph. APTA wanted to review Amtrak's equipment specifications because of concerns about the reliability and maintainability of untested equipment. APTA also questioned ACSES' impact on existing ATC systems and commuter rail outside the NEC. ConnDOT questioned the benefits of the proposed system, and SEPTA expressed concern about how ACSES would affect operations outside of the areas where wayside equipment is installed.

In Amtrak's proposed system, the brake and propulsion interface between the ACSES and the locomotive would be similar to that utilized in conventional cab signal/ATC systems. The interface would be separate and distinct from the interface used by the cab signal/ATC system. The failure of either the cab signal/ATC system or the ACSES would not prevent the remaining functioning system from performing its intended operation and displaying the proper on-board aspect. Both the signal speed and the civil speed would be displayed with the lower of the two speeds to be enforced.

FRA questioned the need or prudence of displaying both speeds and requested comment on the appropriate means of displaying system information to the locomotive engineer. Amtrak submitted the only response on this issue. In a January 16, 1998 letter, Amtrak clarified that the 9-Aspect Cab Signal/ATC system and the ACSES system are independent systems that share a common display. The 9–ACS/ATC system will continuously display the "signal" speed, dependent upon routes opening up in front of the approaching train, and supported by eight simple codes supplied continuously to the train through the rails. The ACSES system, on the other hand, will enforce the track (civil) maximum authorized speeds, supported by more complex codes received at intermittent intervals from transponders located along the track structure. The "signal" speed is actually part of the cab signal aspect (e.g., "CLEAR 150," "CLEAR 125," "CAB SPEED 80"), with discrete aspects displayed in accordance with Part 236. The "track" speed will be carefully coordinated with the cab signal aspect, and highlighted to clearly indicate which speed (always the lower) governs. The lower speed will always be enforced. Thus, merging the two digital "speed" displays into one "window" would seriously complicate and undermine the stand-alone capability of each system if the other should fail, and would compromise the viability of the redundancy or "back-up" capability envisioned for the total system.

(3) 60 mph Turnouts

Amtrak had proposed, as an interim measure, to install #26.5 straight-frog turnouts at those crossovers where there is insufficient space to install the #32.7 turnouts needed for diverging moves at 80 mph. Since these #26.5 straight-frog turnouts could be used only for diverging moves at 60 mph, ACSES passive transponder sets approaching such locations would enforce a 60 mph civil speed restriction for all routes through the interlocking where the # 26.5 turnout is located. The 60 mph speed restriction would also be backed up by a site specific instruction and an appropriate reflectorized sign on the distant signal.

NTSB, however, remained concerned about how this system would work when a train's on-board ACSES system was cut out, since the train would then be unable to read the speed restrictions transmitted by the temporary transponders. In a June 4, 1998 conversation with FRA (memorialized in the docket), Amtrak stated that implementation of this proposed interim system was unlikely. While long-range planning may eventually require the installation of some 60 mph turnouts on the NEC, none are currently planned for the territory between New Haven and Boston. If such installations become necessary in the future, Amtrak intends to restrict passenger train speeds at these locations to 45 mph, or request a site specific waiver for each location.

Section-by-Section Analysis

The section-by-section analysis below discusses the modifications made from the proposed order in response to comments or technical considerations. Each section of the final order is printed in small type and followed by its analysis. The final order is reprinted in its entirety at the end of this preamble discussion.

Effective Date

As discussed above, this order becomes effective on the date proposed, October 1, 1999. FRA will defer the implementation date if necessary and keep open the docket of this proceeding to receive any petitions for adjustment of the compliance date.

Scope and Applicability

This order supplements existing regulations at 49 CFR Part 236 and existing orders for automatic train control on track controlled by the National Railroad Passenger Corporation (Amtrak) on the Northeast Corridor (NEC) between Washington, D. C., and Boston, Massachusetts. This order applies in territory where Amtrak has installed wayside elements of the Advanced Civil Speed Enforcement System (ACSES), permitting high-speed operations under the conditions set forth below.

All railroads operating on high-speed tracks in such equipped territory between Boston, Massachusetts and New Haven, Connecticut (NEC-North End), or on tracks providing access to such high-speed tracks, shall be subject to this order, including the following entities operating or contracting for the operation of rail service—

Amtrak;
Connecticut Department of Transportation;
Consolidated Rail Corporation and its successors;
Massachusetts Bay Transportation Authority; and
Providence and Worcester Railroad Company.

The requirement that all trains be equipped with operative on-board ACSES applies as specified in paragraph (2) from milepost 73.2 at New Haven, Connecticut, to South Station, Boston, Massachusetts, but applies only to high-speed trains operating on NEC high-speed tracks between Washington, D.C., and New York, New York (NEC-South End), as set forth in paragraph 9(b).

Explanation and Analysis. Amtrak has undertaken the planning and installation of the ACSES as part of its capital program for intercity service on the NEC, consistent with legislation providing for improved rail service in the region. This order requires all carriers operating in ACSES territory to equip their controlling locomotives with operative on-board equipment, consisting of a transponder scanner, an on-board computer, a display unit for the locomotive engineer, and appropriate interface with the cab signal/train control apparatus. The final order clarifies that trains other than HSTs must be equipped on the NEC-North End but not on the NEC-South End.

Over time, the ACSES system may be completed and used by all operators throughout the NEC for routes where speeds exceed 110 mph on any segment, enhancing safety throughout the NEC.

For example, New Jersey Transit Rail Operations (NJT) intends to equip its controlling locomotives with an Advanced Speed Enforcement System (ASES), deriving safety advantages both on the NEC and on certain of its lines where the ASES system can be used as an intermittent train stop system. As Amtrak, NEC-North End operators and NJT demonstrate the benefits and reliability of the system, progress toward universal upgrading of the NEC signal and train control system will be fostered. At a later date, FRA may propose to amend this order to require more extensive use of this new safety technology, as determined by increases in traffic and types of equipment used on the NEC.

Definitions. Unless otherwise provided terms used in this order have the same definitions contained in Part 236. For purposes of this order—

ACSES means a transponder based system that operates independent of the cab signal system, and provides enforcement of permanent speed restrictions, temporary speed restrictions, and stop signals at interlockings.

High-speed train means a train operating in excess of 125 miles per hour (mph) on the NEC-South End, and 110 mph on the NEC-North End.

High-speed track means (1) a track on the main line of the NEC-South End, where the authorized train speed for any class of train exceeds 125 mph, or (2) a track on the main line of the NEC-North End where the maximum authorized train speed for any class of train is in excess of 110 mph.

Immediately adjacent track means a track within 30 feet of a high-speed track when measured from track center to track center.

Signal and train control system means the automatic cab signal/automatic train control system (cab signal/ATC) in effect on the NEC at the date of issuance of this order, as supplemented by ACSES, together with such modifications as Amtrak shall make consistent with this order.

Explanation and analysis. In its comments, BLE–ATTD suggested that FRA define the terms "civil speed enforcement system" (ACSES), "off-peak operating times," and "repair facilities." As explained above, the term "off-peak operating times" is no longer relevant since FRA does not adopt its proposed window for nighttime operations. Similarly, FRA believes it unnecessary to define "repair facilities" considering the limited scope of this order. FRA has added a definition for "ACSES" that is derived from Amtrak's performance specifications.

The proposed order had suggested requiring ACSES on tracks immediately adjacent to (within 30 feet of) high-speed tracks. In this order, FRA extends the requirements for ACSES to trains operating on immediately adjacent tracks where the maximum authorized speed exceeds 20 mph, since such tracks are located within the effective operating envelope of high-speed tracks where derailments could endanger high-speed operations.

Operations are already highly dense on the NEC-North End, with projected increases in both freight and passenger traffic. Track curvature on the NEC-North End also exceeds the average curvature on the NEC-South End, resulting in greater potential concern for compliance with civil speed restrictions. Accordingly, FRA distinguishes between the two operations for purposes of determining applicability of the new performance requirements.

Performance standards. Effective October 1, 1999, the following performance standards and special requirements shall apply:

1. Except as provided in paragraph 9(b), the signal and train control system shall enforce both permanent and temporary civil speed restrictions (e.g., track curvature, bridges, and slow orders) on all high-speed tracks and immediately adjacent tracks where the maximum authorized speed exceeds 20 mph. Permanent restrictions shall be loaded into the onboard computer by direct data transfer from a verified database. Temporary restrictions shall be loaded into the onboard computer by direct data transfer from the computer-aided dispatching system. (For not to exceed 12 months following cut-in of the system, use of temporary transponders programmed with appropriate speed restrictions will be deemed to satisfy this paragraph. Thereafter, use of temporary transponders alone shall be acceptable only in the case of an emergency restriction for which transfer of the restriction into the onboard computers of all affected trains is not practicable.)

Explanation and analysis. As discussed above, the existing signal system does not enforce temporary speed restrictions, such as slow orders over defective track or protections for roadway workers. Amtrak had proposed to use temporarily placed transponders, and entry of restrictions into the on-board computer by milepost, to protect train movements and workers and equipment on or adjacent to live high-speed tracks. BLE–ATTD commented that this proposed use of temporary transponders would be insufficient to enforce temporary speed restrictions, and recommended as a failsafe that FRA also require the train dispatcher to enter these restrictions into the on-board computer by milepost.

FRA agrees with BLE–ATTD that temporary transponders should not be routinely used to enforce temporary speed restrictions. Rather, the dispatcher will automatically load temporary restrictions into the on-board computer, through the computer-aided dispatching system and a data radio network, to avoid the possibility of data entry errors by the train crew. Amtrak may use temporary transponders as an alternative routinely for the first 12 months after implementation of this order, and only on an emergency basis thereafter. Data entry by train crews is not an acceptable alternative.

FRA also clarifies that permanent restrictions will also be loaded by direct data transfer from a verified database. FRA is not specifying a method for verifying the database, but expects that Amtrak will utilize appropriate reviews and field verifications to ensure a high level of accuracy.

Nothing in this order excuses compliance with current Amtrak requirements for creating and issuing appropriate authorities or for providing protection for roadway workers. Amtrak has represented to FRA that these protections will remain, supplemented by the additional layer of safety provided by the ACSES. FRA will reopen consideration of this order should Amtrak undertake any substantial revision of current procedures that may have the effect of diminishing safety on the NEC.

2. Except as provided in paragraph 9(b), all trains operating on high-speed track, immediately adjacent track where the maximum authorized speed exceeds 20 mph, or track providing access to high-speed track shall be equipped to respond to the continuous cab signal/speed control system and ACSES.

Explanation and analysis. The benefits of equipping conventional speed trains that operate on immediately adjacent tracks providing access to high-speed tracks may derive primarily from enforcement of positive stop features. If a train is prevented from inappropriately proceeding through a junction and onto a high-speed track, the safety of the subject train and the safety of the oncoming high-speed train are equally assured. FRA believes that most equipped trains will make use of high-speed tracks. (See the discussion in paragraph 9(b) below.)

As discussed above, FRA does not adopt its proposed nighttime operations window and accordingly removes the proposed language from this section.

3. No conflicting aspects or indications shall be displayed in the locomotive cab.

Explanation and analysis. As explained above, FRA believes that Amtrak's dual display (details of which are contained in the program description placed in the docket of this proposed order) is appropriate for a hybrid system such as this. The order

requires consistent information to be displayed to the locomotive engineer. Amtrak plans to implement this principle, while providing information from both the cab signal/ATC system and ACSES, by displaying both of the resulting maximum speeds, with the lower speed to be identified and enforced.

4. The system must enforce the most restrictive speed at any location associated with either the civil/temporary restriction or cab signal aspect.

Explanation and analysis. As discussed above, the most restrictive of the limitations indicated by the cab signal/ATC or ACSES system will be enforced.

5. At interlocking home signals and control points on high-speed tracks or protecting switches providing access to high-speed tracks, the signal and train control system shall enforce a positive stop short of the signal or fouling point when the signal displays an absolute stop. The system shall function such that the train will be brought to a complete stop and cannot be moved again until the first of the following events shall occur: (1) the signal displays a more permissive aspect; or (2) in the event of a system malfunction, or system penalty, the train comes to a complete stop, the engineer receives verbal authority to proceed from the dispatcher, and the engineer activates an override or reset device that is located where it cannot be activated from the engineer's accustomed position in the cab. The train may then only travel at restricted speed until a valid speed command is received by the on-board train equipment. For not to exceed 12 months following cut-in of ACSES, release of the positive stop feature, under conditions where the signal displays an aspect more favorable than stop, but not less favorable than restricting, may be accomplished by use of the reset device; thereafter, this function shall be accomplished automatically so that it is not necessary for the engineer to leave his or her accustomed position in the cab.

Explanation and analysis. As originally conceived by Amtrak, ACSES would enforce a positive stop through an active transponder near the distant signal which would recognize that the home signal is capable of displaying an absolute stop, and enforce a positive stop even if the home signal actually displayed a restricting indication. FRA requested that Amtrak redesign this feature to better coordinate with the wayside signals. Amtrak agreed to accelerate the development of the ACSES data radio feature to reduce the need to operate the "stop override" button to only those instances where a system failure requires the train to be moved. The Mobile Communication Package (MCP), a data radio feature located at the interlocking, will broadcast a track specific, direction specific, and location specific message to the approaching train which automatically releases the stop-override feature without the engineer having to operate the "stop override" button when the home signal displays "stop and proceed." This message will only be transmitted and only be effective when the train is between the distant signal and the home signal of the interlocking. If the signal displays "restricting," the MCP data radio will broadcast a similar message to the approaching train relieving the train from actually having to stop. Over the past year, Amtrak has consistently advised FRA that MCP data radios may not be installed at all interlockings for some time following cut-in of the system. Amtrak has not been able to specify when this element of the system would be completed. To resolve this concern, FRA has added language to the order requiring that this element of the system be completed not less than 12 months following cut-in.

6. Failure modes of the system will allow for train movements at reduced speeds, as follows:

a. *Failure of Cab Signal/ATC System:* In the event of failure of the cab signal/ATC system on board a train, the cab signal/ATC system will be cut out; however, ACSES shall remain operative and enforce the 79 mph speed limit. If intermediate wayside signals are provided, the train will continue to operate at speeds not exceeding 79 mph subject to indications of the wayside signal system. In territory without fixed automatic block signals, the train will receive information approaching the home signal, through the MCP radio, with the information actually derived from the "flashing lunar signal with the letter "C" displayed at the home signal." When failure occurs after a train has entered such a block, the train will proceed at restricted speed to the next interlocking and may not pass the home signal, regardless of the aspect displayed, until the flashing lunar "Clear to Next Interlocking" signal is displayed. The train may then pass the signal and proceed at a speed not to exceed 79 mph. This speed limit shall be enforced by ACSES.

Explanation and analysis. As proposed, the cab signal/ATC portion of the system will be cut out under operating rules meeting 49 CFR § 236.567 requirements. When the cab signal/ATC portion of the system fails and/or is cut out, ACSES will still be in operation, with the central processing unit (CPU) receiving a message from the cab signal/ATC CPU through a vital link that the cab signal/ATC is cut in and not failed. If ACSES does not receive this message, a speed of 79 mph will be locked in and the display will be dark, other than the 79 mph displayed in the civil speed portion, which will be enforced. ACSES will continue to enforce temporary and permanent speed restrictions and positive stop at home signal locations.

b. *ACSES failure.* If the on-board ACSES fails en route, it must be cut out in a similar manner to the cab signal/ATC system. The engineer will be required to notify the dispatcher that ACSES has been cut out. When given permission to proceed, the train must not exceed 125 mph (NEC-South End) or 110 mph (NEC-North End). All trains with cut out ACSES will operate at conventional train speeds.

Explanation and analysis. Amtrak's comments to the proposed order recommended modifications in the proposed failure modes because the phrase "* * * unless a flashing lunar signal with the letter "N" reflected Amtrak's previous plan, which would present the "clear to next interlocking" information to the train at the distant signal through an active transponder at the location. Under Amtrak's current plan, with the implementation of MCP radio at the interlocking, the train will receive the information as it approaches the home signal, with the information derived from the "flashing lunar signal with the letter "C" displayed at the home signal."

FRA received no other comments on this proposed design standard, which requires trains to fall back to existing maximum speeds when the ACSES must be cut out on a train. However, this approach cannot provide positive stop capability or compensate for higher curving speeds that may be allowed using tilt HSTs. All trains with a cut out ACSES will operate at conventional train speeds whether they are tilt train equipment or conventional equipment. The vital link between CPUs mentioned in 6(a) above will inform the signal CPU that the civil speed CPU is cut out or has failed. The signal speed enforcement system will enforce a default speed limit when ACSES has failed and/or is cut out, with a maximum speed of 110 mph on the NEC-North End and 125 mph on the NEC-South End if ACSES is cut out. This places a premium on compliance with operating rules developed specifically for this purpose (copies of which are available in the docket).

c. *Cab signals/ATC & ACSES failure.* If the cab signal/ATC system and ACSES both fail en route, the systems shall be cut out and the train shall proceed as provided in 49 CFR § 236.567.

Explanation and analysis. FRA received no comment on its proposal to follow the procedures and restrictions in § 236.567 whenever the signal and train control system fails and/or is cut out en route. Accordingly, this section applies as follows whenever the signal and train control system fails and/or is cut out en route:

Where an automatic train stop, train control, or cab signal device fails and/

or is cut out enroute, train may proceed at restricted speed or if an automatic block signal system is in operation according to signal indication but not to exceed medium speed, to the next available point of communication where report must be made to a designated officer. Where no automatic block signal system is in use train shall be permitted to proceed at restricted speed or where automatic block signal system is in operation according to signal indication but not to exceed medium speed to a point where absolute block can be established. Where an absolute block is established in advance of the train on which the device is inoperative train may proceed at not to exceed 79 miles per hour.

These procedures, which are used with present train control systems on the NEC and throughout the nation, have proven to be a reliable and safe method of operating whenever the signal and train control system fails and/or is cut out.

d. *Wayside signal system failure.* If the wayside signal system fails, train operation will be at restricted speed to a point where absolute block can be established in advance of the train. Where absolute block is established in advance of the train, the train may proceed at speeds not to exceed 79 mph.

Explanation and analysis. FRA received no comment on its proposal to allow the carrier's operating rules to effect these requirements. If a wayside signal system failure occurs, ACSES will continue to function, by enforcing the 79 mph speed, civil and temporary speed restrictions, and positive stops, but an absolute block and proceed not to exceed 79 mph must still be established.

e. *Missing transponder.* If a transponder is not detected where the equipment expected to find the next transponder, the train must not exceed 125 mph (NEC-South End) or 110 mph (NEC-North End) until the next valid transponder is encountered. The 125/110 mph speed restriction will be enforced by the system and "—" will be displayed to indicate that the civil speed is unknown. The audible alarm for civil speeds will sound and must be acknowledged. Speed restrictions previously entered into the system, whether temporary or permanent, will be displayed at the proper time and continue to be enforced. If the missing transponder is a positive stop enforcement transponder at the distant signal to an interlocking, then the system will treat the missing transponder as if it were present and a stop will be required. Since the previous transponder will have transmitted the distance to the stop location, the stop shall be enforced unless a cab signal is received that indicates the interlocking signal is displaying an aspect more favorable than "Stop [illegible] Stop & Proceed," and "Restricting." The 125/110 mph speed restriction will also be enforced regardless of whether the cab signal aspect is being received.

Explanation and analysis. As proposed, permanent transponders will be programmed with information that includes distance to the next transponder. Wheel rotations will be logged to determine train position between transponders. If a transponder is missing (or is not successfully read), speeds will be slowed to 125 or 110 mph, depending upon the territory involved, until the next valid transponder is detected.

7. When it becomes necessary to cut out the cab signal/ATC system, ACSES, or both, these systems shall be considered inoperative until the engine has been repaired, tested and found to be functioning properly. Repairs shall be made before dispatching the unit on any subsequent trip.

Explanation and analysis. FRA received no comment on this section, which is adopted as proposed.

8. Other requirements applicable to the system are as follows:

a. Aspects in the cab shall have only one indication and one name, and will be shown in such a way as to be understood by the engine crew. These aspects shall be shown by lights and/or illuminated letters or numbers.

b. Entrances to the main line can be protected by electrically locked derails if the speed limit is 15 mph or less. A transponder set shall cut in ACSES prior to movement through the derail and onto the main line. If the speed limit is greater than 15 mph, a positive stop will be required. At entrances from a signaled track, ACSES shall be cut in prior to the distant signal and a positive stop enforced at the home signal.

Explanation and analysis. FRA received no comment on these sections, which are adopted as proposed.

c. An on-board event recorder shall record, in addition to the required functions of § 229.5(g) [of FRA's Railroad Locomotive Safety Standards (49 CFR Part 229)], the time at which each transponder is encountered, the information associated with that transponder, and each use of the positive stop override. These functions may be incorporated within the on-board computer, or as a stand alone device, but shall continue to record speeds and related cab signal/ATC data, even if ACSES has failed and/or is cut out. The event recorder shall meet all requirements of § 229.135.

Explanation and analysis. The NTSB supported requiring the on-board event recorder to record the time each transponder is encountered, any associated information, and each use of the positive stop override. At a minimum, the event recorder specifications submitted by Amtrak require the recorder to log with time stamps the following data: speed, distance traveled, location by milepost in miles and tenths, track number, brake pipe pressure (for penalty applications), on/off status of ACSES, driver input to ACSES/system acknowledge on/off, transponder messages received, and data from ACSES sent to the driver's display unit and the diagnostic serial port of the driver's diagnostic panel.

9. The following maximum speeds apply on the NEC in territory subject to this order:

a. In ACSES territory where all trains operating on high-speed tracks, adjacent tracks where speeds exceed 20 mph, and tracks providing access to high-speed tracks are equipped with cab signal/ATC and ACSES, qualified and ACSES-equipped trainsets otherwise so authorized may operate at maximum speeds not exceeding 150 mph. The maximum speed over any highway-rail crossing shall not exceed 80 miles per hour where only conventional warning systems are in place. Train speeds shall not exceed 95 mph over any highway-rail crossing where arrangements approved by the Associate Administrator for Safety incorporating four-quadrant gates and presence detection are provided and tied into the signal system, such that a train will be brought to a stop should the crossing be determined to be occupied following descent of the gates. Amtrak shall submit for approval of the Associate Administrator for Safety plans for site-specific improvements with timetables for each of the 13 NEC crossings remaining on the NEC-North End by January 1, 1999.

Explanation and analysis. As discussed above, FRA extends the requirements for ACSES to trains operating on immediately adjacent tracks where the maximum authorized speed exceeds 20 mph. Speeds are permitted to 95 mph, rather than 80 mph as proposed, provided 4-quadrant gates with presence detection are provided and tied into the train control system. FRA may consider amendment of this order to allow alternative secure arrangements at one or more private crossings following submission of a required crossover safety plan. This section is otherwise adopted as proposed.

b. In ACSES territory on the NEC-South End, where access to any high-speed track is prevented by switches locked in the normal position and a parallel route to the high-speed track is provided at crossovers from adjacent tracks, and where no junctions providing direct access exist, qualified and ACSES-equipped trainsets otherwise so authorized may operate to a maximum speed not exceeding 135 mph on such track; and provisions of this order requiring other tracks and trains to be equipped with the ACSES do not apply.

Explanation and analysis. FRA received no comment on this section, which is adopted as proposed. Currently maximum speeds for trains on the general rail system are limited to 110 mph. Under a waiver, Amtrak operates

Metroliner service on the NEC-South End at speeds up to 125 mph. This order allows Amtrak to increase its speeds on the NEC-South End to 135 mph by installing the ACSES transponders on the wayside and by equipping new high-speed trainsets with on-board scanners and computers. Other users of Amtrak's NEC-South End high-speed tracks are not required to be equipped for the present, but will benefit from the higher level of safety associated with Amtrak operations. On the NEC-North End, maximum speeds currently top out at 110 mph, with no waiver for high-speed service. This order authorizes operation of qualified trainsets at up to 150 mph in territory where Amtrak has installed ACSES on the wayside, provided Amtrak and other users are equipped.

The phrase "otherwise authorized," as applied to trains, refers to equipment qualified for higher speeds under the track/vehicle interaction limits adopted in the recent revisions to the Track Safety Standards. Metroliner equipment is currently authorized to operate up to 125 mph. FRA anticipates that the new American Flyer trainsets will be qualified to operate up to 150 mph. Other equipment presently operating on the NEC may also qualify to operate at higher than conventional speeds under the revised Track Safety Standards.

10. *Schedule and acceptance requirements.*

a. This order is effective August 21, 1998.

b. Not later than 45 days following publication of this order, Amtrak shall deliver to the Associate Administrator for Safety, FRA, a final program and timetable for completion of pre-qualification tests, submission of final production specifications, availability of on-board equipment from Amtrak's vendor, staging of installation of on-board equipment for which Amtrak takes responsibility, and testing of all wayside and on-board equipment prior to cut-in.

c. Contingent upon FRA's acceptance of the final program and timetable, and FRA's acceptance of the results of pre-qualification and pre-service tests, compliance with requirements of this order for use of ACSES on the NEC-North End is required on and after October 1, 1999.

d. Amtrak may commence operations under paragraph 9(b) of this order utilizing equipment qualified under 49 CFR Part 213, as revised, following FRA's approval of the elements of the final program, timetable and test results pertinent to the subject territory and operations.

Explanation and analysis. Several commentators noted concerns regarding the ability of Amtrak, its vendor and other railroads to stage installation and testing of ACSES within the remaining time available. FRA shares this concern, but believes sufficient time remains prior to scheduled initiation of electrified operations and high-speed service to address these needs if Amtrak and its vendor move briskly, but deliberately, to complete final specifications and tests.

FRA also has noted the need to ensure the quality of pre-service testing of this new system. Although the various elements of the ACSES system have been routinely used in train control applications internationally, integration of the system remains a challenge. Although Amtrak has extensive experience and an excellent record in implementing train control technology, oversight is appropriate to verify that safety remains the first priority in this undertaking.

Accordingly, FRA has included a requirement for submission of a program and timetable for staging the implementation of this system in a manner that does not impair the ability of other railroads to provide quality passenger and freight service. FRA will expect that this timetable reflect consultation with other parties, as necessary and appropriate, and describe how adverse impacts on other parties will be prevented. FRA will cooperate with this process by providing one or more program monitors, who will oversee pre-qualification and pre-service testing of all aspects of the system, advising the Associate Administrator for Safety regarding the readiness of the system as measured against the requirements of this order.

FRA will continue to evaluate the ability of the parties subject to this order to meet the technical requirements specified without disruption of normal rail service and may amend the order as necessary to avoid any such disruptions.

Environmental Impact

FRA has evaluated this final order of particular applicability under its procedures for ensuring full consideration of the potential environmental impacts of FRA actions, as required by the National Environmental Policy Act (42 U.S.C. 4321, *et seq.*) and related directives. This order meets the criteria for classification as a non-major action for environmental purposes.

Regulatory Flexibility Act

The Regulatory Flexibility Act of 1980 (5 U.S.C. 601 *et seq.*) was enacted by Congress to ensure that small entities are not unnecessarily and disproportionately burdened by Government regulations. Only one small entity is affected by this order, P&W. Their annual revenues are about $22,000,000, and this order will cost them about $1,100,000 in total discounted costs over twenty years. The twenty-year cost is thus about 5% of one year's revenue. This is a substantial impact on that one entity. This order is, however, only one part of a much larger infrastructure improvement, and much of the benefit of that improvement accrues to P&W, including the opening of rail access for double stack intermodal service to the site of the former U.S. Navy facilities at Quonset Point and Davisville, Rhode Island, at a cost to the Federal taxpayer estimated at $55 million. Also, as an adjunct to the current improvement project, P&W will be the beneficiary of construction of a third track on the NEC between Davisville and "Boston Switch" that will provide the new doublestack access that otherwise would not exist. P&W is the only freight railroad operating over those tracks. While the one-time cost of ACSES is a significant fraction of one year's revenue for P&W, the other projects will add far more than that to P&W's net worth, enabling them to compete effectively against other modes. They do not at present face rail competition.

As noted above, P&W operates on the NEC largely as a result of an expedited supplemental transaction effected under section 1155 of the Northeast Rail Service Act of 1981 (NERSA) (45 U.S.C. 745). Pursuant to that statute, and under an order of the Special Court established by the Regional Rail Reorganization Act of 1973, Conrail was compelled to surrender certain properties and service rights to a successor railroad that would commit to providing at least 4 years of service on the properties transferred. P&W aggressively pursued that opportunity, with the full knowledge that public planning from the 1960's forward had focused on dramatic passenger service improvements on the NEC between New York and Boston. As recently as the past year, P&W has sought to extend its service rights farther west into Connecticut based upon P&W's claim that the proposed acquisition of Conrail by NS and CSX constitutes a termination of Conrail's residual franchise and activation of rights P&W enjoys under the Special Court's order.

FRA has sought to identify means to mitigate the impact of this order on P&W. The proposed order would have permitted operations of unequipped trains during nighttime hours when high-speed trains were not running. P&W commented that it would not be feasible to limit its train operations to night time, the window within which the order proposed to permit non-equipped trains to run on the NEC,

since nighttime switching service would result in a dramatic increase in costs, cause operational disruptions for P&W customers, disrupt neighborhoods, and raise serious safety issues. P&W has thus explained that the means suggested in the proposed order would not be helpful, but has not suggested any alternate means of mitigating the impacts that are compatible with early realization of reasonable returns from public investments in improved rail service in the region. As a result of those investments, P&W will be provided access to a third main track over a key route, and with improved clearances, at a cost to the Federal Government almost 50 times greater than the cost to P&W of installing ACSES on its equipment. Further, it is clear that P&W (like all operators on the subject territory) will realize substantial benefits from ACSES. Under these circumstances, FRA is unable to determine that P&W is unduly disadvantaged by the mandate of this order.

Most importantly, FRA believes that there is no alternative that could meet the safety concerns which are FRA's primary mission without imposing similar costs on P&W. The Regulatory Flexibility Act makes clear that concerns about small entities are not to take precedence over the government's responsibility for public safety. Further, it is not the purpose of railroad safety regulations and orders to allocate societal costs among parties with shared interests in transportation improvements. Nevertheless, FRA states unequivocally that it does not by issuance of this order intend to deprive P&W of any claim it may have against Amtrak related to the assignment of responsibility for the cost of these safety improvements.

Paperwork Reduction Act

Under the Paperwork Reduction Act of 1995 (PRA), Pub. L. No. 104–13, § 2,109 Stat. 163 (1995) (codified as revised at 44 U.S.C. §§3501–3520), and its implementing regulations, 5 CFR Part 1320, the Office of Management and Budget (OMB) does not need to approve information collection requirements that affect nine or fewer respondents. FRA has determined that information collection requirements in this order will affect fewer than nine railroads, and that therefore OMB approval is not required.

Regulatory Impact

Executive Order 12866 and DOT Regulatory Policies and Procedures

This rule has been evaluated in accordance with existing policies and procedures, and has been determined to be non-significant under both Executive Order 12866 and DOT policies and procedures (44 FR 11034; February 26, 1979). FRA has prepared and placed in the docket a regulatory analysis addressing the economic impact of the rule. Document inspection and copying facilities are available at 1120 Vermont Avenue, 7th Floor, Washington, DC, 20590. Photocopies may also be obtained by submitting a written request to the FRA Docket Clerk at Office of Chief Counsel, Federal Railroad Administration, 400 Seventh Street, SW, Washington, DC 20590.

Even though full implementation of ACSES would cost about $200 million, FRA is not ordering that here, nor does FRA plan to require it at present. For the portion of ACSES ordered here, FRA estimates that the direct safety benefits will exceed $44 million, discounted to present value over a 20-year period, through prevention of collisions, overspeed derailments, and incidents involving harm to roadway workers. Additional benefits are expected to include avoidance of other public investments in transportation infrastructure in the region. The allocated cost for installation and maintenance of ACSES on the segments affected by this order is expected to be $36 million for the same period, yielding a net benefit to society of at least $8.5 million, exclusive of non-safety benefits. Of this amount, costs of installation on the right-of-way and on equipment will be about $33 million, which is expected to be spread over three calendar years.

FRA has based its analysis on many assumptions, which yield a great deal of uncertainty. The projected accident rates may be significantly lower without ACSES, in which case the analysis would overstate benefits. FRA believes it is equally likely that the analysis underestimates the accident rate without ACSES, in which case the analysis would understate benefits.

There are several reasons for the uncertainty. The track safety standards have recently been modified, and will permit railroads to set maximum speeds on curves according to a performance standard which will likely permit higher maximum speeds on curves on the affected segments. This will leave less of a margin for error should the engineer permit the train to exceed the civil speed restriction for a curve on which the maximum speed has been increased. At the same time the corridor will be electrified. This will allow the use of electric locomotives which are capable of more rapid acceleration, and therefore are capable of violating civil speed restrictions more often, for longer durations and by greater speeds. FRA realizes that traffic on the affected segments will increase (as did A. D. Little, the firm that analyzed the risks of high speed service for Amtrak), but the consequences of this increase can only be estimated, and this estimate is itself based on uncertain volume estimates.

The largest uncertainty, however, comes from the fact that the root cause of the kinds of accidents which ACSES may prevent is human failure. Human failure occurs somewhat randomly, and is very difficult to predict. FRA is aware that the more opportunities for human failure exist, the greater the likelihood of such failure, but there is no way to say with certainty that so many human failures will occur within such a period.

If one accident like the 1996 Silver Spring, Maryland accident (11 killed, 24 injured) is prevented, this rule will more than pay for itself. That accident was a relatively low speed collision between an Amtrak train and a commuter train, not on the affected segments. Higher speed accidents could easily have costs many times the total cost of the order (for example, the Chase, Maryland accident in 1987 which left 16 killed, 228 injured). Even accidents where a collision is not the first event can be severe. In 1990, an Amtrak train derailed because of overspeed on a curve in Boston, and struck a train on an adjacent track (451 injured). In June 1998, a German high-speed train derailed and struck a bridge, killing approximately 95 people. Although that train was not derailed because of overspeed and did not have crash-energy management systems (as far as we now know), it was travelling at 125 mph, a lower speed than trainsets will be capable of on this corridor, and may be illustrative of what a high-speed derailment could cause.

FRA has already taken steps to see that high-speed trains on this corridor will have crash-energy management systems, but avoiding derailments and collisions with conventional passenger trains is extremely desirable. While it is impossible to know whether this will prevent something which may never happen, or multiple events, preventing just one major accident in twenty years will make the system pay for itself.

Accordingly, for the reasons stated in the preamble, FRA issues the following Final Order:

Final Order of Particular Applicability

Authority: 49 U.S.C. 20103, 20107, 20501–20505 (1994); and 49 CFR 1.49(f), (g), and (m).

Scope and Applicability

This order supplements existing regulations at 49 CFR Part 236 and existing orders for automatic train control on track controlled by the National Railroad Passenger Corporation (Amtrak) on the Northeast Corridor (NEC). This order applies in territory where Amtrak has installed wayside elements of the Advanced Civil Speed Enforcement System (ACSES), permitting high-speed operations under the conditions set forth below.

All railroads operating on high-speed tracks in such equipped territory between Boston, Massachusetts and New Haven, Connecticut (NEC-North End), or on tracks providing access to such high-speed tracks, shall be subject to this order, including the following entities operating or contracting for the operation of rail service—

Amtrak;
Connecticut Department of Transportation;
Consolidated Rail Corporation and its successors;
Massachusetts Bay Transportation Authority; and
Providence and Worcester Railroad Company.

The requirement that all trains be equipped with operative on-board ACSES applies as specified in paragraph (2) from milepost 73.2 at New Haven, Connecticut, to South Station, Boston, Massachusetts, but applies only to high-speed trains operating on high-speed tracks between Washington, DC, and New York, New York (NEC-South End), as set forth in paragraph 9(b).

Definitions

Unless otherwise provided terms used in this order have the same definitions contained in Part 236. For purposes of this order—

ACSES means a transponder based system that operates independent of the cab signal system, and provides enforcement of permanent speed restrictions, temporary speed restrictions, and stop signals at interlockings.

High-speed train means a train operating in excess of 125 miles per hour (mph) on the NEC-South End, and 110 mph on the NEC-North End.

"High-speed track" means (1) a track on the main line of the NEC-South End, where the authorized train speed for any class of train exceeds 125 mph, or (2) a track on the main line of the NEC-North End where the maximum authorized train speed for any class of train is in excess of 110 mph.

Immediately adjacent track means a track within 30 feet of a high-speed track when measured from track center to track center.

Signal and train control system refers to the automatic cab signal/automatic train control system (cab signal/ATC) in effect on the NEC at the date of issuance of this order, as supplemented by ACSES, together with such modifications as Amtrak shall make consistent with this order.

Performance Standards

Effective October 1, 1999, the following performance standards and special requirements shall apply:

1. Except as provided in paragraph 9(b), the signal and train control system shall enforce both permanent and temporary civil speed restrictions (e.g., track curvature, bridges, and slow orders) on all high-speed tracks and immediately adjacent tracks. Permanent restrictions shall be loaded into the onboard computer by direct data transfer from a verified database. Temporary restrictions shall be loaded into the onboard computer by direct data transfer from the computer-aided dispatching system. (For not to exceed 12 months following cut-in of the system, use of temporary transponders programmed with appropriate speed restrictions will be deemed to satisfy this paragraph. Thereafter, use of temporary transponders alone shall be acceptable only in the case of an emergency restriction for which transfer of the restriction into the onboard computers of all affected trains is not practicable.)

2. Except as provided in paragraph 9(b), all trains operating on high-speed track, immediately adjacent track where the maximum authorized speed exceeds 20 mph, or track providing access to high-speed track shall be equipped to respond to the continuous cab signal/speed control system and ACSES.

3. No conflicting aspects or indications shall be displayed in the locomotive cab.

4. The system must enforce the most restrictive speed at any location associated with either the civil/temporary restriction or cab signal aspect.

5. At interlocking home signals and control points on high-speed tracks or protecting switches providing access to high-speed tracks, the signal and train control system shall enforce a positive stop short of the signal or fouling point when the signal displays an absolute stop. The system shall function such that the train will be brought to a complete stop and cannot be moved again until the first of the following events shall occur: (1) the signal displays a more permissive aspect; or (2) in the event of a system malfunction, or system penalty, the train comes to a complete stop, the engineer receives verbal authority to proceed from the dispatcher, and the engineer activates an override or reset device that is located where it cannot be activated from the engineer's accustomed position in the cab. The train may then only travel at restricted speed until a valid speed command is received by the on-board train equipment. For not to exceed 12 months following cut-in of ACSES, release of the positive stop feature, under conditions where the signal displays an aspect more favorable than stop, but not less favorable than restricting, may be accomplished by use of the reset device; thereafter, this function shall be accomplished automatically so that it is not necessary for the engineer to leave his or her accustomed position in the cab.

6. Failure modes of the system will allow for train movements at reduced speeds, as follows:

a. *Failure of Cab Signal/ATC System:* In the event of failure of the cab signal/ATC system on board a train, the cab signal/ATC system will be cut out; however, ACSES shall remain operative and enforce the 79 mph speed limit. If intermediate wayside signals are provided, the train will receive information approaching the home signal, through the MCP radio, with the information actually derived from the "flashing lunar signal with the letter "C" displayed at the home signal." When failure occurs after a train has entered such a block, the train will proceed at restricted speed to the next interlocking and may not pass the home signal, regardless of the aspect displayed, until the flashing lunar "Clear to Next Interlocking" signal is displayed. The train may then pass the signal and proceed at a speed not to exceed 79 mph. The speed limit shall be enforced by ACSES.

b. *ACSES failure.* If the on-board ACSES fails en route, it must be cut out in a similar manner to the cab signal/ATC system. The engineer will be required to notify the dispatcher that ACSES has been cut out. When given permission to proceed, the train must not exceed 125 mph (NEC-South End) or 110 mph (NEC-North End). All trains with cut out ACSES will operate at conventional train speeds.

c. *Cab signals/ATC & ACSES failure.* If the cab signal/ATC system and ACSES both fail en route, the systems shall be cut out and the train shall proceed as provided in 49 CFR § 236.567.

d. *Wayside signal system failure.* If the wayside signal system fails, train

operation will be at restricted speed to a point where absolute block can be established in advance of the train. Where absolute block is established in advance of the train, the train may proceed at speeds not to exceed 79 mph.

e. *Missing transponder.* If a transponder is not detected where the equipment expected to find the next transponder, the train must not exceed 125 mph (NEC-South End) or 110 mph (NEC-North End) until the next valid transponder is encountered. The 125/110 mph speed restriction will be enforced by the system and "—" will be displayed to indicate that the civil speed is unknown. The audible alarm for civil speeds will sound and must be acknowledged. Speed restrictions previously entered into the system, whether temporary or permanent, will be displayed at the proper time and continue to be enforced. If the missing transponder is a positive stop enforcement transponder at the distant signal to an interlocking, then the system will treat the missing transponder as if it were present and a stop will be required. Since the previous transponder will have transmitted the distance to the stop location, the stop shall be enforced unless a cab signal is received that indicates the interlocking signal is displaying an aspect more favorable than "Stop," "Stop & Proceed," and "Restricting." The 125/110 mph speed restriction will also be enforced regardless of whether the cab signal aspect is being received.

7. When it becomes necessary to cut out the cab signal/ATC system, ACSES, or both, these systems shall be considered inoperative until the engine has been repaired, tested and found to be functioning properly. Repairs shall be made before dispatching the unit on any subsequent trip.

8. Other requirements applicable to the system are as follows:

a. Aspects in the cab shall have only one indication and one name, and will be shown in such a way as to be understood by the engine crew. These aspects shall be shown by lights and/or illuminated letters or numbers.

b. Entrances to the main line can be protected by electrically locked derails if the speed limit is 15 mph or less. A transponder set shall cut in ACSES prior to movement through the derail and onto the main line. If the speed limit is greater than 15 mph, a positive stop will be required. At entrances from a signaled track, ACSES shall be cut in prior to the distant signal and a positive stop enforced at the home signal.

c. An on-board event recorder shall record, in addition to the required functions of § 229.5(g) [of FRA's Railroad Locomotive Safety Standards (49 CFR Part 229)], the time at which each transponder is encountered, the information associated with that transponder, and each use of the positive stop override. These functions may be incorporated within the on-board computer, or as a stand alone device, but shall continue to record speeds and related cab signal/ATC data, even if ACSES has failed and/or is cut out. The event recorder shall meet all requirements of § 229.135.

9. The following maximum speeds apply on the NEC in territory subject to this order:

a. In ACSES territory where all trains operating on high-speed tracks, adjacent track where the maximum authorized speed exceeds 20 mph, and tracks providing access to high-speed tracks are equipped with cab signal/ATC and ACSES, qualified and ACSES-equipped trainsets otherwise so authorized may operate at maximum speeds not exceeding 150 mph. The maximum speed over any highway-rail crossing shall not exceed 80 mph where only conventional warning systems are in place. Train speeds shall not exceed 95 mph over any highway-rail crossing where arrangements approved by the Associate Administrator for Safety incorporating four-quadrant gates and presence detection are provided and tied into the signal system, such that a train will be brought to a stop should the crossing be determined to be occupied following descent of the gates. Amtrak shall submit for approval of the Associate Administrator for Safety plans for site-specific improvements with timetables for each of the 13 NEC crossings remaining on the NEC-North End by January 1, 1999.

b. In ACSES territory on the NEC-South End, where access to any high-speed track is prevented by switches locked in the normal position and a parallel route to the high-speed track is provided at crossovers from adjacent tracks, and where no junctions providing direct access exist, qualified and ACSES-equipped trainsets otherwise so authorized may operate to a maximum speed not exceeding 135 mph on such track; and provisions of this order requiring other tracks and trains to be equipped with ACSES do not apply.

10. Schedule and acceptance requirements.

a. This order is effective August 21, 1998.

b. Not later than 45 days following publication of this order, Amtrak shall deliver to the Associate Administrator for Safety, FRA, a final program and timetable for completion of pre-qualification tests, availability of on-board equipment from Amtrak's vendor, staging of installation of on-board equipment for which Amtrak takes responsibility, and testing of all wayside and on-board equipment prior to cut-in.

c. Contingent upon FRA's acceptance of the final program and timetable, and FRA's acceptance of the results of pre-qualification and pre-service tests, compliance with requirements of this order for use of ACSES on the NEC-North End is required on and after October 1, 1999.

d. Amtrak may commence operations under paragraph 9(b) of this order utilizing equipment qualified under 49 CFR Part 213, as revised, following FRA's approval of the elements of the final program, timetable and test results pertinent to the subject territory and operations.

Issued in Washington, D.C. on July 10, 1998.

Jolene M. Molitoris,

Federal Railroad Administrator.

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DEPARTMENT OF TRANSPORTATION

National Highway Traffic Safety Administration

Safety Performance Standards and Research and Development Programs Meetings

AGENCY: National Highway Traffic Safety Administration, DOT.

ACTION: Notice of NHTSA Industry Meeting.

SUMMARY: This notice announces a public meeting at which NHTSA will answer questions from the public and the automobile industry regarding the agency's vehicle regulatory program.

DATES: The Agency's regular, quarterly public meeting relating to its vehicle regulatory program will be held on September 17, 1998, beginning at 9:45 a.m. and ending at approximately 12:30 p.m., at the Tysons Westpark Hotel, McLean, VA. Questions relating to the vehicle regulatory program must be submitted in writing with a diskette (Wordperfect) by Tuesday, September 1, 1998, to the address shown below or by e-mail. If sufficient time is available, questions received after September 1 may be answered at the meeting. The individual, group or company submitting a question(s) does not have to be present for the question(s) to be answered. A consolidated list of the questions submitted by September 1, 1998, and the issues to be discussed,