

UTC Spotlight

University Transportation Centers Program

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Mineta Transportation Institute Studies Risk Created by Highway-Borne Hazardous Materials

In April 2007, a petroleum tanker crashed and exploded on an Oakland, California, freeway interchange known locally as “The MacArthur Maze.” The intense heat weakened and collapsed an overpass and closed a major access to the San Francisco Bay Bridge, causing severe commuter traffic constraints to and from the city.

In response to this accident, the California Department of Transportation (Caltrans) asked the Mineta Transportation Institute’s (MTI) National Transportation Security Center (NTSC) to quickly examine the possibility of terrorists purposely triggering a similar incident to cripple the state’s transportation infrastructure.

In answer to this request, the NTSC initiated the Motor Carrier Security Study. The study team began a preliminary assessment of the threat posed by trucks carrying flammable liquids and explored potential remedial actions. These findings were presented in a sequence of briefings with California’s agencies involved in highway security.

MTI’s first detailed preliminary report on longer term security options was delivered to the Caltrans and California Office of Emergency Services liaisons within 60 days of the project assignment. In formulating the report, the team used the MTI database of terrorist attacks, its in-house knowledge

This monthly report from the University Transportation Centers Program highlights some of the recent accomplishments and products from one of the University Transportation Centers (UTCs) managed by the U.S. Department of Transportation’s Research and Innovative Technology Administration.

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California Dept. of Transportation

Reminiscent of the intense heat generated from burning aviation fuel that ultimately led to the collapse of New York City’s Twin Towers, the crumbling of this Oakland California interchange, which resulted from the crash and explosion of a fuel truck, prompted the NTSC study.



of how terrorists think, and a review of federal and state security measures and emerging technologies. Thus, it was able to focus on a set of likely attack scenarios.

MTI's NTSC Motor Carrier Security Study is continuing. Employing a larger team of experts with in-depth experience in explosives and hazardous materials, the study team is now considering not only flammable liquids such as gasoline, but also flammable gases such as propane and truckload explosives. A further report is due by the end of summer, 2008.

As a follow-up, MTI is sponsoring a Mineta National Policy Summit at a national meeting of the American Association of State Highway Transportation Officials later this year, exploring a wide set of risks created by highway-borne hazardous materials and measures to reduce those risks. That session will be cosponsored by the American Trucking Association and other national organizations concerned that highway-borne hazardous material can be used by terrorists. ☪



Remnants of the petroleum truck that exploded and destroyed the MacArthur Maze bridge are barely recognizable amid the rubble of disintegrated concrete and twisted girders.

About This Project

DOT invests in the future of transportation through its University Transportation Centers Program, which awards grants to universities across the United States to advance the state-of-the-art in transportation research and to develop the next generation of transportation professionals.

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The principal investigators on this project were Brian Jenkins (bmjenk@ix.netcom.com) and Bruce Butterworth (bruce.butterworth@att.net). For additional information on the DOT UTC Program, see utc.dot.gov.