Amtrak should upgrade cars, trackside poles

The sun rises Wednesday, May 13, 2015 on the tracks where the day before Amtrak Train 188 derailed at the sharp Frankford Junction curve. ALEJANDRO A. ALVAREZ / Staff Photographer

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The tragic derailment in May of Amtrak Train 188 in Philadelphia has family and friends of the victims, industry officials and regulators, and

politicians and the public seeking answers about the cause of the wreck, which killed eight passengers and injured scores of others.

While the official accident investigation and findings by the National Transportation Safety Board (NTSB) could take a year or more to complete, Amtrak, the Federal Railroad Administration (FRA), and Congress should take action now on two factors that contributed to the severity of the wreck, including the loss of life and injuries: Amtrak's use of 40-year-old passenger cars and catenary poles for electrification that are more than 70 years old.

Installed before World War II, the massive metal poles are embedded in concrete bases about 300 feet apart. These poles support the overhead wires that provide power to the electric locomotives. They pose a significant collision hazard during a derailment and contributed to the catastrophic damage and most of the deaths on one passenger car on Train 188.

Funding should be provided to Amtrak to replace this outdated, risk-prone infrastructure with the world-class standard for high-speed-rail corridors: poles with shear bolts that are designed to break away in the event of a collision. These breakaway poles have been installed on the Northeast Corridor between New Haven, Conn., and Boston, and are currently being installed in New Jersey as part of a project to increase speeds to 160 m.p.h.

Replacing the electrification from New Haven to Washington with constant-tension catenary wires and breakaway poles would cost about $3.5 billion.

Built in 1975, Amfleet coaches and café cars serve the majority of Amtrak's 11.6 million annual passengers between Boston and Washington at speeds of up to 125 m.p.h. These cars do not have the structural materials, safety standards, technology, and crash energy management systems that are part of the design of 21st-century passenger railcars.

Amfleet cars use train technology developed in the 19th century: individual cars connected at a single point with couplers that are

vulnerable to breaking apart in a derailment or collision. This increases the risks of rollovers and jackknifing cars crashing into bridges, catenary poles, and other trackside objects.

The safer alternative is for Amtrak to replace the Amfleet cars with modern articulated train sets.

At sustained speeds of over 100 m.p.h., almost every train in the world is operated with articulated or integrated train sets: Each car is semipermanently attached with multiple connectors to other cars. These connectors absorb and channel the kinetic energy of a derailment or collision, keeping the entire train in-line and intact along the railroad.

The cost of 78 train sets, at $50 million each, to replace all Acela and Amfleet trains, and a centralized train-set maintenance facility - which does not currently exist on the Northeast Corridor - would be about $3.9 billion.

Articulated train-set technology has been credited with maintaining the stability and integrity of trains during high-speed derailments, which is vital for protecting passengers. When an articulated French TGV train set derailed in 2000 at over 180 m.p.h., the injuries were limited to bumps, bruises, and shock to a handful of the more than 500 passengers.

Despite their age and safety limitations, Amtrak has no near-term plan to replace its 40-year-old Amfleet cars. Instead, it is focusing on replacing the high-speed Acela train sets, which are only 15 years old.

We urgently recommend that Congress, the FRA, and Amtrak take the safest course of action and make the replacement of the older Amfleet cars the priority. This could be accomplished by transforming the Northeast Corridor service with a new fleet of articulated train sets that would offer a triple-class selection of coach, business, and first-class seating on every train.

The new triple-class train sets would allow Amtrak to replace the aging Amfleet cars first and eventually phase out the Acela train sets, thus operating the Northeast Corridor with the efficiencies of a

standardized fleet. For example, all passengers would be able to board a high- speed train every 30 minutes between Washington and New York and hourly between New York and Boston, effectively doubling current service with the same number of trains.

Such a transformation would enable Amtrak to offer a high-frequency, high-capacity, high-speed operation for all passengers. All Amtrak passengers, including senior citizens, families, and students, would be able to enjoy the benefits of high-speed service, made possible with their tax dollars. Most passengers cannot afford to ride Acela trains presently.

A standardized fleet on the Northeast Corridor would result in significant improvements in operating costs and reliability. Amtrak's current use of two different train fleets with different speed limits, maintenance requirements, and marketing campaigns is expensive, complex, and inefficient. No other high-speed rail corridor in the world operates this way.

Safety, service, and scheduling efficiency on the Northeast Corridor will be significantly improved if the 40-year-old Amfleet trains are replaced with a new, standardized fleet of articulated train sets. All Amtrak passengers deserve the benefit of the highest level of safety and service for their tax dollars.

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