

# How Can We Mitigate Against Marauding Terrorists?

Presented by Home Office Centre for Applied Science and Technology (CAST)

## Background

This question is driven by recent events at Westminster Bridge and Borough Market in the UK and other events overseas, such as the attack two weeks ago in Barcelona. The problem however is much older. The September 2013 attack on the Westgate Shopping Mall in Nairobi, the November 2008 attacks in Mumbai, and even as far back as the attacks on Vienna and Rome airports in 1985, all could be regarded as marauding attacks. In some cases, the primary weapons were guns and in others knives were used. The latest development seems to be the use of vehicles as a weapon.

Ideally we would like to prevent these incidents altogether. Failing that, we want to minimise the loss of life and damage caused by such incidents and make us better aware of the chances of an incident occurring. Can we 'design out' such a threat and do so without overly impacting on our established way of life?

## Questions for the Study Group

The overarching question for the Study Group is to explore and elucidate possible modelling approaches that could assist with the challenges of preventing and/or responding to an attack by a marauding terrorist. We would be interested in ideas relating to prevention and response, although feel that there is likely to be more scope in the Study Group to look at the modelling that would be relevant to response.

We would particularly be interested in gathering information about the different types of mathematical model that might be developed further, together with some initial indication or demonstration of what their potential value might be.

Some of the features of marauding terrorist situations to take into account when looking at possible modelling approaches are the following:

- These attacks generally take place in some constrained environment: a street or other confined area within a city centre, or some public building (the above examples include a shopping centre and two airports), and more recently, long stretches reasonably devoid of heavy street furniture (e.g. bridges). They are also generally crowded locations. The combination of crowds and confined space can limit freedom of movement and routes for escape. How can this 'funnelling effect' affect key actors' behaviours?
- The key actors are the terrorist(s), the public, and the responders. A model should include all these three groups and their possible behaviours as an incident develops.
- Responders typically mobilise quickly, but not instantaneously. As part of modelling the timeline of how an incident develops, a model should take account of the speed and size of response.

- The public caught up in an attack often have access to social media or other mobile communications. What is the possible role of social media in helping to share information about a rapidly evolving situation and how can that be modelled?
- Governments are able to provide advice in advance to the public, concerning how best to react to a marauding terrorist incident. The latest advice in the UK is "Run, Hide, Tell." - what other advice could governments provide?

In addition to the first objective of constructing possible models for marauding terrorist attacks, it would be an additional benefit if the Study Group could look at how such models might be able to answer the following questions:

1. What are the characteristics of spaces in which an attack would be easy and/or difficult to contain?
2. What are the effects on different speeds and sizes of response, and is it possible to decide what types of response are likely to be most effective?
3. What are the possible effects (good or bad) of information being shared through social media or other wireless communications?
4. What are the benefits in different situations of public advisories such as "Run, Hide, Tell", and what advice minimises loss of life to the greatest extent?