Congress Doing Something Solid

In the aftermath of several multiple-fatality train wrecks in the last few years, Congress, with unheard-of efficiency, mandated the implementation of a train safety system called Positive Train Control (PTC), to be in place nationally by the end of 2015. Most readers are at least dimly aware of this, and also of the fact that Congress has extended this deadline through 2018.

Despite being a modern-passenger-Rail activist, I consider this three-year delay a good thing.

PTC is a GPS- based technology for monitoring trains and stopping them automatically in the event of a train being where it should not be; like on the same track as an oncoming train. It is very complicated and very expensive. Several railroads, such as the BNSF Railway and California's Metrolink. have, to their credit, started installing PTC ahead of Congress's mandate. But besides its cost and complexity (many billions of dollars and a similar number of electronic "moving parts"), PTC is a one-size-fits-all solution that may not be needed in shorter or less crowded Rail corridors. It's also useless at spotting some serious and common dangers, like obstructions on or damage to the tracks ahead of the train.

Other Possibilities:

In the hope that this three-year delay will buy some time for more discriminating thinking about rail safety systems, I offer here a list of possible alternatives, most of whose components have been on the shelf for several years and need not be exhaustively field-tested from scratch.

— **CTC (Centralized Train Control).** In this system, routing decisions are under the control of a dispatcher at a principal station. Not too unlike air traffic control.

— **ATS (Automatic Train Stop)**, which stops the train in the event of a broken track, an unresponsive operator, an earthquake, or if the train blows through a Stop

signal.

— **Dead Man Switches.** Two common types (for controlling industrial or workshop equipment) are those you stand on or hold closed in your hand. If you fall down, drop dead, or are otherwise inconvenienced, the switch is automatically released, shutting down said equipment. Another type is on a kind of timer so that, if you don't slap it with your hand every 30 or so seconds, it stops the train.

(NOTE): Our own Rail Runner Express is equipped with these three systems. Others include:

— **Off-the-shelf video cameras** along the tracks, the spacing to be governed by visibility, track curvature, density of nearby infrastructure, and the like. These cameras would serve a high-resolution color monitor located in the cab of each locomotive, and would inform the engineer (and the dispatchers and local emergency-response personnel) of any vehicle or object stuck on the tracks, any vandalism being committed on same, or just plain washouts.

— **LIDAR and Radar** in conjunction with, or instead of, said cameras. This variant might be very useful for use at night or in rough, low-visibility weather conditions.

— **Drones.** Yeah, I said drones. These little double-edged swords could fly in front of every train, either under the control of the engineer (or the conductor, or the second engineer that every long-distance train should carry), or possibly tethered electronically to the train.

— **Lasers.** Somewhat like the old photo eyes, these would be aimed just below the level of, say, a subway platform. If anything roughly human-sized (like a human) falls or jumps off the platform, the body would cut the beam, triggering an alarm in the train cab or an automatic link to the brakes.

— **Handcars.** This one may be unnecessary or downright goofy, but an unmanned radio / video-equipped handcar running roughly a mile ahead of a hazmat train on

less-crowded corridors would be an almost sure-fire canary in the coal mine. If something happens to it, hit the brakes.

This list is rather arbitrary. In actual use, we would probably see different combinations and variants of these, depending on the route, the surrounding terrain, traffic density, etc. Most or all of these could be programmed to hit the brakes automatically, or serve as “dashboard” instruments to warn the operators.

On many North American routes, especially in the West, there is almost no danger of a train-to-train collision, simply because there are not all that many trains. But track obstructions, washouts, vandalism, and possible terrorism are occasional facts of life, and just as destructive.

Should the glorious day ever arrive in North America in which our long-distance tracks once again host a quantity of passenger Rail traffic not seen since the advent of lavishly-subsidized road and air infrastructure, then it might be time to take a fresh look at the high-tech, high-end, benefits of PTC, in addition to the above options. By then, we’ll more likely need it. But then again, we’ll be more able to afford the investment.

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