

Staying on the rails

Rail security challenges take center stage with July bombings in London

By Trevor Lloyd-Jones

As a colorful security piece in *The Washington Times* reported recently: you cannot bolt a door with a boiled carrot. The tragic bombings in London in July marked the second time in two years a train system in a major European city has been targeted. A series of bombings in Madrid in March of last year left 191 dead and more than 1,800 injured.

Since the events in London, everywhere we look we see urban rail authorities stepping up warnings concerning unattended packages, and there have been announcements to look out for random ID checks on the London Underground and Amtrak in the U.S.

Days after the attack, the U.S. homeland security secretary Michael Chertoff announced that the government had placed public transportation systems in the country's cities on higher alert. "We've already taken additional measures," Chertoff told reporters, encouraging people to use mass transportation but to "remain alert and report any suspicious activity" to authorities. "I think our transit systems are safe," he said.

London's Mayor Ken Livingstone has encouraged people to continue going about their business as usual and not to give in to terrorism.

But there are questions about whether the right tools are being used for the job. Rail is a transportation soft spot when it comes to security. No bag searches, no metal detectors, no search wands, no ion scanners, no explosives detectors — no obvious passenger or cargo scanning technology at all. Operators have had to deal with security before 9/11 but there has been a definite change of focus and tempo in recent years.

"We never had to deal with security issues the way we did after September 11," comments CSX Transportation vice-president of public safety Skip Elliott. "Many of us had to learn about how to deal with terrorist type attacks. We have learned from the security experts and the many national agencies... about assessing the types of assets we have, and how to protect them."

CSX is one of the largest rail freight operators in the U.S., running a 21,000-mile

network in 23 states, including tracks running through high-risk areas such as downtown Washington DC. After 9/11 the company carried out a comprehensive risk assessment based on established models used by security consultants. Long before the Department of Homeland Security (DHS) established color codings for risk assessment, the U.S. rail industry had its own color-coded system for alert levels. Currently it is on level two, a heightened risk level, but two steps below level four, which would apply in the case of a confirmed threat or an actual attack.

The softest spot

In testimony to the U.S. Senate Commerce, Science and Transportation Committee in March 2004, the non-profit research organization Rand Corporation said that between 1989 and 2000 there were approximately 181 attacks on trains and related rail targets such as depots, ticket stations and rail bridges worldwide, resulting in 431 deaths.

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The report concluded that rail facilities present a potentially lucrative target for terrorists for a number of reasons. They are easily penetrated and have high concentrations of people. What's more, rail passengers expect commuter and metro lines to be fast and inexpensive and there is no space to construct safe zones.

Rand had already predicted last year that substantial passenger casualties could be inflicted by a "back-pack sized bomb," a much lower logistical burden than that required to commit the September 11 attacks. If we consider that a major commuter rail station like London's Victoria Station handles 76.5 million passengers per year within a relatively tiny space, compared to London Heathrow Airport's 67.7 million

passengers, we have some idea of the scale of the challenge in passenger safety.

London's Victoria Station (excluding Victoria's other connections) handles 34,000 passengers during the three-hour morning peak. London's Underground network has over 462 kilometres of track in 12 rail lines, 275 stations, 3,954 train carriages in operation and 942 million passenger journeys per year (figures are for 2002/2003) equating to 19 million individuals. The U.K.'s mainline rail network extends to 20,000 miles and 2,500 stations. The Moscow Metro system, which has 265 kilometres of track, has just announced a plan to install a centralized CCTV surveillance system covering stations and every rail carriage by the year 2007.



Freight rail security

Freight rail and the dangers of hazardous cargoes are another issue. In the U.S. an estimated 40 percent of inner city freight, including half the country's hazardous materials (based on ton-miles) moves by rail. In some circumstances, these cargoes are moved through densely populated areas. In July 2001 a rail carriage caught fire in a tunnel under downtown Baltimore. The fire took five days to extinguish and involved chemicals and other materials on the train.

There is also concern about the resilience of freight networks in the event of a breakdown. Many key freight corridors are heavily used, compete with passenger trains for space and lack alternate routes. The Rand Corporation report says: "Attacks on critical freight nodes or functions could create substantial bottlenecks and throughput pressures."

"We have a very comprehensive security plan," says CSX's Elliott. "We make transporting hazardous materials an integral part of that plan. We regularly have discussions with all the agencies.... We're good at taking direction and we look to them to guide us. Since

the Department of Homeland Security has been around they have made it a very positive process: they've listened, they do good research and they ask a lot of questions."

But here we are, four years after 9/11, and rail operators like CSX have not benefited directly or indirectly, from any government security funding. In Washington D.C. the Department of Homeland Security has only just embarked on a US\$9.8 million project to secure a seven-mile stretch of track with state-of-the-art video surveillance technology.

Until now the emphasis has been on simple, physical hardening measures such as fencing. DUOS Technologies will design and install a surveillance system along CSX tracks between Reagan International Airport and CSX's Benning Rail Yard in Washington DC. The new system functions without needing hundreds of operatives to monitor closed circuit television (CCTV) screens. The systems act as a virtual fence with intelligence built into the detection technology.

"With DUOS we identified ways of monitoring our systems cost effectively," says CSX's Elliott. "With mass transit railways it is a little different: somebody always has to monitor the screening. But we can operate more as a closed facility does, like a factory only 50 feet wide and hundreds and hundreds of miles long."

Just a beginning

Guaranteeing security for the 32 million daily rail commuters in the U.S. is no easy task. And with the hindsight of the London attacks the consensus is growing that the U.S. government hasn't done nearly enough. "We simply need to do more — a lot more — to improve security on our public transportation," says Rose Sheridan, a spokesperson for the

logical detection systems.

In the U.K., the experiences learned from the IRA attacks show that the IRA bombing campaigns had sought to exploit simple gaps in security, such as breaks in fencing, poor lighting and trashcans where packages could be hidden. Trashcans were taken out of the London Underground and rail stations in the 1990s. Other methods of testing used in Britain include covert testing of security measures, increased presence of armed personnel and the use of public communication systems to advise on threats.

State and local governments and increased passenger fares have allowed mass transit systems in the U.S. to pump US\$2 billion into security since 2001. Stations in most major cities are now equipped with bombproof trashcans and patrolled by undercover agents, and, in some cases, have hidden video cameras. The subway systems in Boston and Washington boast sensors that can detect chemical or biological agents.

However, APTA has identified US\$6 billion more in necessary security improvements. Among them: stronger doors and blast curtains — clear plastic sheeting designed to keep shattered glass from flying inward toward passengers — on buses and trains.

'Ad hoc' not enough

Even with a shortage of funds, leaders are urging citizens to continue using trains, subways, and light rail systems. "Take the subway, ride the train... go to work, play in the parks," said New York Governor George Pataki recently. "The best security in the world is there to protect you."

But some critics accuse the Bush administration of not focusing enough on protecting the railways. Calling rail the "terrorist target of

"Training personnel to notice suspicious behavior and irregularities can be the most important element in any security system"

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American Public Transportation Association (APTA). Sheridan points out that the U.S. government has spent US\$18.1 billion on aviation security since 9/11, but only a miserly US\$250 million to secure railways and buses.

Even before 9/11 the Federal Railroad Authority (FRA) had required passenger trains to have emergency plans in place. According to FRA statistics there were 265 passenger train incidents in 2000 and 201 in 2001. The emergency response skills that rail operators had acquired did play their part on September 11, when Port Authority Trans-Hudson (PATH) trains helped evacuate 5,000 people from the basement of the World Trade Center. Some rail systems have begun experimenting with chemical and bio-

choice," some Democrats pushed last month to add US\$1 billion for transit and rail security to a Homeland Security spending bill. "There has been no leadership from the top," said New York senator Hillary Rodham Clinton, adding that rail security has been done on an "ad hoc" basis since September 11. Homeland Security officials noted that only US\$115 million for rail and transit security has been awarded since May 2003. They also said that since 9/11, states have been awarded US\$8.6 billion to spend on security, including on railways. But the funding for rail and transit security measures is in stark contrast with 60 times that figure being spent on airports.

APTA complains that this is inadequate, and now they are being heard. But two months