

Presentation to the
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Pyrotechnic Displays and Fire Safety
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By

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1. Introduction: Stay the course

Co-chairs Senator John A. Celona and Representative Peter T. Ginaitt and members of the Joint Commission to Study all Aspects of Law and Regulation Concerning Pyrotechnic Displays and Fire Safety, thank you for inviting me to Rhode Island to discuss event crowd safety as well as model crowd management guidance, standards and legislation. I am also here today because I believe, as you do, that everybody has a right to a consistent and meaningful level of personal safety whether attending sporting events, parades or concerts.

Before I go further, I would like to add my heartfelt condolences to the families and friends of the those who have died and my prayers for recovery to the injured at home and in hospital.

For two and a half months—starting literally a couple of hours after the Station inferno—I have watched from afar how West Warwick residents and their fellow Rhode Islanders have responded to the Great White concert tragedy. From the comforting hand offered by first responders and medical teams, to the numerous fundraising events on behalf of victims, to the media's excellent investigative reporting, to the outpouring of public compassion, and to the actions of Rhode Island legislators—the people of this state have exhibited a determination to find the answers and the needed solutions.

2. One week in February

One thing I hope this distinguished commission and the public appreciates, is like the E2 club crowd crush tragedy in Chicago, the Great White concert tragedy was a disaster waiting to happen.

These two disasters were neither one-off incidents nor oddities peculiar to West Warwick or Chicago. Rather, they symbolize, in the most horrific way, the plight of public safety at concerts and nightclubs in America. Today, because of an absence of comprehensive safety standards and legislation, and inconsistent compliance and enforcement of existing laws, there remains a very real threat of additional tragedies similar to, or more disastrous, than what we witnessed one week in February.

A sensational statement? Some may call it that. But, those same critics would have also called ridiculous, my public warning in 1995 of a future venue crowd disaster in Chicago and my 1999 forecast of a major US concert tragedy in the new millennium. Yet, here we are.

3. What is crowd management?

I am a crowd management professional. So, I always like to explain that when I speak of crowd management, I am not referring to crowd control.

Dr. John J. Fruin, (Ph.D., P.E.) one of this country's leading pedestrian and crowd safety consultants explained the difference in his paper, "The Causes and Prevention of Crowd Disorders":

Crowd Management is defined as the systematic planning for, and supervision of, the orderly movement and assembly of people. Crowd control is the restriction or limitation of group behavior.

My company, Crowd Management Strategies, specializes in crowd safety research, guidance, planning and management for concerts and other pop culture events. I personally attend one to two dozen events a year.

Crowd Management Strategies also manages the Crowdsafe Database, the only publicly available database tracking concert incidents and safety issues. On the Internet, Crowd Management Strategies runs Crowdsafe.com, the most influential website on event and concert crowd safety issues. In 2002, the site attracted 70,000 visits from people in 94 countries, according to WebTrends Inc.

I am a member of the National Fire Protection Association's Life Safety Technical Committee on Assembly Occupancies. I am also a member of South Africa's National Standards Technical Committee 184: Health and Safety at Live Events. This government group is currently drafting a national event safety guide.

I have assisted in the development of crowd safety legislation in the US and have contributed to the development of event safety in Europe. This includes contributing to the British Event Safety Guide. Crowd Management Strategies guidance has also inspired new standards of care in Australia.

Following the 2000 concert crowd crush tragedy at a Pearl Jam concert at the Roskilde Festival in Denmark, the Danish Ministry of Culture invited me to address its special committee on festival safety. Later the Roskilde Festival organizers requested that Crowd Management Strategies produce a crowd safety brochure exclusively for spectators. To date, a quarter million or more copies of that publication have been distributed in Europe.

My career in crowd safety began December 3, 1979, the night 11 people were crushed to death at The Who concert in Cincinnati, Ohio. A few days later I was appointed chief of staff for the citizen task force established to make recommendations that would provide the necessary safeguards for future concert events. It fell upon me to write the report for the task force. The task force report, with its more than 100 recommendations, was a huge success and remains today the concert crowd management guidance for conscientious venue operators and promoters.

I mention all this, so that you might better understand the basis of my opinions.

4. What did not happen

I have been asked not to address the particular fatal miscues that I think triggered the tragedy at The Station. But, I do want to comment on the way the victims—and by that I mean everybody at The Station—have been misrepresented when it comes to how they responded as a group to the deadly dangers they faced.

This is important because unless we use language accurately to describe what happened, we will be hampered in our efforts to prevent a recurrence.

First of all, recognizing danger at concerts and other pop culture events is not as easy as some people think. This certainly was the case at The Station. Looking at the now famous video of the start of the Great White pyrotechnics fire, many people wonder why the audience did not immediately recognize and respond to the wild flames that swept over the walls and ceiling of The Station.

Rock fans, especially those who follow heavy metal artists—including the Great White—know that exaggerated theatrics are very much a part of a performance. Outrageous outfits, set designs, sound levels, lighting and pyrotechnics are meant to shock and disorient audiences. Getting concert crowds to question whether what they see is real or not is part of the show. Add alcohol to the mix and accurately assessing danger becomes even more difficult for spectators.

In 1996, the Metallica tour was a classic example of how stage theatrics could be taken to an extreme. The heavy metal band's surprise concert ending was described by an entertainment publication (Kerrang!, "Damage Incorporated," October 26, 1996, p. 29) this way:

It happens during [the song] 'Enter Sandman'. A small part of Metallica's...lighting rig catches fire, sending two roadies scurrying to put the flames out. As...Sandman reaches its climax, one of the lighting pillars on Metallica's second stage collapses as a roadie appears to fall from the rig across the stage. Suddenly, there's another roadie aflame, as sparks fly and Metallica appear to run for their lives, ducking into the pit under the...stage.

The arena is plunged into darkness as thousands of...fans look on awestruck. Is [lead singer] James Hetfield injured? Why was [drummer] Lars Ulrich holding his head? What the hell is going on? Is this for real, or what?

Researchers have also documented the confusion that audiences at pop culture events have experienced in recognizing danger. This was the case when researchers investigated the 1998 Gothenburg, Sweden, dance club fire that killed 63 young people and injured more than 200. In

the paper "The Behaviour of Young People in a Fire at a Dance Party in Gothenburg in 1998," researchers (Staffan Bengtson, Goran Holmstedt, Ph.D., Lena Kecklund, Ph.D., and Henry Lorin, MD) wrote:

The first signs of fire reported by the guests were a strange, pungent and unpleasant smell, similar to the smell of paint or solvent...Later, in addition to the smell, observations of smoke were made. Some people interpreted these indications as signs of a discharge of teargas or of smoke coming from the smoke machine. Remarks were made among the guests about the smell and some people joked about it.

Second, the word panic has been used to describe the crowd reaction to the fire at The Station. A determination to survive, or find safety, is not panic. Video footage of the early stages of emergency egress from the Great White concert fire shows concertgoers leaving calmly when safe haven was perceived in reach.

The internationally renowned British researcher, the late Dr. Jonathan Sime (BA MSc Phd C. Psychology) speaking about the misconceptions of crowd panic, wrote in "Crowd Safety Management and Communications in Disasters":

The crowd disaster scenario promoted in newspapers and disaster movies suggests that at the slightest sign of danger a crowd 'panics', in the sense of irrational flight behaviour towards an exit, culminating in a crowd crush. It has been argued by Sime (1980/90) in a review of the concept of 'panic', and by other disaster research psychologists and sociologists, that far from being 'irrational', flight behaviour is usually rational from the perspective of crowd members warned of a danger too late to leave in an orderly fashion. Unfortunately, the expectation that people will panic, leads to delays in warning the public in disasters, which in turn makes flight behaviour the only logical response once a potential threat gets out of hand. Sime (1980/90) has suggested that the concept of 'panic' is used as a way of blaming the public after the event, as a 'let-out clause' for

anyone in an official capacity (e.g. architect, engineer, designer, manager, fire authority, police etc.) who might otherwise have to accept responsibility for the loss of life.

5. The cornerstones of public assembly safety

Based on the spectacular images from the night of The Great White concert, it makes sense that attention was immediately drawn to issues of fire safety and building code compliance and enforcement, or the lack thereof. And, it makes sense now that there is a refreshing debate about new safety research, new standards of care for audiences, and a new appreciation for fire and building safety at places of public assembly.

The bright flames that lit the West Warwick skies should not blind us from the other dangers that contributed to the February 20 horror. Next to the nightmarish fire scenes, the most vivid images are of the helpless concertgoers caught in a crush at The Station's front door. An image similar to the E2 club entrance a few days earlier.

The front door pileup, tells crowd safety professionals a lot about the hidden dangers that are often overlooked at concerts—like crowd capacities set too high, events not suited for the venues they are held in, festival seating, and the absence of proper crowd management and evacuation procedures.

When addressing public assembly safety in the aftermath of The Great White concert, Chicago's E2 club cannot be ignored. On the surface, the two tragedies within the same week appear to have nothing in common. But, that may be the point. Because for all the differences between the two calamities, they are linked by one common fatal flaw: failed crowd management. In other words, the lack of proper emergency evacuation and egress. This is not surprising. Crowd mismanagement is the most frequent cause of, or contributor to, major pop culture disasters and disorders in the past 50 years. That is why no public assembly safety plan can be called complete without a crowd management component.

6. Rock and roll's shameful history of disasters

For the statistician, the Great White concert tragedy is simply one more incident in a long list of preventable crowd mishaps that have injured tens of thousand and taken the lives of hundred of rock and rap fans since 1952, the dawn of rock and roll concerts.

When people recall major US rock concert tragedies they usually think of The Who concert in 1979 (11 dead), the AC-DC concert in 1991 (3 dead), the Public Enemy concert in 1987 (2 dead) and Woodstock in 1999 (an estimated 10,000 first aid casualties). Of course, there are many other incidents that have not receive national media attention because only one or two people died; or, only a few people were sent to hospital with critical injuries.

Each year, Crowd Management Strategies releases a representative list of the worst concert incidents in the US and worldwide. Over the last decade, 275 events have been chosen for review. These concerts and festivals have produced 62,520 first aid casualties. Over that same period, 213 crowd safety-related deaths have been recorded. These numbers do not include Great White concert or E2 club statistics.

That is not all my research has shown. Over my nearly 25 years studying and participating in concert and festival crowds, one observation has remained true. That by in large, concertgoers believe regardless of the dangers and disorders they face, their safety is being looked after by venue operators, promoters, security and artists. In other words, concertgoers think some invisible safety net will be unleashed at the moment of critical need to remove them from danger. This is rock and rolls' illusion of safety and it has been allowed to exist in Rhode Island and in too many communities across the nation because the unique needs of live entertainment crowds are not being addressed.

7. Obstacles on the path

While sympathy for the victims of the Great White concert tragedy is universal, support for new and more effective standards of care for live entertainment events is not. That is why throughout the US and around the world the pop culture industry, particularly the live entertainment

segment, is waiting to see what actions Rhode Island takes. The impact is expected to ripple throughout the world.

Will Rhode Island follow in the footsteps of Cincinnati, Ohio, where innovative public assembly legislation after the 1979 Who concert tragedy has prevented the recurrence of concert venue disorders for nearly a quarter of a century? Or, will Rhode Island be persuaded by the powerful local and national concert and nightclub special interests that say nothing significant in the way of new standards of care or crowd safety legislation should be adopted?

When seriously proposals for new safety legislation and code standards are presented, they will meet with opposition from the live entertainment lobby. This is the way it has always been.

Legislators will be told that any substantive initiative could cause economic hardship or drive owners of concert halls and clubs out of business. Yet, lawmakers will not be shown the business ledgers upon which such dire claims are supposedly based.

Legislators will be told that the concert and nightclub groups will take action to solve "the problem" this time. But they will not show lawmakers a definitive plan-of-action because they have none. And they will not be able to explain away why equally emphatic public promises to make events safer went unfulfilled after The Who concert tragedy, the AC-DC concert tragedy and throughout the 1990s, when reckless concerts and festivals environments sent thousands of people to first aid, hospitals and some to their death.

The live entertainment industry may even say that their venues and events are safer today. But, they won't be able to prove the assertion because the concert industry as a whole does not keep injury or event disorder data. And those organizations and promoters who do keep records, refuse to release them to the public.

Legislators will be told by the live entertainment industry, neither they nor public safety officials have the expertise to determine what type of crowd safety procedures should be enforced.

Hopefully, public officials will see the irony in the statement by an industry that adheres to no national crowd safety guidelines. Or, whose members, for the most part, have no formal or qualitative training in risk assessment, crowd management or fire safety.

Legislators will be told that the concertgoers and clubgoers like the type of environment that contributed to the February 20 disaster. But they will not explain that music fans are not given a voice or a choice in such matters.

Finally, you may have noticed that the live event industry has been conspicuously absent from the public debate on safety. This certainly was the case in March, when the National Fire Protection Association held a much publicized special public hearing and special meeting in Boston for its Technical Committee on Assembly Occupancies. The gathering was for the specific purpose of addressing the Great White concert and E2 club tragedies. Not one leader representing concert promoters, venue owners or operators or event security firms or artists was present. In fact, the voting members of the NFPA Technical Committee representing US venue managers did not even show up for the meeting.

8. Recommendations

Sixteen safety recommendations for small and large live entertainment venues are presented for the commission's consideration. Many of the suggestions are taken from existing policies, procedures and legislation. Other recommendations are based on workable approaches. Any of these suggestions, or all of them, would make a substantial contribution to the safety of Rhode Islanders attending live entertainment events.

Crowd Management Strategies recommends:

1. Adopting the National Fire Protection Association's Life Safety Code 101 standards in whole, or its many relevant standards addressing such things as, emergency egress, ingress, standing room environments, crowd managers, fire sprinklers and the use of Life Safety Evaluations.

2. Establishing new legislation that requires the licensing of facility operators to prove competency in, among other things, risk assessment, fire safety, emergency medical, crowd management, emergency evacuation, building and fire codes, security and alcohol management. (A licensing fee could help underwrite additional venue inspections by Rhode Island safety enforcement agencies.)
3. Establishing new legislation that requires the licensing of live entertainment promoters to prove competency in, among other things, risk assessment, fire safety, emergency medical, crowd management, emergency evacuation, building and fire codes, security and alcohol management. (A licensing fee could help underwrite additional venue inspections by Rhode Island safety enforcement agencies.)
4. Increasing statewide funding for fire and building departments to increase the frequency of safety inspections during evenings and weekends.
5. Posting the names of venues with serious public safety violations on the Rhode Island state fire marshal's website.
6. Creating an annual facility license for small and large public assembly venues. Such a license would document important data about the venue including, its use, type and location of fire and emergency medical equipment, the names and telephone numbers of officers, the layout, occupancy capacity, crowd management plan and emergency evacuation plan. (A special city interdepartmental committee would approve licenses.)
7. Ending the practice of "grandfathering" and/or other exemptions that allow increases in occupancy capacities in existing buildings when converted to new or larger places of public assembly without corresponding fire, building and crowd safety upgrades.
8. Requiring sprinkler systems at places of public assembly.
9. Establishing heftier fines, including criminal prosecution, for violators of laws protecting public assembly audiences.

10. Increasing qualifications necessary to obtain a private security license for firms providing public assembly security by mandating competency in risk assessment, crowd management and emergency evacuation.
11. Requiring venue management (or the event promoter) to submit first aid incident data to the appropriate state agencies. This data would help police, fire and paramedic services better allocate resources by providing advance information about the type and frequency of incidents that occur at public assembly venues. The requirement would also alert state and local safety authorities to problematic venues and events.
12. Applying for state and federal grants for safety research, public education and crowd management training for public safety agencies.
13. Promoting a telephone hotline number or email address exclusively for public comments or complaints about non-emergency safety problems observed at clubs, concert halls and other public assembly venues.
14. Creating a public education program on crowd and fire safety for broadcast on public access cable channels and for the public schools.
15. Producing a special club and concert safety awareness brochure for the public.
16. Creating a memorial honoring the victims of the Great White concert tragedy. This could take the form of a plaque, sculpture, garden or crowd safety programs for venue operators, public safety officials and young people.

9. Conclusion

Just two and a half months ago a horrible and preventable calamity struck Rhode Island. One hundred innocent people died and hundreds more were injured and traumatized. What had started as a fun evening of music and camaraderie ended as rock and roll's worst concert disaster.

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This commission and the state legislative bodies it represents, has set for itself a difficult path at a turbulent time. It is upon the shoulders of this body and other groups to identify and enact the safeguards in fire, building and crowd safety that will protect Rhode Islanders and tourists from future Station travesties or, for that matter, anything similar to it.

Last month, when I met with Chicago's special E2 club safety panel, I mentioned that the lessons of history are clear when communities are faced with devastating tragedies. In each case, where government, community leaders and citizens recognized the need to worked together for long-term solutions, the benefits of that cooperation were enjoyed by future generations.

It appears Rhode Island has learned this lesson well.

10. Twenty-five documents from the Crowdsafe Database presented to the Joint Commission to Study all Aspects of Law and Regulation Concerning Pyrotechnic Displays and Fire Safety

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2. Paul Wertheimer, "The Who Rock Concert Tragedy: When Rock Concert Crowd Management Came of Age," Engineering For Crowd Safety, Edited by Roderick A. Smith and Jim F. Dickie, (Elsevier, Amsterdam, 1993), pp. 109-118.
3. Paul Wertheimer, "Presentation to the Independent Review Panel of Building Safety Enforcement Powers," (Chicago, Illinois, April 17, 2003).
4. "Eleventh Rock Concert Safety Survey," Crowd Management Strategies news release, (Chicago, March 24, 2003).
5. Paul Wertheimer, You and The Festival Crowd, (Roskilde Festival, Roskilde, Denmark, 2001-2003).
6. Anthony DeBarros, "Concertgoers push injuries to high levels," USA Today, (Vienna, Virginia, August 8, 2000), p. 1D-2D.
7. "Compiling Concert Safety Statistics," International Association of Assembly Managers, (Coppell, Texas, October 26, 2000).
8. "Boy's death leads to new concert safety legislation," Loma Linda University Medical Center news release, (Loma Linda, California, February 25, 2000).
9. Paul Wertheimer, "Play It Crowdsafe: Crowd Management Strategies' Ten Predictions for 2000 and Beyond," Crowdsafe newsletter, (Chicago, November/December 1999).

10. "Britain Updates Its Concert Guide," Crowdsafe newsletter, Crowd Management Strategies, (Chicago, November/December 1999), pp. 3-4.
11. "Who's next?," The Cincinnati Enquirer, (Cincinnati, Ohio, January 4, 1994).
12. "The National PTA, Where We Stand (Festival Seating – 1992 Resolution)," National PTA, (Chicago, October 1992).
13. Editorial: Festival Seating: Still A Bad Idea," Billboard magazine, (Los Angeles, February 9, 1991), p. 9.
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15. Press statement regarding the North American Concert Promoters Association meeting in Phoenix, Arizona – February 1-3, 1991," North American Concert Promoters Association, (New York, February 5, 1991).
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17. "I.A.A.M. Plans Crowd Control Study," International Association of Assembly Managers news release (Seattle, August 18, 1980).
18. "Crowd Management Questionnaire," City of Cincinnati (Cincinnati, Ohio, April 30, 1981).
19. Crowd Management: Report of the Cincinnati Task Force on Crowd Control and Safety, City of Cincinnati, (Cincinnati, Ohio, July 8, 1980). *This report is also available on the Internet: <http://crowdsafe.com/taskrpt>.*
20. Ordinance No. 439, Facility for Public Assembly License, City of Cincinnati (Cincinnati, Ohio, October 29, 1980).

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21. "Application – Facility For Public Assembly License," City of Cincinnati (Cincinnati, Ohio, December 1980).
22. Ordinance No. 66, "Prohibiting the sale of tickets...over the capacity of said places of assembly," City of Cincinnati, (Cincinnati, Ohio, February 27, 1980).
23. "No Way Out: A Closer Look," FOX Chicago News (Chicago, IL, February 21, 2003).
24. Rock Festival Safety, Ministry of Culture, Denmark (Copenhagen, Denmark, December 2000).
25. Curriculum Vitae of Paul Wertheimer, Principal, Crowd Management Strategies (Chicago, IL, March 2003).