

INSTITUTE FOR RATIONAL URBAN MOBILITY, INC.

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FOR IMMEDIATE RELEASE

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Fire Safety Experts Urge U.S. Homeland Security Secretary to Halt Construction of Deep Cavern Railway Stations in Manhattan

Thousands of riders at risk if disturbance should break out 175 feet underground

NEW YORK – In an open letter to U.S. DHS Sec. Janet Napolitano, four fire safety experts and the Institute for Rational Urban Mobility, Inc. (IRUM) called for a halt to the two deep cavern railway stations planned or under construction in Midtown Manhattan.

The collective group expressed its grave concern about the ability of passengers to safely exit these stations in the event of a fire or a willful act, such as a terrorist attack or an act of vandalism.

The new deep cavern rail stations are the Long Island Rail Road East Side Access station now under construction below Grand Central Terminal. The second similar station is planned by NJ Transit to be dug out 175 feet below 34th Street near Penn Station. The LIRR station will be 150 feet below Park Avenue.

In both cases, credible alternatives using existing tracks and platforms much closer to the surface were rejected by MTA and N.J. Transit officials, who proceeded with the deep cavern plans. IRUM has publicly argued that narrow institutional prerogatives have prevented implementation of the safer and more cost-effective and passenger-friendly alternatives.

“The risks imposed by the deep-cavern designs are unwarranted given that safer, more passenger-friendly and less costly options are available, and have been carefully detailed by well-respected consulting engineering firms,” stated IRUM President George Haikalis, in his letter to Sec. Napolitano.

Haikalis also urged the Secretary to request that transit agencies engage independent fire safety egress experts to fully assess the implications of the deep cavern stations, and to carefully revisit alternatives that would greatly reduce the risks associated with these stations.

The four fire safety experts cited in the letter are Jake Pauls, Glen Corbett, Jack Fruin and Herbert Landow. Pauls is a Silver Spring, MD., based fire safety consultant with over 40 years of

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international experience in research, codes and standards development. Corbett is the Chair of the Department of Fire Protection Management at John Jay College of Criminal Justice. John (Jack) Fruin, Ph.D., of Massapequa, N.Y., a well-recognized expert on passenger flow in terminals, published a landmark book on pedestrian design and capacity. Landow of Binghamton, N.Y., was a major contributor in the planning and expansion work at Penn Station and Grand Central Terminal in Manhattan.

The open letter was also forwarded to N.Y. Gov. David Paterson, N.J. Governor-Elect Chris Christie and U.S. Dept. of Transportation Secretary Ray LaHood.

A detailed engineering study of an alternative to the LIRR deep cavern station prepared by the Delcan Corp., Canada's largest engineering firm, is available at the IRUM Web site then, click on "LIRR East Side Access."

The direct connection into Penn Station and continuing on to Grand Central Terminal — "Alternative G" — which would avoid NJ Transit's deep cavern station under 34th Street, was prepared by Parsons Brinckerhoff, one of New York's leading engineering firm, is available on NJ Transit's Access to the Region's Core (ARC) Web site.

IRUM is a NYC-based not-for-profit corporation concerned with advancing cost-effective public transportation initiatives that can improve the economy and livability of dense urban places.

George Haikalis is a civil engineer and a transportation planner with broad experience in research and analysis. Haikalis was with the Tri-State Regional Planning Commission for nineteen years, where he served as Director of Research, and with NYC Transit, where he was Director of Revenue Budget and Fare Structure Analysis. More recently, Haikalis has assisted a number of civic, environmental and community organizations as a transportation consultant. Haikalis lives in Greenwich Village.

A copy of the open letter appears below.

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Secretary Janet Napolitano
U.S. Department of Homeland Security
Washington, DC 20528

RE: Grave Concern for Emergency Egress from Deep Cavern Stations in Manhattan

Dear Secretary Napolitano:

I am writing to express my personal concern and the collective grave concerns of four experts in fire and emergency egress from railway stations – Jake Pauls, Glen Corbett, Jack Fruin and Herbert Landow – about the ability of passengers to safely exit the two deep-cavern commuter rail terminal stations, planned or under construction in Manhattan, and partly funded by USDOT resources. **The risks imposed by the deep cavern designs are unwarranted given that safer, more passenger-friendly and less costly options are available, and have been carefully detailed by well-respected consulting engineering firms.**

The new deep cavern rail stations are the Long Island Rail Road East Side Access station now under construction below Grand Central Terminal and a similar station planned by NJ Transit under 34th Street in Manhattan. The LIRR station will be 150 feet below Park Avenue and the NJ Transit station is planned to be 175 feet below 34th Street. In both cases, alternatives that would use existing tracks and platforms much closer to the surface were rejected in favor of the deep cavern stations. Narrow institutional prerogatives have prevented advancing these safer and more cost-effective and passenger-friendly alternatives.

While many rail stations have been built and operated throughout the world at comparable or even greater depths, these stations are “way stations” where only a small percentage of train occupants board or alight. The planned deep cavern stations are “terminal stations” – multi-track facilities where all passengers must board or alight.

These deep cavern terminal railway stations, with their very heavy loads, are unprecedented in U.S. practice, and no comparable examples exist globally. The LIRR terminal would have eight platform tracks, stacked four over four, with an access mezzanine located between them. The NJ Transit terminal would be similar, except that it would be a six-track terminal, with platform tracks stacked three-over-three with a mezzanine between them.

Access and egress between these mezzanines and the street would be primarily by escalators, typically 90 feet or more in vertical depth.

Fire Safety and Egress Assessment

The mezzanines are designated “points of safety” by transit officials responsible for the design of these terminals. These temporary refuges can be reached from the platforms immediately above or below them in less than four minutes, in the event of a fire or other event. The more serious question is the ability of passengers taking refuge in these mezzanines to safely escape to the street in a timely manner.

Fire codes, developed by industry officials to assure good practice, were recently amended to permit more generous assumptions affecting fire safety egress of these unusual deep cavern terminals. Yet their applicability to safe egress from these “points of safety” remains ambiguous.

Using the evening peak hour as the more serious fire safety egress situation, particularly in calculating safety in the event of a willful act such as a terrorist attack or an act of vandalism, it must be recognized that a continuous stream of passengers will be heading to the deep cavern platforms to board departing trains. The time from the street to the platforms can be four to five minutes. Delays in departures of trains of 15 to 20 minutes are not unusual. With an average peak hour train load of 1,000 passengers or more, as many as 6,000 to 8,000 passengers could board trains awaiting departure. A delay, followed by an accidental fire, or more seriously, a willful act, could lead to the rapid evacuation of this passenger load to the mezzanine.

Bringing these passengers to the street in a timely manner will be a challenge. Escalators heading down must be safely halted, and then reversed with heavy passenger loads standing on them. Any passenger incident might require an abrupt halt of an escalator. Even more serious, is the concern that the power might be shutdown; even temporarily for concern of electric sparks igniting combustible gases etc., or due to a coordinated willful act. Passengers find walking up stopped escalators particularly cumbersome. The length planned for the deep cavern terminals will be physically challenging, particularly for older passengers or those with disabilities, but also increasingly so for the entire population which is less physically fit than when the historic and widely applied work by Dr. Fruin was done a few decades ago. Also, very worrisome are crowd management and crowd safety problems, sometimes characterized as “stampede effects” that could be especially devastating on the extremely long, unforgiving stairs, with no landings for distances of a couple of hundred feet created by the escalators.

Changing Course at this Late Date

When it comes to passenger safety it is never too late to change direction. Only about 20% of the overall LIRR deep cavern station project has been completed, although much of the tunnel boring machine effort is well underway. The NJ Transit deep cavern station has yet to go into construction.

It is critical that transit agencies engage independent fire safety egress experts to fully assess the implications of the deep cavern stations and to carefully revisit alternatives that would greatly reduce the risks associated with these stations.

Since the deep cavern stations are heavily dependent on Federal funding and since the tragic consequences of an event that could result in as many as 8,000 deaths or injuries would be of grave significance to the nation’s security and well-being, we respectfully request that you

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conduct an independent fire safety assessment of these two projects, and of their alternatives, at once.

We look forward to discussing our concerns with you or your representatives at your earliest convenience.

Respectfully,

A handwritten signature in black ink, appearing to read "George Haikalis". The signature is fluid and cursive, with the first name "George" being more prominent than the last name "Haikalis".

George Haikalis
President, IRUM

In cooperation with:

Jake Pauls, CPE, Jake Pauls Consulting Services in Building Use and Safety
12507 Winexburg Manor Drive, Suite 201
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Glen Corbett, Chair
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899 10th Avenue, New York, NY 10019

Dr. John. J. Fruin, Consultant
7 Anchor Drive, Massapequa, NY 11758

Herbert Landow, Consultant
5 Riverside Drive, Apt. 701, Binghamton, NY 13905

cc: USDOT Secretary Ray LaHood
NY Governor David Paterson
NJ Governor-Elect Chris Christie
Other elected officials and civic leaders

Background Summary of Fire Safety Egress Experts Expressing Grave Concerns about Deep Cavern Stations in Manhattan

Glenn P. Corbett, New York, NY

Mr. Corbett is the Chair of the Department of Fire Protection Management at John Jay College of Criminal Justice. He is a licensed firefighter and former assistant chief of the Waldwick (NJ) Fire Department. He is technical editor of *Fire Engineering*. He is the author of many technical papers and books and is widely regarded as an expert in fire egress and protection.

John (Jack) Fruin, PhD, Massapequa, NY

A traffic engineer with over 50 years experience in research, analysis, design, application, operation, and safety of pedestrian facilities, Dr. Fruin's many publications include the influential book, "Pedestrian Planning and Design." Experience includes 30 years service with the Port Authority of New York and New Jersey and consulting to National Bureau of Standards (now National Institute of Standards and Technology) plus other US and Canadian government agencies. He is the developer of the Level of Service and Time-Space methods of pedestrian traffic analysis and evaluation.

Herbert Landow, Binghamton, NY

Mr. Landow's rail career of over 40 years included extensive planning work on the Manhattan stations and their expansion. He designed software tools to study platform egress problems for NJ Transit. For the LIRR, he modeled pedestrian flows in Penn Station during the reconstruction of its corridors. The model was structured to allow closing or pinching off corridors during construction to measure their congestion effects. He analyzed the National Fire Protection Association fire code and found innumerable errors in its Annex C which shows the standard procedure for evaluating a specific station layout. For the Transportation Research Forum, he demonstrated the need to treat the egress volumes up stairways as a variable that declines with the amount of climbing to be done. Recently, he restudied the latest version of the code and found major changes apparently designed to facilitate deep cavern construction.

Jake Pauls, CPE, Silver Spring, MD

National Fire Protection Association and Society of Fire Protection Engineers member Jake Pauls, a Certified Professional Ergonomist, has over 40 years of international experience in research, codes and standards development, public health advocacy plus consulting. His expertise is in ergonomic, architectural, engineering, public health and regulatory aspects of movement of people, individually and in crowds, especially on stairways. Widely published, he serves on 12 national standards and codes committees and is known for bridging among ergonomics, public health and development of requirements for building usability and safety.