

Does “See Something, Say Something” Work?

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Image Source: https://commons.wikimedia.org/wiki/File:If_you_see_something,_say_something_42nd_street_subway.jpg

EXECUTIVE SUMMARY

Do “See Something, Say Something” programs work? The evidence strongly suggests that in the specific case of public surface transportation, the answer is “yes.”

Transport staff and passengers play an important role in the prevention of terrorist attacks. By discovering and reporting suspicious objects, they have prevented more than 10 percent of all terrorist attacks on public surface transportation. Detection rates are even better in the economically advanced countries where more than 14 percent of the attempts are detected—and have been improving.

This suggests that “See Something, Say Something” campaigns are worthwhile. The following are the key findings from an analysis of detections since 1970.

- Overall Detection Rates: On-site police, security personnel, transportation employees, train and bus passengers, and ordinary citizens have prevented 10.6 percent of the 5,372 terrorist attacks on train, bus, track and road targets in public surface transportation systems since 1970. Of the prevented attacks, 99% involved the discovery of suspicious packages that almost always turned out to be functioning bombs.¹
- Suicide bombings: Although it would seem that suicide bombings, where the device is concealed on the bomber would be more difficult to detect than explosive devices left in public places where people may discover them, the data show that the rate of detecting suicide bombers at 13.8 percent is better than the rate for detecting devices left by non-suicide attacks, which is 10.6 percent. And in Israel and the West Bank & Gaza Strip, which have experienced a disproportionate share of suicide bombings—63 (or 18 percent) of the world's total of 195—the record of detection at 19 percent is considerably higher than the world average for detection of non-suicide devices. The rate of detection of the 128 suicide bombings in all other countries excluding Israel is 11.7 percent, which is comparable slightly higher than the detection rate for non-suicide attacks which is 10.2 percent. This suggests that programs designed to detect suicide bombers can be effective. Although suicide bombers, when confronted, often still detonate their devices, the resulting casualties are far less than if they had detonated their bombs at the intended target.
- Geographical Differences: Group One countries (those like the United States with high-income economies) have the highest detection rates--14.2 percent. Group Two countries (rest of the world, including Russia and China, but excluding Israel and the West Bank & Gaza Strip) account for far more attacks—4,388 versus 634—and detect only 10.0 percent. Group Three (Israel and the West Bank & Gaza Strip), with only 350 attacks, detect the same—10.0 percent.
- Target Categories: Most of the attacks were directed against buses and bus stations and people waiting at bus stops (2,793), followed by attacks directed at trains and train stations (1,381), then railroad tracks (835), and finally highway targets like vehicle bridges and tunnels (363). The detection rate was highest when railroad tracks were targeted (17.6 percent) using bombs or mechanical sabotage, lowest when bus targets were involved (6.6 percent), and in between for train targets (13.5 percent) and road targets (12.9 percent). Except for bus targets elsewhere, and train targets in Group Three, the detection rate for each target category is highest in Group One Countries.
- Changes in Detection Rates by Target Category: Since 1980, the worldwide detection rate has improved for attacks on train and track targets, but has declined for both road and bus targets, with the decline for bus targets being slight.
- Changes in Detection Rate by Target Category and Geography: With the exception of 14 road attacks—a number too small to reveal trends—Group One countries have shown the greatest improvement, and the detection rates for track targets is approaching 30 percent, and 20 percent for train targets. Meanwhile, detection rates in Group Two countries are approving for all target categories; Finally, for Group Three countries (Israel)

¹ There are a few cases – only eight – in which the device found had failed to detonate; there were also eight hoax devices, left to disrupt. These are counted.

the detection rate has declined for bus targets and increased for train targets. (There were no road attacks and only one track attack so no trends are reported.) However, if the time frame begins at 1990 instead of 1980, there is some improvement for detection of attacks against bus attacks, and a slight decline for train targets.

- Who is Detecting the Devices: In roughly half of the preventions, researchers were not able to determine who was responsible for the detection. Worldwide, police and security personnel account for approximately 28 percent of the detections. Transportation employees (other than security personnel) and passengers account for approximately 21 percent. Some of the unknown detections could be additional finds by employees and passengers.
- Categories of Detectors and Target Categories: Worldwide, transport employees and passengers play the greatest role in detecting attacks on bus targets (29.7 percent of the detections) and train targets (23.5 percent).
- Categories of Detectors and Geography: Passengers, other citizens and transport employees account for the highest share of detections for attacks on bus targets in Israel and the West Bank & Gaza Strip. Meanwhile, in Group One countries, transport employees, citizens, and passengers on train and bus systems account for 30.4 percent and 28.6 percent respectively of the detections against those targets.

DISCUSSION

During the long IRA (Irish Republican Army) bombing campaign against public surface transportation in the United Kingdom, in particular London's busy train stations and Tube, British transport authorities urged passengers to be alert and notify them of suspicious objects.

Building on this experience, New York's Metropolitan Transportation Authority launched a campaign in 2002 after 9/11, exhorting rail and bus passengers: "If you see something, say something."² Within a few years, similar campaigns were launched across the country. In the wake of a series of deadly jihadist bombings on commuter rail and metro systems in Moscow and Madrid in 2004, London in 2005, Mumbai in 2006, and Moscow again in 2010, other countries adopted their own versions of "See Something, Say Something" program.

Do such efforts work? Specifically, do reported observations by passengers, transport employees, ordinary citizens, and on-site security personnel prevent terrorist attacks? A number of published anecdotes suggest that they do.

A recent account by the Association of American Railways³ offered three examples from New York and New Jersey for the period of September 17–19, 2016—a 48-hour period, although these examples are not confined to public surface transport:

1. *On the morning of Saturday, September 17, in Seaside Park, New Jersey, the report of an unattended bag near the starting line for a 5-K charity race delayed the planned start. As a result, no runners were present when an explosive device planted along the race course detonated. The timer had been set to trigger the blast in expectation of a large passing crowd of runners.*
2. *That evening, in New York City, a pedestrian saw what looked like a pressure cooker with wires protruding. Her timely report prompted an emergency response by police that prevented a second lethal blast in close proximity on the same night. Some 5 blocks away, detonation of a similar device had wounded more than 30 people.*
3. *On the night of Sunday, September 18, two men picked up a backpack outside of a bar and restaurant in Elizabeth, New Jersey. After carrying the bag a few blocks, its weight prompted them to check its contents. Seeing suspicious items, they left the item under a railroad trestle and called police. Responding authorities prevented this explosive from causing harm.*

But what about more empirical evidence? These programs no doubt create a deterrent value, but it is impossible to measure it with any precision. But even a statistical analysis limited to preventions suggests strongly the answer is "yes." Using the database created by the Mineta Transportation Institute, we find that more than 10 percent of the documented attempted attacks on public surface transportation systems worldwide were foiled because some individual at the scene saw and reported something suspicious. The detection rate in the more advanced industrialized countries

² "MTA Security Campaign," New York Metropolitan Transportation Authority Website, accessed November 11, 2018 <http://www.mta.info/mta-security-campaign>

³ Association of American Railways, Railway Awareness Daily Analytic Report (Radar), October 16–20, 2018.

is better than 14 percent, and, overall, it appears to be getting better. But there are also some counterintuitive findings as well as some caveats.

In the following Security Perspective, we examine the data and trends in different groups of countries and in different target categories. This analysis is intended to assist those charged with transportation security in making informed decisions about the efficacy of such efforts.

The British Experience

The British response to the IRA bombing campaign represents one of the most intensive efforts to enlist public assistance in detecting suspicious objects. The long duration of the bombing campaign also allows us to discern trends, and therefore is worthy of review.⁴

The IRA's campaign against public transport in the United Kingdom began in 1973 and continued until 1997. The campaign included both bombings and bomb threats and was intended to remind the British public that the IRA campaign continued, instill alarm, create disruption, and cause casualties, although the IRA rarely sought mass casualties, in contrast with the jihadist extremists who more recently bombed transportation targets in Madrid, London, and Brussels. According to a 2001 case study done by the MTI, during its campaign, the IRA planted 81 improvised explosive devices at transportation targets in Great Britain (a definition which excludes Northern Ireland)—79 of these were hand-placed time bombs, half of which did not work as intended.

Altogether, only three people were killed by IRA bombs on the rail system: one at Victoria Station in 1991, and two on the Docklands Light Railway in 1996. While the IRA often, but not always, provided a coded warning in advance of the bombing to enable evacuations, the low number of deaths is not entirely due to the terrorists' pains to avoid casualties. In fact, the IRA provided warnings for only 11 (or 23 percent) of its 47 attacks. Moreover, the warnings were not always clear and the time allowed for evacuation was not always adequate, but they allowed the IRA to avoid responsibility for casualties by blaming the government. Nonetheless, the primary objective of the bombings was fear and disruption.

The bombs gave the IRA credibility so that its bomb threats could not easily be dismissed. These, along with the inevitable copycats and malicious pranksters inspired by the events, kept the threat level high. As an example, according to the 2001 case study, between 1991 and 1997—the peak of its bombing campaign—the IRA carried out 41 attacks on transportation targets in Great Britain, involving 81 devices, 29 explosions, three deaths, and close to 200 injured. During the same period, there were 6,569 telephone bomb threats. In addition, 9,430 suspicious objects were reported and investigated. The Underground and railroad operators also had to deal with more than a quarter-million items left or abandoned in stations or on trains every year, any one of which might have been a bomb.

The bombing statistics cited above derive from the 2001 case study—completed nearly 20 years ago. Since then, the authors have expanded the database and collected additional details. The MTI does not include thwarted plots or threats, only actual or attempted attacks, so the current numbers will not match the earlier study.

⁴ Brian Michael Jenkins and Larry N. Gersten, *Protecting Public Surface Transportation Against Terrorism and Serious Crime: Continuing Research on Best Security Practices* (San Jose, CA: Mineta Transportation Institute, 2001).

According to the current database, which includes attacks not only in Great Britain, but also in Northern Ireland, there were 79 attacks on trains, tracks, buses or road targets attributed to the IRA or the other hardline dissident groups that succeeded the IRA after they ceased their attacks in 1997; 76 of these attacks involved some type of explosive or incendiary device (a total of 115 devices). Sixty-one of these attacks took place between 1972 and the end of 1997, and the remaining 18 occurred after that, with the last one occurring in 2016; 17 of these attacks occurred between 1998 and 2007. A total of 33 people died in these attacks, resulting in a fatality rate of 0.4 deaths per attack; 300 people were also injured.

In response to this threat, British transport authorities mounted a major security effort, increasing the number of uniformed and undercover police in the transportation system, vastly expanding CCTV coverage, and enlisting rail staff and passengers in reporting suspicious objects. The nature of the threat lent itself to this. The IRA placed most of its bombs in public areas.

Two factors drove public participation: The bombing campaign was not a theoretical threat, but an on-going reality in which bombs were regularly going off in the transport system and elsewhere. Therefore, the constant public reminders through announcements and signage were aimed at an already receptive audience.

But also, public exhortation alone was not adequate. In this pre-cell phone environment, special phones were set up in stations to facilitate prompt communication. Ensuring continued public participation also required a visible response—passengers had to be willing to report their suspicions, communications had to be readily available, and passengers had to witness some kind of response.

Authorities indicated that they could depend on being notified within minutes of any abandoned or left parcel. In eight cases (or 22 percent) of the 47 IRA attacks mentioned in MTI's 2001 study, a bomb was found. However, information was not always available at the time of the original case study to indicate how or by whom the bomb was found. In other words, we do not know whether the discovery was based upon intelligence, on-site security personnel, or alert staff or passengers.

We have analyzed the percentages of detected attacks that involved the IRA, cited above on page 5, to determine who, if anyone, detected a device or stopped an attack. Table 1 breaks down the current data, showing that 35% of attempted attacks were prevented. However, looking only at the 28 attacks prevented, it can be seen that largest number of these attacks were detected because the IRA warned authorities beforehand (13 out of 28 attacks detected, or 46 percent). With the exception of three instances wherein intelligence services, a passenger, and transit employee each found a device, the remaining attacks were prevented by "unknown" persons (12 out of 28, or 43 percent).

Table 1: Detection of IRA Attacks

Detection Category	# of Attacks	% of Attacks	Cumulative %
Not Detected	51	64.6%	64.6%
Detected	28	35.4%	35.4%
Total/Averages	79	100.0%	100.0%
Attacker Warning to Authorities	13	46.4%	46.4%
Unknown	12	42.9%	89.3%
Intelligence	1	3.6%	92.9%
Passengers	1	3.6%	96.4%
Transit Employees	1	3.6%	100.0%
Total/Averages	28	100.0%	100.0%

The security measures had some effect. The IRA gradually abandoned attacks in the heart of London, where police presence, camera surveillance, and alert passengers made the environment hostile, and they retreated to suburban stations and attacks on remote signal boxes.

Passengers on London's Tube did not "see something" in 2005 when suicide terrorists detonated bombs in their backpacks. Some observers thought that this failure was due to declining watchfulness on the public's part eight years after the last terrorist bombing. The failure may also have been due to the fact that passengers had been taught to look for left objects, while the 2005 bombers carried their devices in their backpacks—the visual cue of a left parcel was not there.

The Data Used in MTI's 2018 Analysis

The analysis conducted herein is based on all train, track, bus, and road attacks between January 1, 1970, and the end of 2017, the last year for which complete data are available. The data comprise 5,372 attacks. This figure includes 2,793 bus attacks, 1,381 train attacks, 835 track attacks, and 363 road attacks (which are attacks on highway infrastructure such as vehicle roads, bridges, and tunnels). The figure includes all entries in MTI's own database of terrorist and serious criminal attacks, which incorporates data from START's Global Terrorism Database.

We have excluded the 40 attacks against passenger ferries in MTI's database. (Of these, only one attack, occurring in 2000, was prevented by French security officials.) We have also excluded the more than a thousand pipeline attacks recorded in the database. Finally, five attacks categorized as "other" have been excluded, along with two attacks categorized as "multiple." None of these seven attacks involved any preventions, and their targets are difficult to categorize.

It should be noted that attacks, not devices, are being counted, although the vast majority of attacks prevented involved bombs. Only five (0.3%) of the 1,653 attacks that did not involve bombs were prevented, but 557 (15 percent) of the 3,719 attacks involving bombs were prevented—a far greater percentage. A bomb left on a train, in a station, or along railroad tracks has a better chance of being detected than another attack method. We will return to this point later.

Codes Combined to Facilitate Comparisons

According to MTI's database, attacks detected are coded as a result of any of the following:

- Explosive Ordinance Disposal (EOD) found additional devices after at least one device detonated in an attack
- EOD found devices during a search after an attack, but there is no prior explosion
- EOD personnel on routine patrols along tracks identify a device (one case) before an attack commenced
- Anonymous tip to authorities
- Attacker warning to authorities
- Information gained through intelligence activities
- Police
- Security officials
- Driver or crew
- Transit employees
- Passengers
- Citizens
- Combination
- Unknown

Of these types, we did not count the following as an attack prevented: EOD after no or some devices detonated in attack (because an attack had already started and was not prevented), and cases where the attackers warned the authorities (since warnings are given solely at the initiative of the attacker).

To facilitate the analysis, we have combined the categories listed above into three clusters:

- **Passengers, citizens, and employees** (includes passengers, citizens, drivers or crew, transit employees, and combinations of the above)
- **Security officials** (includes EOD, intelligence, military, police, security officials)
- **Unknown** (includes anonymous tips and other unknown)

Grouping Countries

In most cases, there are not enough incidents to track trends by individual countries, but global statistics can also be misleading. Results driven by what happens in a handful of conflict zones are not always relevant to the specific concerns of those charged with the security of transportation systems, for example, in the United States. What we are looking for here are broad groupings of countries where the level of armed conflict or political violence and availability of resources for security are similar.

However, grouping countries by anything other than continents is inherently contentious. Economic rankings such as “developed” and “less developed” or “developing” are inevitably seen by some as insulting. The reader also has to remember that the database extends over a period of nearly half a century. During that time, there have been numerous political and economic changes.

We have created three groups for comparison:

1. **Group One.** The first group closely replicates those countries that currently have “high-income economies” according to the World Bank. These countries include members of the OECD, all members of the European Union, plus Singapore, Hong Kong, and Macau.⁵ (The database records one incident in Hong and another in Macau.)
2. **Group Two.** The second group comprises all of the remaining countries of the world. In terms of World Bank ratings, this group includes some countries with high income economies like the Gulf monarchies, “upper middle-income economies” like Russia and China, which are not members of the OECD and Mexico, which is a member of the OECD, as well as countries with “low income economies” like Afghanistan and Yemen. The database, of course, includes only countries where attacks on surface transportations have occurred.
3. **Group Three.** Although it has a “high-income economy” and is a member of the OECD, we address Israel by itself, and also include the West Bank & Gaza Strip, owing to the high level of terrorist activity over the years.

Some Important Caveats

Before discussing the findings, some important caveats are in order. The study looks at the contribution to public surface transportation security made by alert passengers, transport employees, and also by security personnel, usually when they are on-scene. It does not evaluate the effectiveness of specific “See Something, Say Something” campaigns. The database goes back to 1970, long before “see something, say something” campaigns existed. Instead, we measure the security contribution of public awareness. We conclude that heightened awareness contributes to the detection and prevention of attacks.

⁵ We recognize that Bulgaria, although a member of the European Union, has not yet achieved a “high-income economy” according to the World Bank, and that China currently has sovereignty over both Hong Kong and Macau. We also recognize the controversy that comes with separating China and Taiwan in any discussion.

The analysis does not offer any conclusions about the cost-effectiveness of “See Something, Say Something” programs. Compared to other security measures, however, such programs are not expensive.

Critics charge that heightening public awareness increases suspicions and leads to false accusations, a different kind of cost to society. The data here deal almost entirely with the detection of suspicious objects or evidence of tampering, not suspicious behavior.

Suicide bombers are the exception. There, suspicion is almost always based upon observations of behavior rather than seeing a suspicious object. As will be discussed later on, Israel, which was the scene of numerous suicide bombings developed training programs to recognize behavioral clues and was able to improve detection. Outside of suicide bombings, there is only one incident in the database where detection resulted from suspicious behavior rather than a suspicious object or evidence of physical tampering. In that case, police observed an individual attempting to start a fire. (In two other cases in Europe, individuals were arrested, based on Intelligence).

It should also be noted that accusations or reports of suspicious behavior are not necessarily the result of “See Something, Say Something,” but occur throughout society and indeed are often baseless. The incidence of suspicious behavior reporting throughout society is beyond the parameters of this analysis.

Finally, the analysis does *not* attempt to measure the deterrent effect of public awareness. There may very well be a deterrent effect—in fact, almost all security measures work primarily because of a deterrent effect—but it is not easily quantified.

As a final cautionary note, the database derives from available reports of an incident. While care is taken to gather as much information as possible, we accept that details of a particular event may not always be accurate. We invite additional information and corrections.

The Questions

The following charts and graphs address three basic questions:

1. What percentage of attacks have been detected in these three geographical areas?
2. Has this percentage increased or decreased over the years?
3. Of the attacks detected in each group of countries, what percentage of detectors were known to be “security officials” or “passengers, citizens, and employees,” with the remaining set being “unknown”?

THE FINDINGS

Distribution of Attacks in the Three Comparison Groups of Countries

Figure 1 shows the total number of attacks on public surface transportation targets in the three comparison groups of countries. It should be seen as the backdrop for the analysis of trends. As the figure shows, the volume of attacks approached a peak in 2015 and has declined since. With higher volumes of activity comes greater confidence in the statistics. However, because the numbers per year are still small, and spread over decades, assessments of trends must be based on robust differences.

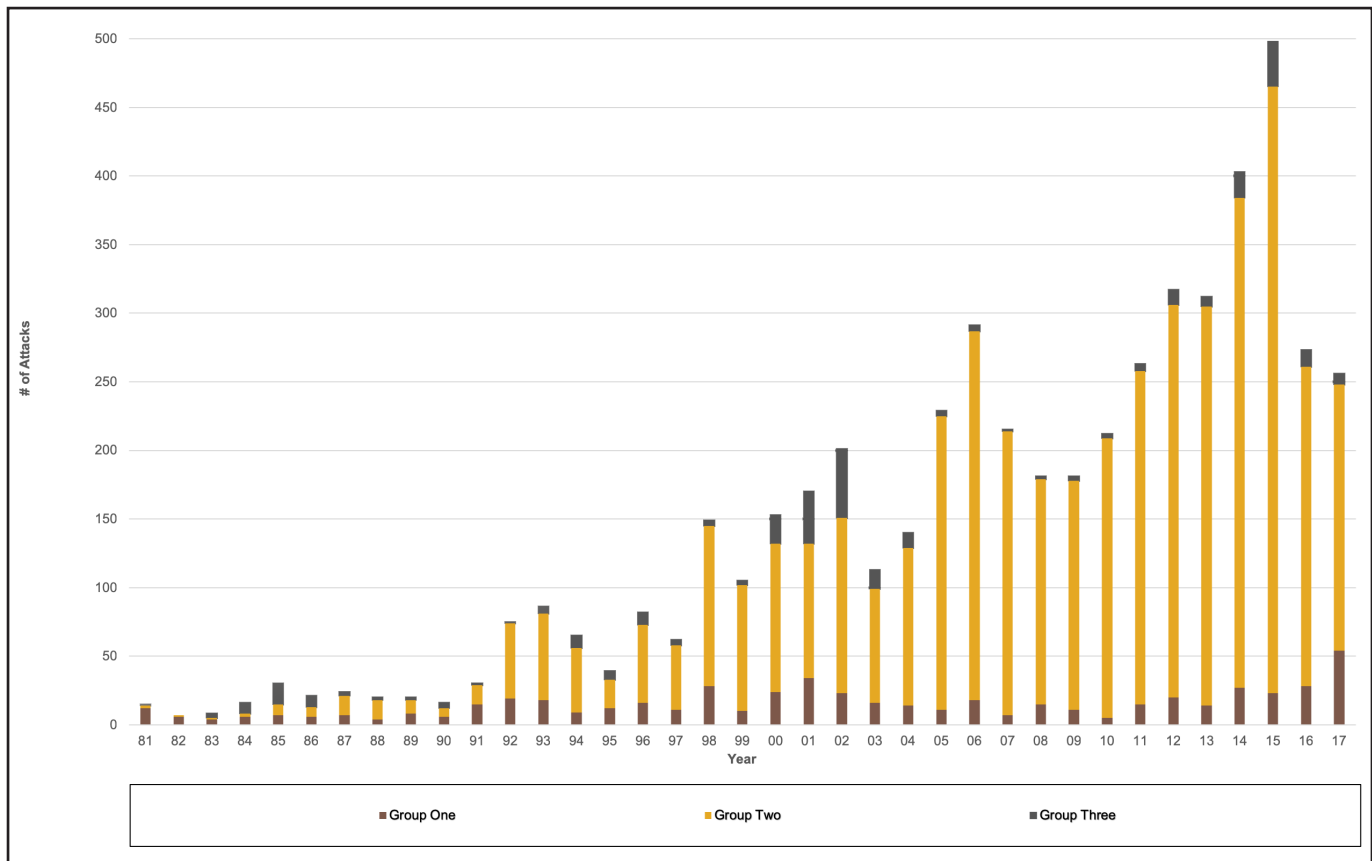


Figure 1: Number of Attacks by Geographical Group

It should be noted that although the database statistics and overall totals reflect the entire database going back to 1970, the trend lines shown in this figure and the following figures instead use 1980 as a starting point. There are several reasons for this. Relatively few attacks were recorded in the 1970s—only 86 attacks or 1.6 percent of the total—and detailed information was often lacking. The data concerning the more recent attacks are better. A higher volume of attacks also allows for greater statistical confidence. For example, if there were only two attacks in one year and one of them was prevented, the prevention rate is 50 percent, which is misleading.

Breakdown of the Attacks by Target Category

Figure 2 shows the same number of attacks as Figure 1, organized by target categories rather than geographical groups. Certain things stand out. One can see, for example, increase in train and track attacks in later decades in both Group One and Group Two countries.

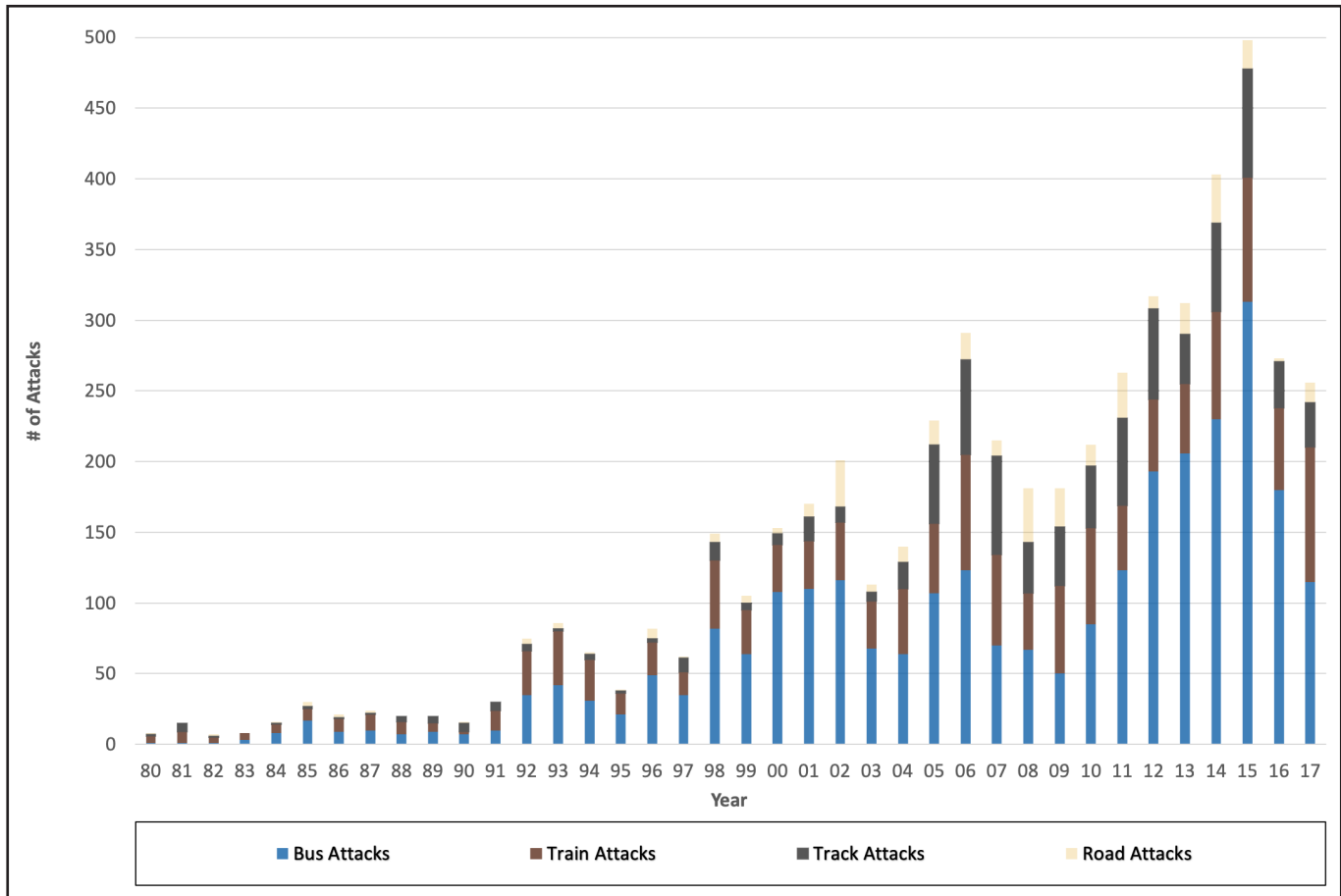


Figure 2: Number of Attacks by Target Category

Percentage of Attacks Prevented by Target Category for the Three Comparison Groups of Countries

Table 2 shows a static picture of the number of attacks and the detection rate for the three comparison groups by target category. (There were no road attacks in Group Three, and only one track attack, which was prevented, so percentages for that group are labeled as not applicable.)

Overall, for the three groups combined, there were 5,372 attacks. We see that the vast majority of attacks took place in Group Two countries (4,388), then in Group One (634), and finally in Group Three (375).

By target category, the greatest number of attacks took place against bus targets (2,793), then train targets (1,381), then track targets (835), and finally, road targets (363).

Table 2: Prevention Rates by Geographical Group and Target Category

	All Attacks	% Detected All	# Attacks Group One	% Detected Group One	# Attacks Group Two	% Detected Group Two	# Attacks Group Three	% Detected Group Three
Bus	2793	6.6%	141	5.0%	2328	6.4%	324	9.3%
Train	1381	13.3%	311	14.8%	1045	12.7%	25	16.0%
Track	835	17.6%	168	18.5%	666	17.3%	1	N/A
Road	363	12.9%	14	42.9%	349	11.7%	0	N/A
All	5372	10.5%	634	14.2%	4388	10.0%	375	10.0%

Note that the highest percentage of detection is achieved in the Group One countries—about 4 percentage points higher than all countries combined and also 4.5 percentage points higher than Group Two and Group Three. This finding is not surprising, since it is in these countries that the most attention has been paid to enlisting the public in awareness efforts.

Counterintuitively, the lowest detection rate for all target categories combined was in Israel and the West Bank & Gaza Strip, Group Three. This finding is due to the much greater volume of terrorist attacks on buses in Israel (324), where the detection rate was only 9.3 percent. Although the detection rate for 25 attacks on train targets was higher (at 16 percent), the lower rate of detection on the more numerous bus attacks pulled the average down to the 10 percent overall figure for detection in Israel.

The target category with the highest rate of prevention is track attacks, followed by attacks on trains. Discoveries of devices or evidence of sabotage on tracks is 18.5 percent in the Group One and 17.3 percent in Group Two (it is N/A in Group Three). The prevention rate for buses is nearly half of that for all other target categories; it is significantly below the overall detection rate.

The Rate of Detection has Improved for Country Groups One and Two

The question here is whether the rate of detection has improved over time. Figure 3 shows that the rate of prevention has increased in the first two comparison groups, but that it has decreased in Group Three: Israel and the West Bank & Gaza Strip.

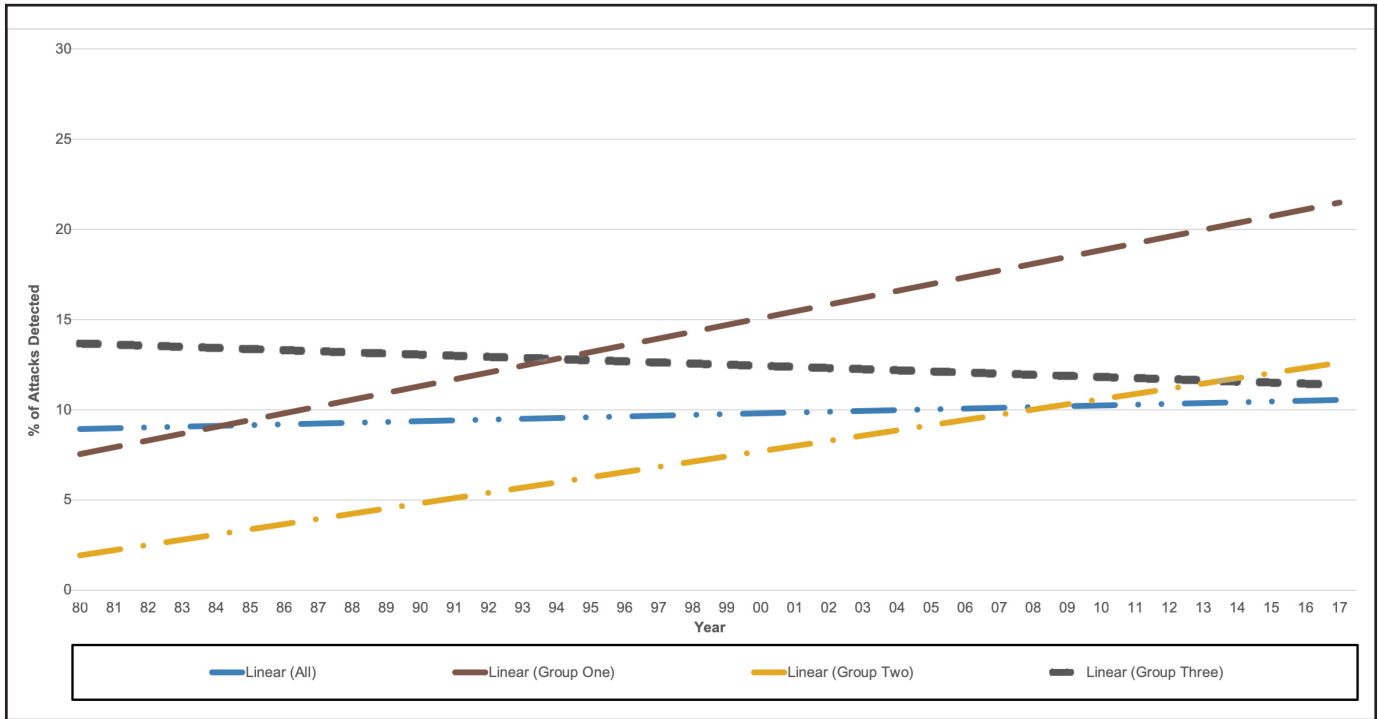


Figure 3: Detection Rates Over Time

Detection Trends by Target Category in the Three Country Groups

Looking at trends by target category, as Figure 4 shows, the detection rate for trains and tracks has increased significantly. It has actually decreased for buses. The detection rate for road attacks however has decreased, but there are only 363 of these, so one has to be cautious in interpreting this result.

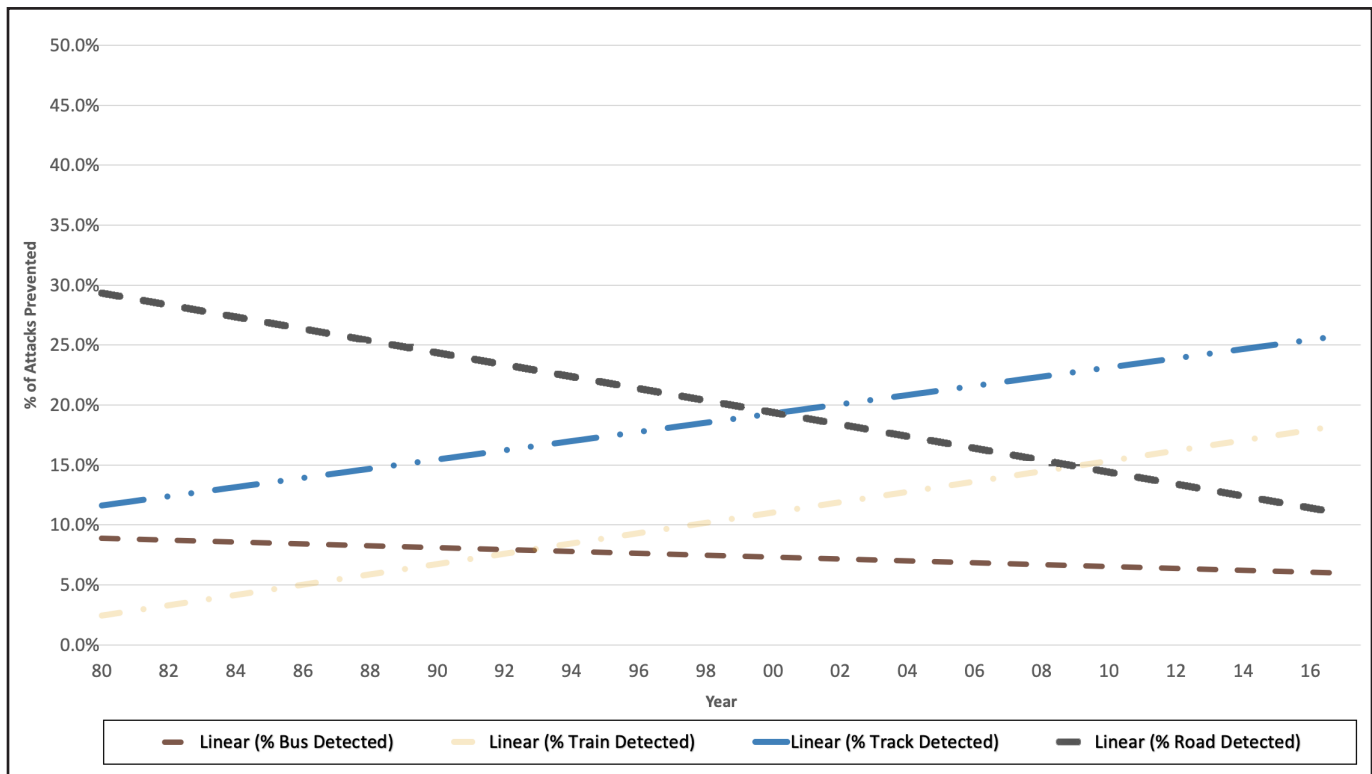


Figure 4: Detection Rate by Target Category

The following three figures show the trends by target category in the three groups of countries. Figure 5 shows the detection rates for the Group One countries, which are most relevant to the United States. Detection rates for train and track attacks have increased significantly, although caution should be exercised in interpreting the dramatic increase in detecting attempts to sabotage tracks. As indicated in MTI's previous study of derailment attempts and track attacks, many of the track attacks in Europe were aimed at disruption, not casualties, and may have been meant to be discovered.⁶ Detection of road attacks appears to have declined dramatically, but the total number of road attacks included in this chart is only 14, and therefore the trend line is not that significant.

⁶ Brian Michael Jenkins and Bruce R. Butterworth, *Train Wrecks and Track Attacks: An Analysis of Attempts by Terrorists and Other Extremists to Derail Trains or Disrupt Rail Transportation* (San Jose, CA: Mineta Transportation Institute, 2018).

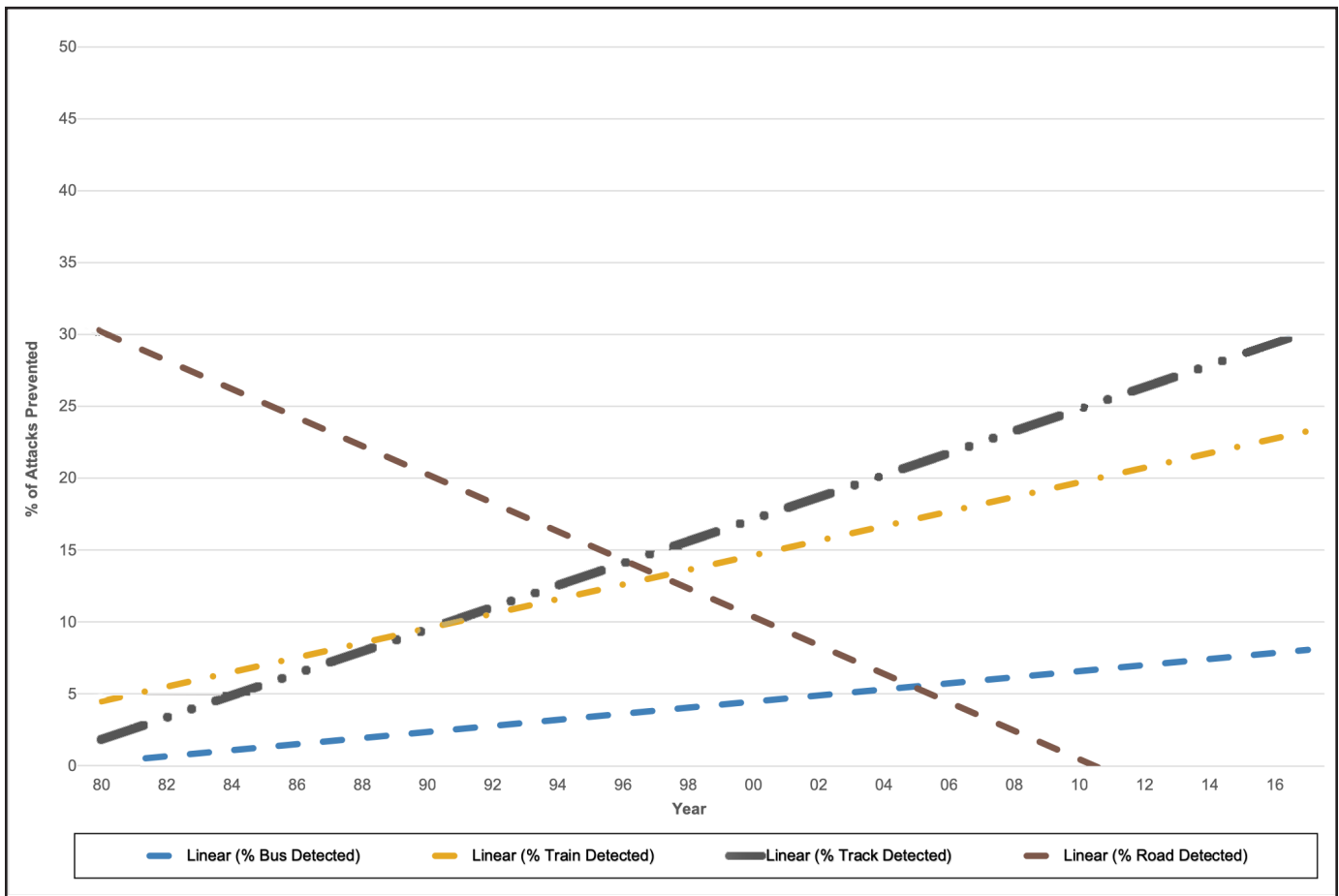


Figure 5: Group One Countries: Detection Rate by Target Category

Figure 6 looks at the detection rates by target Category for Group Two countries. Although the total volume of attacks (4,388) is nearly 7 times greater than the 634 attacks in Group One countries, the detection rate has improved, but less dramatically than in Group One countries.

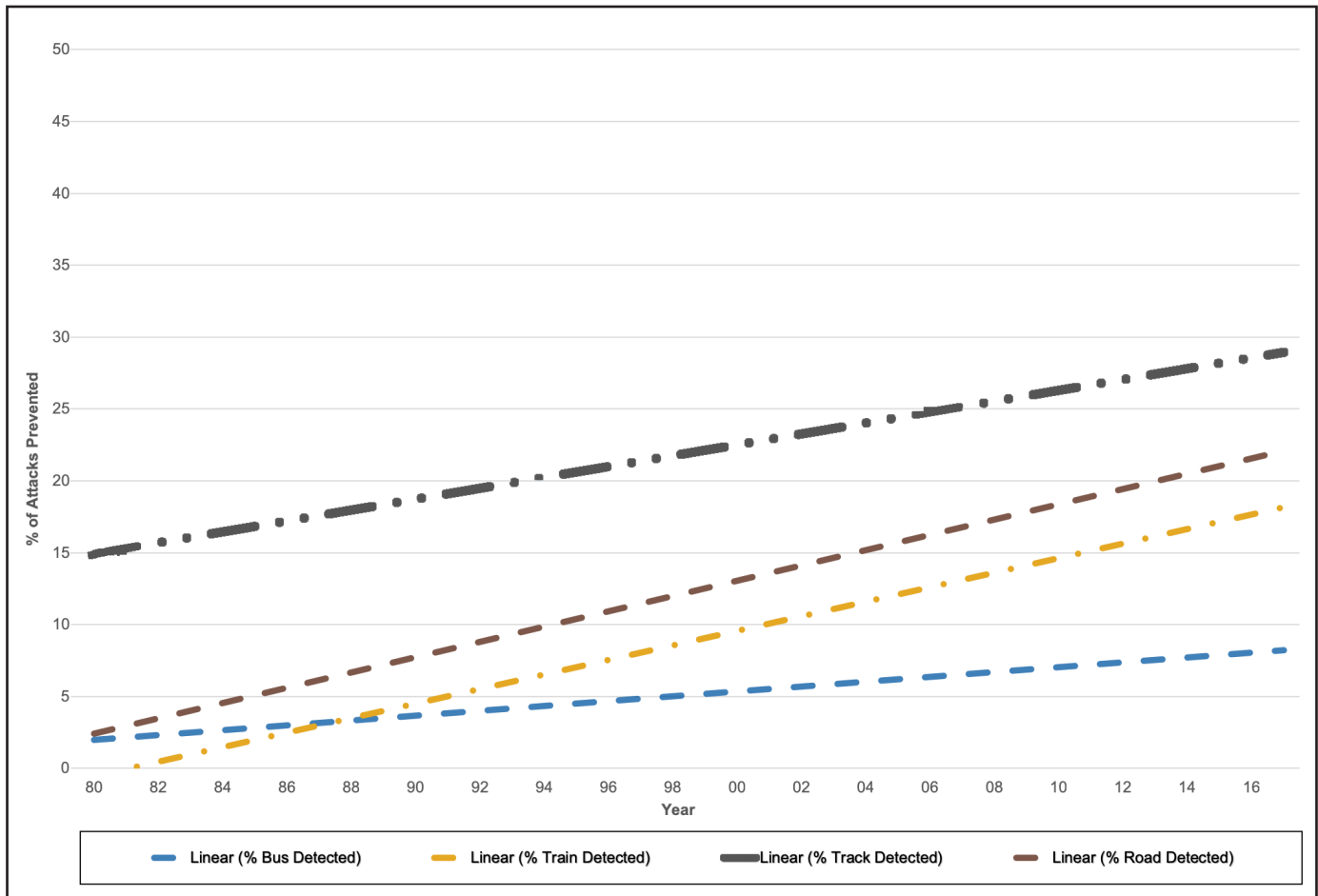


Figure 6: Group Two Countries: Detection Rate by Target Category

Figure 7 examines the same trend lines in Israel and the West Bank & Gaza Strip. Here, however, we track only bus and train attacks. There were no attacks against road infrastructure and only a single track attack, which was prevented—not enough evidence for a trend to emerge. Terrorists directed most of their attacks in Israel against bus targets—buses, bus stations and stops. There were 324 attacks on these targets, which reflects Israel’s unique reliance on bus transportation compared with its counterparts in the Group One countries. There were fewer attacks (25) on Israel’s small light rail system. Interestingly, the detection rates for bus attacks has declined, but the detection rate for train attacks has increased. Given the high level of security awareness among Israel’s population, this trend seems counterintuitive for bus attacks.

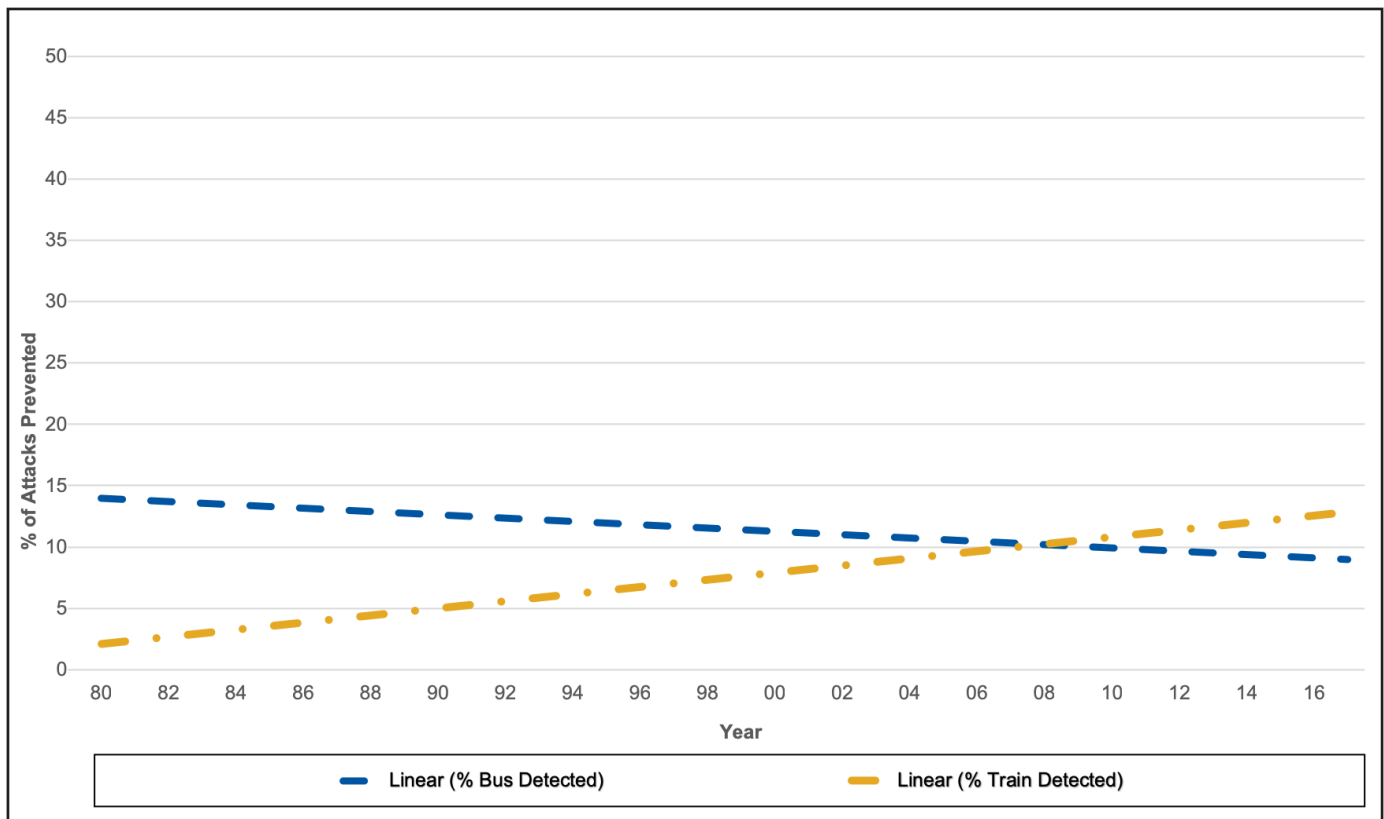


Figure 7: Group Three Countries: Detection Rate by Target Categories

In part, the downward trend in detecting attacks on bus targets in Israel reflects very high rates of detection achieved in the early 1980s. As shown in Figure 8 below, if the same chart were to begin in the 1990s, we would see an improvement in detecting attacks aimed at buses. The detection rate for attacks on trains actually declines slightly, but again, the trend line is based on only a small number of total attacks (25).

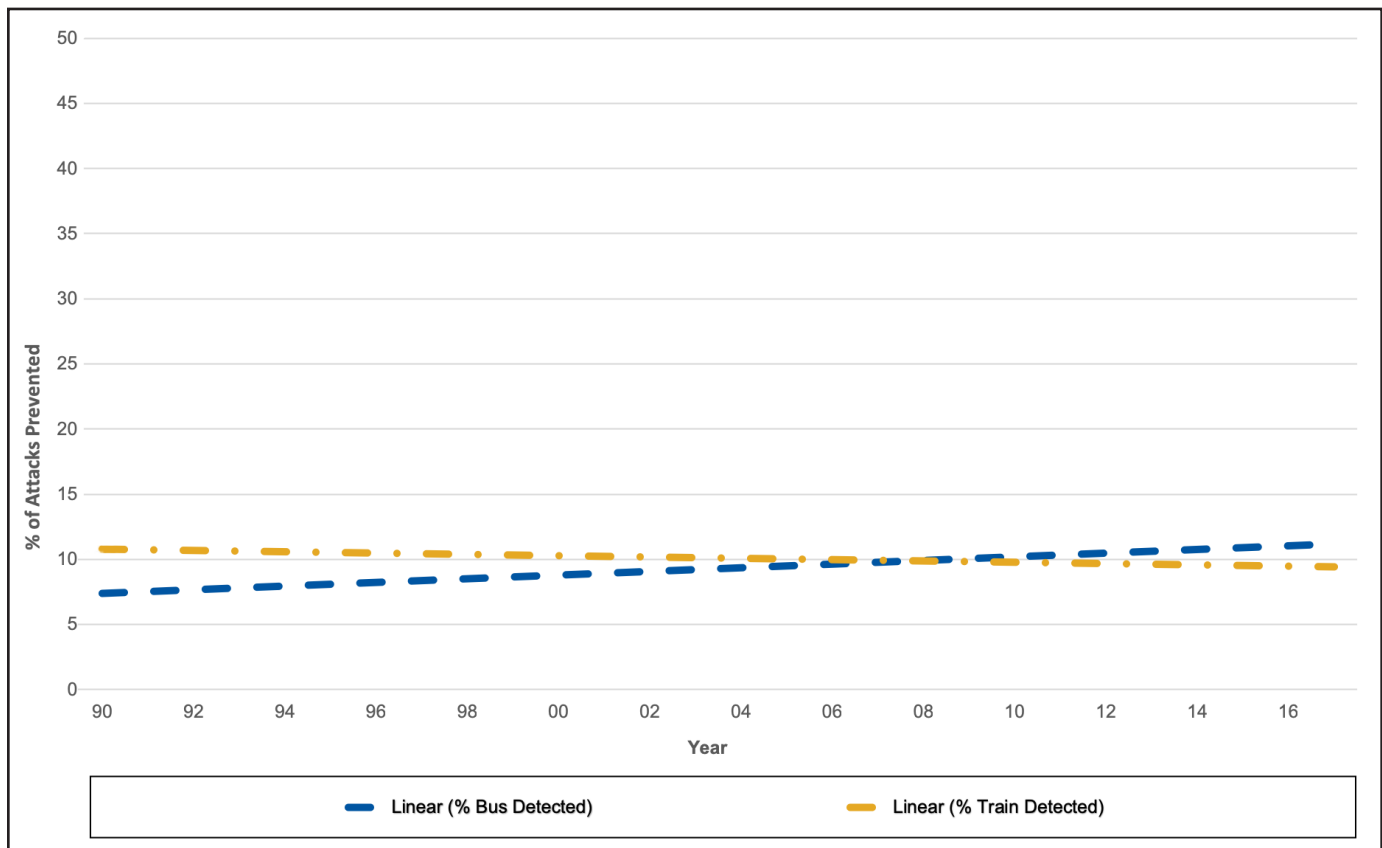


Figure 8: Group Three Countries: Detection Rate by Target Categories (Beginning in 1990)

The Unique Situation in Israel

For the target categories and the time period of this analysis, Israel has experienced more attacks than any other country except India, Pakistan, Iraq, and also (by a slight margin) Colombia. With a small railroad network, buses are the primary means of public transportation, and terrorists accordingly have focused on these. A much higher proportion of the attacks in Israel were suicide bombings, which require a different sort of detection. In non-suicide attacks, a device is left in a public area, where it may be discovered by others. In a suicide bombing, the bomb remains concealed on the person. Detecting non-suicide bombings means detecting and reporting suspicious objects. Detecting suicide bombings means looking for suspicious behavior. Israel has relied on training bus drivers and other employees, uniformed and undercover police, and the military to recognize possible suicide bombers.⁷ That makes Group Three different from the other groups.

The differences are shown in the two Venn diagrams below. Figure 9 illustrates the breakdown of the 5,022 attacks on public surface transportation targets for the Group One and Two countries. Of these 5,022 attacks, 527 (10.5 percent) were detected. There were 128 suicide

⁷ Bruce R. Butterworth, Shalom Dolev, and Brian Michael Jenkins, *Security Awareness for Public Bus Transportation: Case Studies of Attacks against the Israeli Public Bus System* (San Jose, CA: Mineta Transportation Institute, 2012); Christopher Kozub and Brian Michael Jenkins, *Bus Operator Awareness Research and Development Training Program* (San Jose, CA: Mineta Transportation Institute, 2012).

attacks, which account for only 2.5 percent of the total number of attacks. Of these 128 suicide attacks, 15 (or 11.7 percent) were detected.

In contrast, Figure 10 shows that of the 350 attacks on public surface transportation in Israel and the West Bank & Gaza Strip, 35 (or 10 percent) were detected. Of these 350 attacks, 63 (or 18 percent) were suicide attacks. This figure is over seven times greater than the figure for Group One and Two countries combined. Also, of these 63 suicide attacks, 12 (or 19 percent) were detected, which is 0.62 percent greater than the corresponding Group One and Group Two percentages. Israel experiences more suicide bombings and is better at detecting them: it seems that the training has paid off. But the data also mean that in Israel and the West Bank & Gaza Strip—where the threat of terrorism is nearly constant—only 8.0 percent of the 287 non-suicide attacks were detected, which is below the world average.

It is important to remember that these statistical analyses do not always provide answers, but that they raise further questions. The differences seen in the two figures below may be explained simply by small numbers, which are inherently quirky, or by other circumstances. We invite comments and further research.

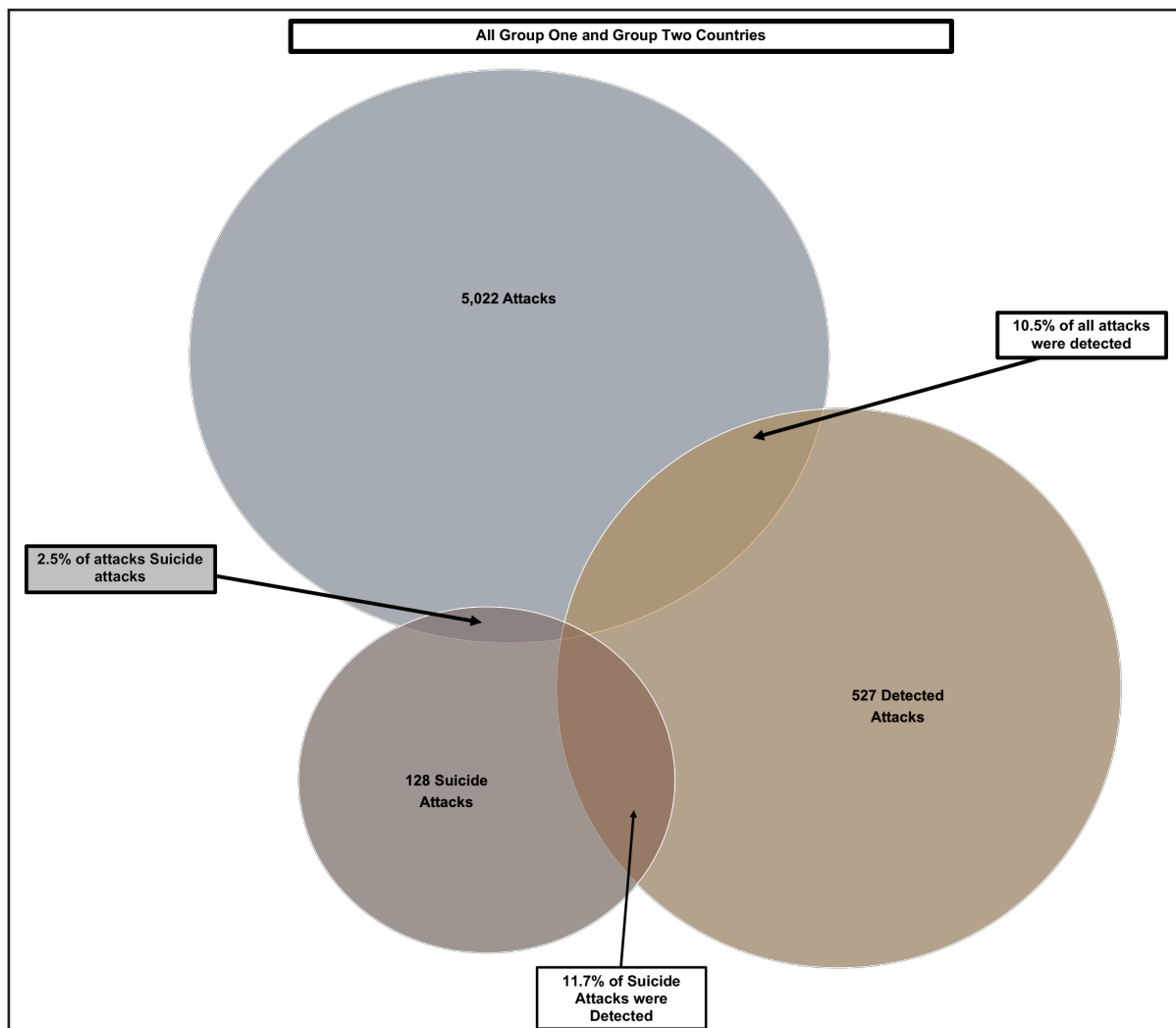


Figure 9: Detection of Suicide Attacks in Group One and Two Countries

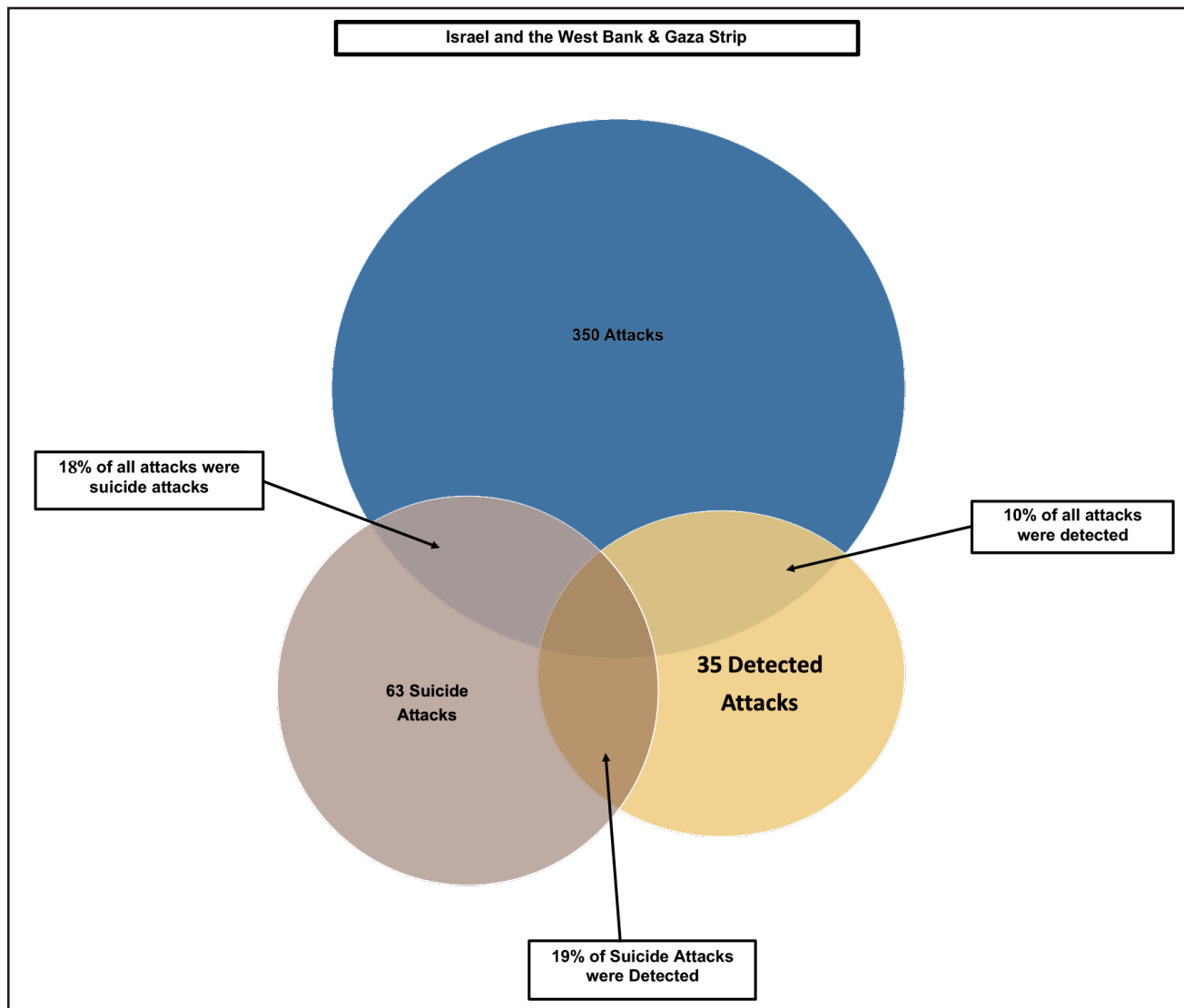


Figure 10: Detection of Attacks in Israel and the West Bank & Gaza Strip

Who is Doing the Detecting?

We now look at data on attacks detected by the three categories listed earlier: (1) Passengers, citizens, and employees, (2) security officials, and (3) unknown. It is important to remember that the percentages here are higher than those previously cited, because they measure the percentage of detected attacks, not the percentage of all attacks. It is also important to note that we are able to identify who did the detection in less than half of the cases.

It is possible that these numbers could be revealing that over time there has been a more precise accounting for *who* detected or prevented the attack; or, they may in part reveal whether passengers, citizens, and employees, the primary target of “See Something, Say Something,” as well as security officials, who are often also included, are becoming more effective.

Table 3 shows the percentage breakdown for all countries by target category. Here we see that, overall, passengers, citizens, and employees account for 20.5% of detections, with the highest percentage appearing in bus attacks followed by train attacks. Not surprisingly, passengers, citizens, and employees detect a smaller percentage of track attacks, a category which also has a greater percentage of unknown detectors. As for security officials, the overall percentage is somewhat higher (approximately 28%), with the highest detection being in road attacks, and then roughly equivalent percentages for the other target categories.

Table 3: % of Detected Attacks by Target Category

Target Category	All % Passengers etc.	All % Security Officials	All % Unknown
Bus	29.7%	26.5%	43.8%
Train	23.5%	27.3%	49.2%
Track	10.9%	25.9%	63.3%
Road	2.1%	42.6%	55.3%
All	20.5%	27.9%	51.6%

Looking further at a breakdown that considers both country group and target category, we can observe the following from Table 4.

Firstly, passengers, citizens, and employees have the highest share of detection in Group Three, then Group One, and then Group Two. Looking at target categories as well, the highest percentage is for bus targets in Group Three countries at 36.7% and then for train targets in Group One at 30.4%. This finding will be explored later, but it certainly suggests that awareness in general, and awareness campaigns, work.

Secondly, security officials have the highest detection percentage in Group Two countries, and the lowest in Group One countries—an interesting finding considering the large investment in training for security officials in Group Three, Israel and the West Bank & Gaza Strip.

Table 4: Detector Percentages by Target Category and Country Group

Target Category	Group One			Group Two			Group Three		
	% Passenger etc.	% Security Officials	% Unknown	% Passenger etc.	% Security Officials	% Unknown	% Passenger etc.	% Security Officials	% Unknown
Bus	28.6%	42.9%	28.6%	28.4%	25.7%	45.9%	36.7%	26.7%	36.7%
Train	30.4%	13.0%	56.5%	21.8%	31.6%	46.6%	0.0%	50.0%	50.0%
Track	19.4%	9.7%	71.0%	8.7%	30.4%	60.9%	N/A	N/A	N/A
Road	0.0%	33.3%	66.7%	2.4%	43.9%	53.7%	N/A	N/A	N/A

Looking for Things Versus Looking at People

Critics of “See Something, Say Something” campaigns complain that they lead to racial or ethnic profiling, encouraging people to regard people of color, or those wearing Muslim dress or speaking a foreign language, as suspicious. Both proponents and opponents of such efforts can cite anecdotal evidence showing that reports of suspicious behavior led to both successful preventions and wrongful accusations.

The data used here are about looking for things. Obviously, there were, as noted above, a total of 195 suicide attacks—63 of which took place in Israel and the West Bank & Gaza Strip, which almost always involve a person concealing a bomb under clothing or in a bag. But that category only represents only 3.6% the 5,372 attacks considered in this analysis

More importantly, 346 or 99 percent of 541 non-suicide attack detection cases that were used in compiling these statistics were intended bombings thwarted because someone saw and reported a suspicious package, abandoned suitcase, or possible device. The other 5 cases involved 4 cases in which someone noticing evidence of track sabotage and one case in which the police interrupted an arson attempt on a passenger train.

The data does suggest, interestingly, that detection of suicide bombers isn’t less robust than the detection of objects left by non-suicide attackers. In fact, it is the reverse. The detection rate for suicide bombers in Israel and the West Bank & Gaza Strip is 19 percent (as opposed to 8 percent for non-suicide attacks), and the detection rate for all other countries is 11.7 percent (slightly higher than for the 10.2 percent for non-suicide attacks). Looking at all countries together, the overall detection rate for suicide attacks is 13.8 percent, and 10.6 percent for non-suicide attacks.

This suggests that training programs designed to detect particular behaviors of suicide bombers (including clothing that can hide a device) can be effective. However, it is important to remember that in many cases where a suicide bomber is detected—often confronted by police or guards, or sometimes by citizens or passengers, he or she can detonate and kill and injure others, although away from the intended target. This can lead to death and injuries, particularly among those doing the confronting. In nearly half of the detected suicide attacks, there were fatalities or injuries. The cost of the detection can be high, but so are the benefits, as suicide attackers are often very lethal. The average number of deaths per attack for undetected suicide attacks worldwide is high—11.4—whereas the same figure for detected suicide attacks worldwide is only 1.1

Turning back to suspicious objects, we lack information on the total number of reports of suspicious objects and therefore cannot calculate what percentage of reported suspicious objects turn out to be explosive devices. Rough statistics from the earlier analysis of responses to the IRA bombing campaign indicates that only a tiny fraction of the reports led to actual preventions. Nearly ten thousand suspicious objects were reported and investigated in the 1990s, while a total of eight terrorist bombings were prevented.

Neither is there any centralized reporting on the number of suspicious persons or suspicious activity reports related to terrorism, but the volume is very high. It seems likely that those reports that lead to preventions or criminal investigations represent an even smaller percentage of the number of reports received. Terrorist attacks are statistically rare events.

Detecting suspicious behavior is necessarily a judgment with subjective elements, which can lead to reports and confrontations that reflect personal prejudices. While controversial in the United States even when used by police, behavioral detection is widely used by law enforcement organizations abroad. Israeli authorities seem to have become good at detecting suicide bombers, unfortunately because the frequency of the threat demanded it, and under the threat conditions faced by Israel's civilian population, they tolerated the false alarms and damage to dignity.

This is not a call for increased efforts by the public to track down potential terrorists. Rather, the research presented here concludes that alert security personnel, transportation staff, and passengers have played a role in thwarting terrorist attacks by reporting suspicious objects. It will always be a low-yield activity, but detecting and reporting suspicious objects has demonstrably enabled police to prevent over 500 attacks.

Future Research

It is tempting to further disaggregate the data to see trends in detection by country group, target category, and identity of the detectors over the 38 years covered by these charts. That, however, may be a bridge too far. Disaggregating the data into that many cells yields small numbers and wild swings in the trends; our confidence in the results drastically decreases. Future, more targeted analysis using more data may be possible. Meanwhile, the authors invite comments on the material presented here and welcome further research by others.

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For more details about the study, download the full report at transweb.sjsu.edu/research/SP1118



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