

Special Report

TRANSPORTATION AND THE TERRORIST THREAT

by

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2003

**THE
STROM THURMOND
INSTITUTE**



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It has been often noted that aside from the printing press, transportation inventions and innovations have contributed more to the betterment of mankind than inventions and innovations in all other fields of endeavor. If the above is even partially granted then it would seem logical, from a terrorist point of view, that a nation's transportation infrastructure and capabilities would be likely targets. But are all transportation assets high on a terrorist's list of targets? Or just some?

Before addressing that question it must also be noted that America's transportation systems are assets of immense value in our war against terrorism in that resources, including personnel, can quickly move from one location to another depending upon immediate requirements. The value of this mobility cannot be overstated and is certainly appreciated by terrorist organizations.

There are, however, other terrorist targets besides transportation assets which raises the question of how to prioritize likely targets while recognizing that our assumptions about targets are not necessarily those of a terrorist.

Target Characteristics

Target options in terms of numbers. e.g. nuclear power plants are multiple targets but still limited in number while airplanes are almost infinite. In terms of *security* nuclear power plants as well as airplanes flying at 36,000 feet would be difficult to successfully attack, while a moving highway vehicle such as a Greyhound bus could be expected to have only routine security. (1)

In terms of *geographic area impact*, from a terrorist viewpoint, the larger the better. Thus, a successful attack on a nuclear plant, assuming a radiation spread such as was the case at Chernobyl, would have a regional if not national impact while a successful chemical attack on a small town's local water supply would have only a local geographic impact. (2)

Damage to the target and national economy would also be a consideration with respect to a terrorist's list of possible targets. Bringing down a large passenger plane might seem local in geographic impact and the economic loss relatively small, the financial impact on the airline industry would be profound. One has only to examine the financial status of many American airlines before and after 9-11, admitting that many of the country's carriers prior to 9-11 were in financial difficulty. By the same reasoning, a successful attack on the New York Stock Exchange would have consequences far greater than the damage to the building itself. There are many similar cases where damage to a target might be relatively small but the political/psychological impact quite large.

Casualties would rank high in target selection. The successful attack on the World Trade Center and Pentagon, with casualties in the thousands, caused a national trauma, the effects of which will continue for years. The same could be said about the 1995 attack on the Murrah Federal Building in Oklahoma City. (3) On the other hand, casualties from derailing a freight or passenger train would be relatively small.

The political and psychological impact of a successful terrorist attack is perhaps the most important of all considerations. Terrorists could claim a major victory should Americans lose faith in their government's ability to protect them. The political/psychological impact of a successful attack on a hard target such as the Pentagon, the Statute of Liberty, the White House or the nation's Capitol would be psychologically devastating.

Within target categories, however, the psychological impact can be markedly different. A successful attack on a major airport, here considered a hard target, would be much greater than an attack on a rail, ocean or water terminal pre-

cisely because multi-millions of dollars have been spent to secure major airports.

In the end our view of what is a likely terrorist target cannot be taken to be the same as those of the terrorist. Over time their objectives can be expected to change depending upon circumstances, which in turn will change their choice of targets; changes which cannot be accurately forecast. And since we cannot provide maximum security for every possible target, we have no choice but to identify and prioritize targets and allocate resources accordingly. This, however, presents a difficult problem for those charged with homeland security. While we can make changes at the margin depending upon intelligence, we cannot constantly shift major resources from one possible target to another. Thus, if we consider nuclear power stations likely targets, resources allocated to their security will not change appreciably over time. On the other hand, a terrorist has the advantage of flexibility in target selection as well as flexibility in allocating the necessary resources to attack the target.

Transportation Targets

Transportation targets are almost infinite in number ranging from the highly visible 747 aircraft to the tens of thousands of private and business aircraft; from large containerships to inland waterway barges. And from 18 wheel tractor-trailers to a FedEx delivery vehicle. The above are examples of the “vehicle component” of a transport system. (4) The “path component” includes highways, bridges, tunnels, air control systems, airports, railroad beds, and air, rail, highway, inland waterways, pipelines, and ocean terminals. And while the number of targets is almost uncountable, no single one can be absolutely ruled out. But at the same time, while overwhelming numbers make it impossible to protect all possible targets, the multiplicity of targets also presents the terrorist with a dilemma. While derailing a train, hijacking a bus or business aircraft, destroying a highway inter-change, or local airport, detonating a bomb in a container yard or section of pipeline might not be difficult, attacks on soft targets would be an indication of terrorist weakness, not strength.

Transportation Targets From A Terrorist Point Of View

This section examines selected transportation targets in terms of number of possible targets, geographic area impact, damage to the economy, casualties, and political/psychological impact, It then evaluates the pros and cons of attacking a particular target from the terrorist point of view. The weapons used are assumed to be those most effective against a chosen target and, from a defensive viewpoint, assumed to be reasonably predictable. (5)

Individual surface carriers—tractor-trailers, buses, trains, ships, barges, and pipelines are considered to be soft targets. But as noted above, an attack on a Greyhound bus could be interpreted as weakness on the part of the terrorist. This perception, however, could be partially overcome by simultaneous or near simultaneous attacks on multiple soft targets. e.g. ten Greyhound buses, half a dozen train derailments, attacks on subways in several large cities, attacks on two or three merchant ships, and so on. Such attacks, however, would require a high degree of coordination among terrorist cells that, by design, operate independently.

Concluded is that coordinated attacks against multiple surface carriers is, at present, unlikely. In this respect, geographic impact would be local, damage relatively light, casualties minimal to moderate, and political/psychological impact moderate when compared to other targets. Also, the necessary communications between cells to coordinate an would attack would markedly increase the probability of detection and failure.

Surface terminals, excluding airports. Compared to other highly visible targets such as nuclear plants and high profile government installations, surface terminals are relatively unprotected although efforts are on-going to improve security. The geographic impact of a successful attack against an ocean shipping terminal, for example, would be local, damage to the target and economy would be relatively light, i.e., unlike airline passengers, importers and exporters would be unlikely to decrease their use of ships in international trade. Casualties would be minimal and the political/psychological impact moderate.

Large civilian passenger planes and major airports. Of all possible terrorist targets, more funds have been spent on security for these transportation assets than for all others, including non transport targets. These assets are considered hard targets. In this context, a successful attack on a loaded, large passenger airliner would more than meet terrorist goals of damage to the economy; have a national geographic impact, as well as cause major political/psychological consequences.

A successful attack on a major airport would have only slightly less political/psychological impact as a successful attack on a plane, but would still be considered a major success if only because so much has been spent on airport security.

It has been almost two years since the 9-11 attacks on the World Trade Center and the Pentagon, yet no terrorist attacks have occurred within the United States. However, intelligence sources, homeland security officials and national leaders warn it is only a matter of time and that when it occurs it will be against a target that will have a national impact. In this context, an attack against a large, loaded passenger aircraft is considered to be a high priority terrorist target. Even more likely are multiple attacks on large passenger aircraft on the ground or during takeoff when they are most vulnerable. Only one step down is an attack on a major airport or airports. Should, however, such attack(s) fail, it is then likely that softer targets will be given increased priority *but not until an attack or attacks on a major target fails.* (6)

Large bridges and tunnels. Immediately after 9-11 and on to the present, intelligence sources have warned that high profile bridges such as San Francisco's Golden Gate bridge, New York's Brooklyn bridge, and Washington, D.C.'s Potomac bridges. are likely terrorist targets. Depending on the level of the Homeland Security alert. e.g. "elevated," etc., such bridges have been provided with additional security as have major tunnels. e.g., New York's Holland and Lincoln tunnels.

The number of high profile bridges and tunnels that would be considered acceptable terrorist targets is not large when compared to other major targets.

e.g., hub airports. That said, the payoff for a successful attack on a large bridge or tunnel would be the political/psychological impact precisely because we have identified them as likely targets and have taken a number of measures to insure their security. But like surface transport vehicles, an attack on smaller bridges and tunnels could be interpreted as a sign of terrorist weakness. In either case, geographic area impact and damage to the national economy, would be minimal. Casualties would number in the dozens, not hundreds or thousands.

Non-Transport Terrorist Targets

While the below is not an exhaustive list, it does represent a fair sample of likely targets as identified by the Department of Homeland Security and recognized terrorism experts. Large payoff targets include:

- * Nuclear power plants
- * Water supplies for large cities
- * Bio-chem attacks on large population
- * Large sports venues
- * Large shopping malls
- * High profile Federal and state government buildings. e.g. main post offices in large cities.
- * Commercial high rise buildings. e.g. New York's Empire State, the Sears Tower in Chicago and large hotels and condominiums.
- * High profile national monuments. e.g. Statue of Liberty.
- * Power systems for large cities.

- * Communications systems serving large populations. e.g. the internet.
- * Large oil refineries/chemical plants

With the exception of nuclear power plants, each of the above has a low profile, less important counterpart. e.g., small sports venues, small shopping malls, and water supplies for smaller cities and towns. But like 2d order transportation targets, an initial attack on these assets, instead of an attack on a major target, could be perceived as a terrorist weakness.

Transportation Targets In the Context of All Terrorist Targets

Transportation targets (from a terrorist point of view) that rank equally with nuclear power plants, large sports venues, and other major non transportation targets cited above include:

- * Large, loaded passenger aircraft, including foreign flag international carriers while landing, during takeoffs, and loaded on the ground. (7)
- * Major airports/hub airports
- * High profile bridges and tunnels
- * Large, loaded cruise ships

Secondary transportation targets include:

- * Major surface transport terminal
- * Regional airports
- * Loaded commuter aircraft
- * AMTRAK passenger trains

- * Major pipelines

Least likely transportation targets, assuming no terrorist failures against major targets, include:

- * Individual surface carriers

- * Small-medium size surface transport terminals

- * Small-medium size bridges and tunnels

Conclusion

- * Secondary transportation targets will become priority targets only after failed attempts against major targets. But should such attacks occur they will be random and extremely hard to defend against primarily because they number in the tens of thousands.

- * It is unlikely that a terrorist group would deliberately plan to take transport passengers hostage. First, hostages receive worldwide sympathy even among populations that support terrorist goals. Second, all major powers have, more or less, pledged not to negotiate with terrorists. It would, however, be remiss not to note the extreme pressure on the final decision maker be he/she a president, prime minister or monarch, should they be faced with trading X number of prisoners/detainees say, for example, 3,000 cruise ship passengers. The only exception to the above conclusion regarding hostages would be when the hijacked vehicle becomes the means for destroying a target. e.g., passenger planes used as bombs to attack the World Trade Center.

- * Should secondary transportation targets become primary targets, funds to improve their security will become a major issue at all levels of government. No comprehensive federal plan could provide such security, much less fund it.

Simply put, there are just too many targets. It follows that the primary responsibility for the security of secondary transport assets will be tasked to the private sector, and state and local governments. Funding options include user taxes, as in the case of airlines/airports, or local, state or federal tax credits or subsidies.

*The best defense against terrorist attacks on transport and non transport targets is pre-emptive intelligence and extraordinary cooperation between the private sector, local, state, and federal government. More effort and money must be spent on intelligence while abandoning “Maginot Line” thinking, i.e., trying to make every likely terrorist target in the United States impregnable.

*In July 2003, only eight percent of Americans ranked terrorism as their primary concern mainly because no terrorist attacks have occurred since 9-11. This is a dangerous naivete. That major attacks are coming is not in dispute among those charged with responsibility for homeland security. It is only a matter of time.

NOTES

(1) It has been suggested that plane hijackers might be able to modify presently allowed cabin items into weapons or bring explosives aboard concealed in such items. While this possibility is recognized it is also recognized that counter measures can be quickly implemented, i.e. when it is demonstrated that any “common” item can be converted into a weapon, such item(s) would not be allowed in carry-on luggage.

(2) The meltdown at the Soviet Union’s Cheyrbnoble nuclear plant on April 26, 1986 caused 31 known deaths and the evacuation of 135,000 persons. Radioactive material was spread over wide areas of Europe.

(3) On April 19, 1995, the Murrah Federal Building in Oklahoma City was destroyed by American terrorists with no known connection to foreign terrorist organizations. The attack killed 168 people.

(4) In the United States there are 5,000+ passenger and cargo air carriers, 204,000 general

aviation aircraft, and 19,000 airports of all types.

U.S. flag vessels of all types (over 1,000 gt) number 3800 of which 440 are ocean-going. There are 50 major seaports that handle 11+ million tons annually.

There are almost 4 million miles of highways in the United States with 425,000 bridges in use. Commercial buses number 140,000 and there are 8 million large trucks (2axle, 6 tire and combinations).

The rail system is composed of 121,000 miles of track, excluding sidings, yards and parallel track. There are 20,000 locomotives and 560 thousand freight cars.

There are 152,000 miles of pipeline.

Source: *Statistical Abstract the United States 2002, 122nd ed. U.S. Census Bureau, Washington, D.C., 2002.*

(5) Terrorists could attack a subway system with either explosives or bio-chem weapons, while an attack on a major bridge or tunnel would be with explosives. The most likely weapons to attack large passenger aircraft are explosives and surface to air missiles. An attack on a transport terminal would most likely with explosives although a bio-chem attack cannot be ruled out.

(6) While knowledgeable individuals agree on a list of likely terrorist targets, there is disagreement on what is a priority target from a terrorist point of view. The opinion of this author is that a large, loaded aircraft(s) is the number one terrorist choice, hence the prominence given the target in this paper.

It should also be noted that my conclusion that secondary transportation and non transportation targets will be attacked only after unsuccessful attacks against major targets has not, to my knowledge, been publicly discussed.

(7) It is argued here that a loaded aircraft is most vulnerable when it is landing, taking off, or on the ground waiting to take off or unload passengers. In this respect, when landing or taking off, the plane's speed is 250 mph or less. In both cases, the course is in a straight line making it considerably less difficult for a shoulder-held missile such as a stinger, to seek and destroy its target. It also might be noted that these weapons were enormously successful against low-altitude Soviet aircraft during the Russo-Afghan conflict in the 1980s.