

Spanning the gap between crime, terrorism and security – developing a toolkit for complex stations

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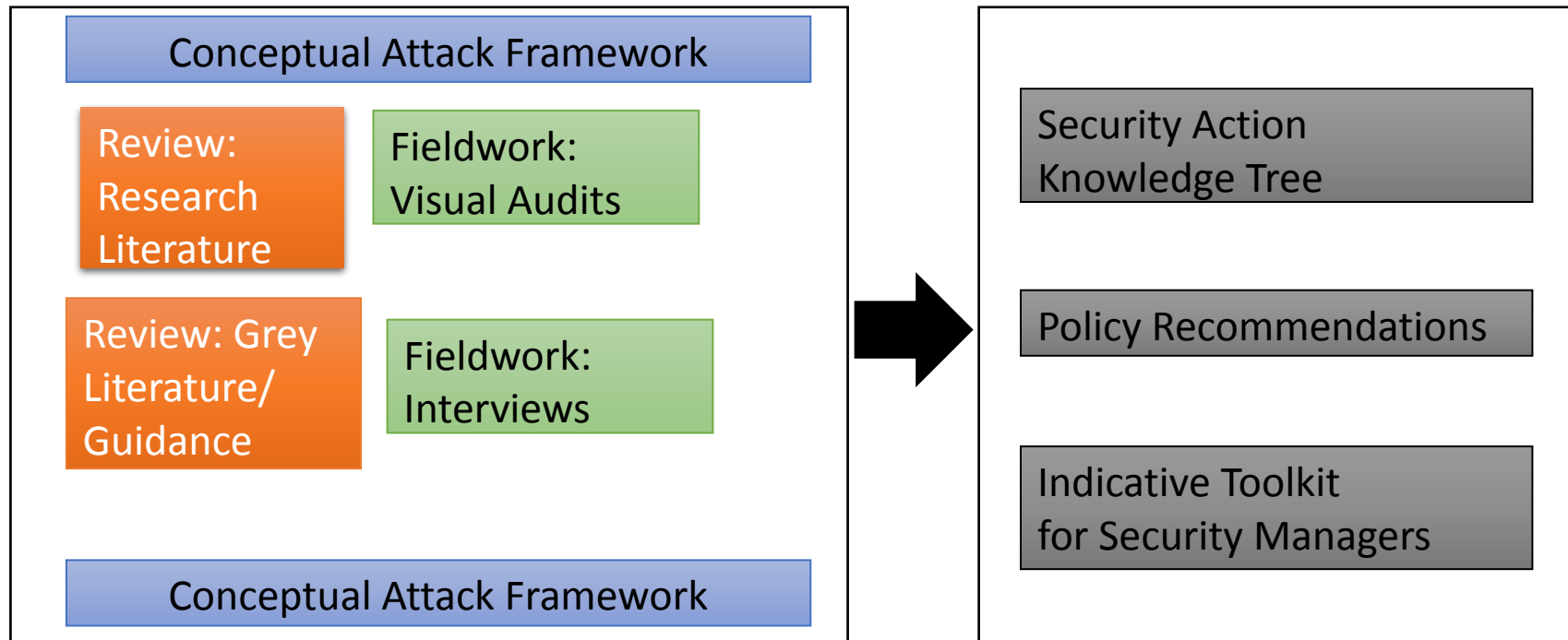
Full project team: Rachel Armitage, James Bray, Kris Christmann, Paul Ekblom, Eloise Keating, Leanne Monchuk, Andrew Newton, Simon Parkinson, Michelle Rogerson and Daiyaan Shreef

History: Project Pre-Empt 1

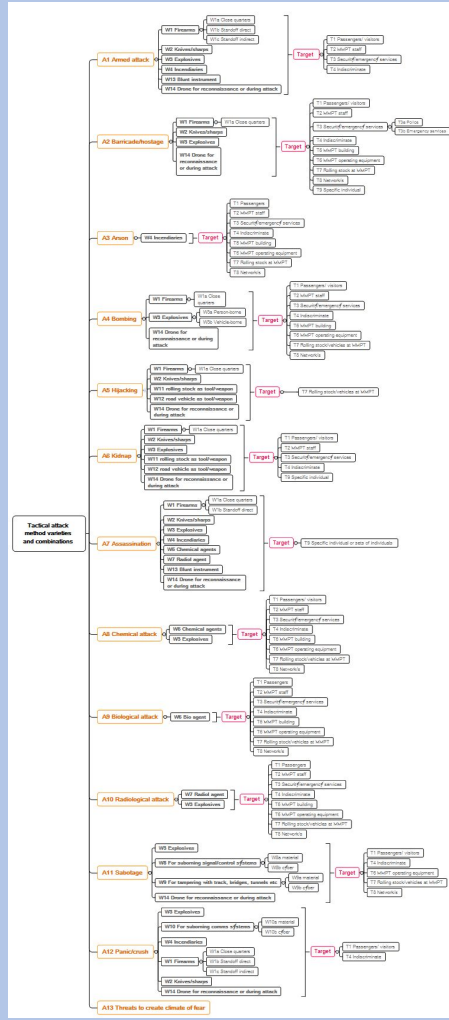
- In 2014, EU DG Mobility & Transport asked us to identify 'best practice' solutions to secure complex stations from terrorist attacks and serious crime
- Developed an approach based on Mixed Methods and a practically and Scientifically Realistic approach to knowledge

Conceptual Attack Framework

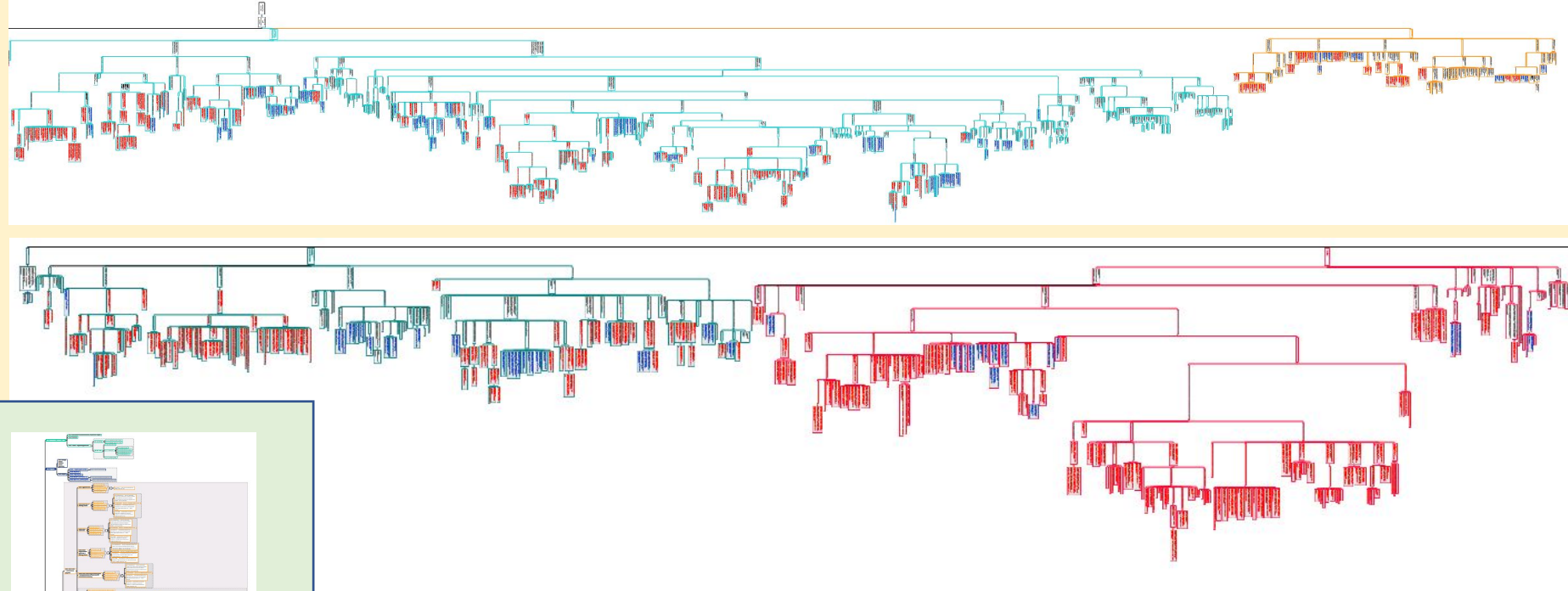
- ❑ Mapped out theoretically plausible **attacks**: *Methods – Weapons – Targets – Scripts*
- ❑ Mapped theoretically plausible **security responses**
- ❑ Organised detailed **findings** from literature, fieldwork on **knowledge trees**
- ❑ All brought together under a **conceptual attack framework**



Conceptual Attack Framework – based on CCO and 5Is



Tactical Attack Methods



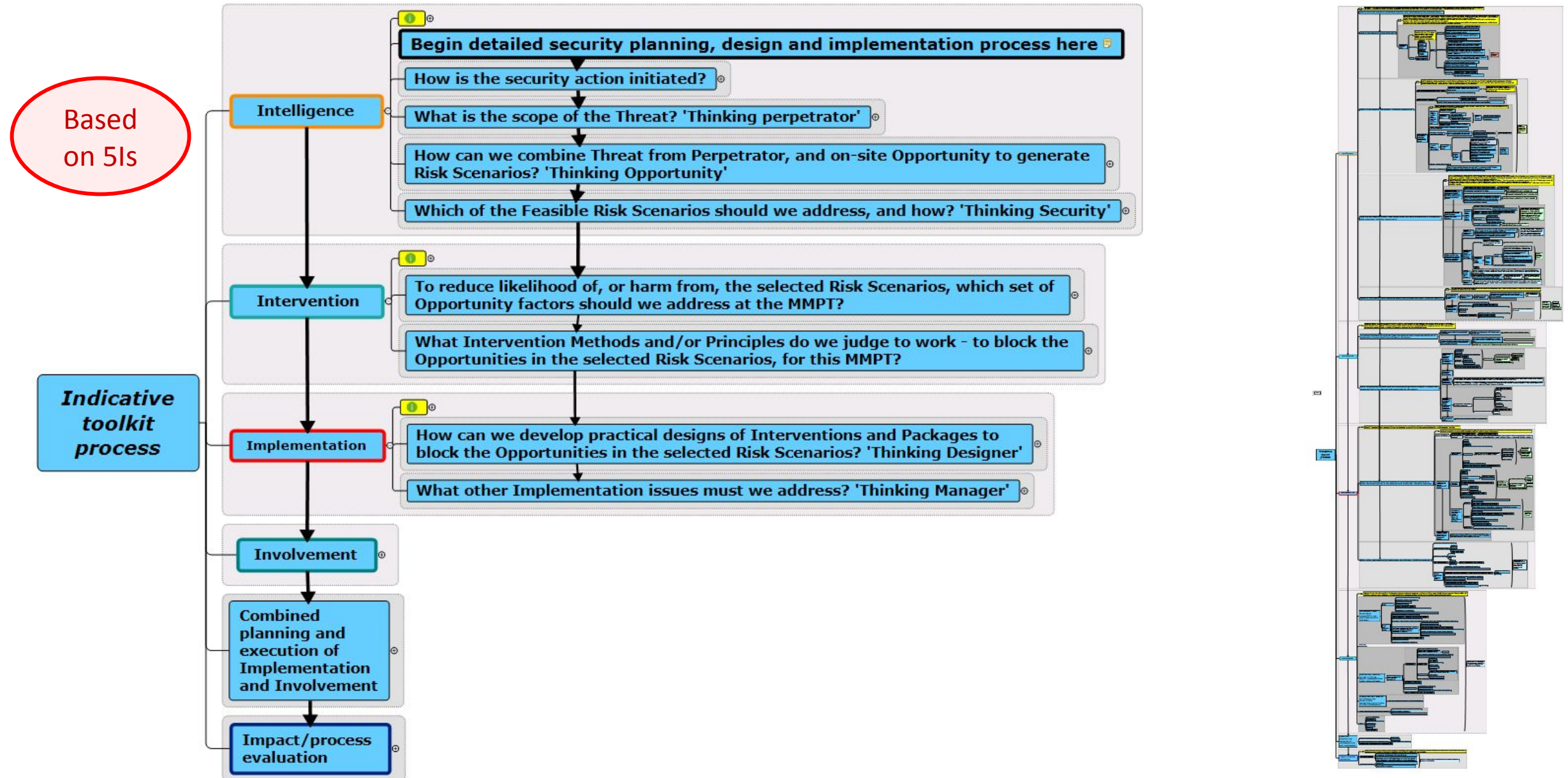
Attack Procedure

Research/Practice Findings:
130+ from **Fieldwork** and 200+ from **Realist Review**

Toolkit approach

- The approach to the toolkit was to develop a process which empowers users to:
 - Think **perpetrator**, and think **threat**
 - Think **risk** for terrorism/crime, generated by design and operation of the station
 - Think **security** – prevention and first response (Protect and Prepare)
 - Think **designer**, and the wider requirements for business, users and society
 - Think **manager**
 - Think **future** – resilience and adaptability in the longer term
- Toolkit had to be adaptable to diverse user levels, contexts, functions

Indicative Toolkit – where Phase 1 ended



Pre-Empt 2 (2017-18) – Toolkit Realisation

- ❑ As per Indicative Toolkit but:
 - ❑ Fully interactive
 - ❑ Terrorism PLUS multiple crime types
 - ❑ In 15 EU languages
 - ❑ Adding local regulatory context
 - ❑ In 11 months
- ❑ FFS!!!



At the Heart of the Toolkit - work in progress

Reducing **risk** by matching **security actions** to the **threat**

Threat from
Perpetrators

Risk of
harmful
event

Likelihood

Harm

Security
Action in
advance of
attack

Protect

Prepare to
respond

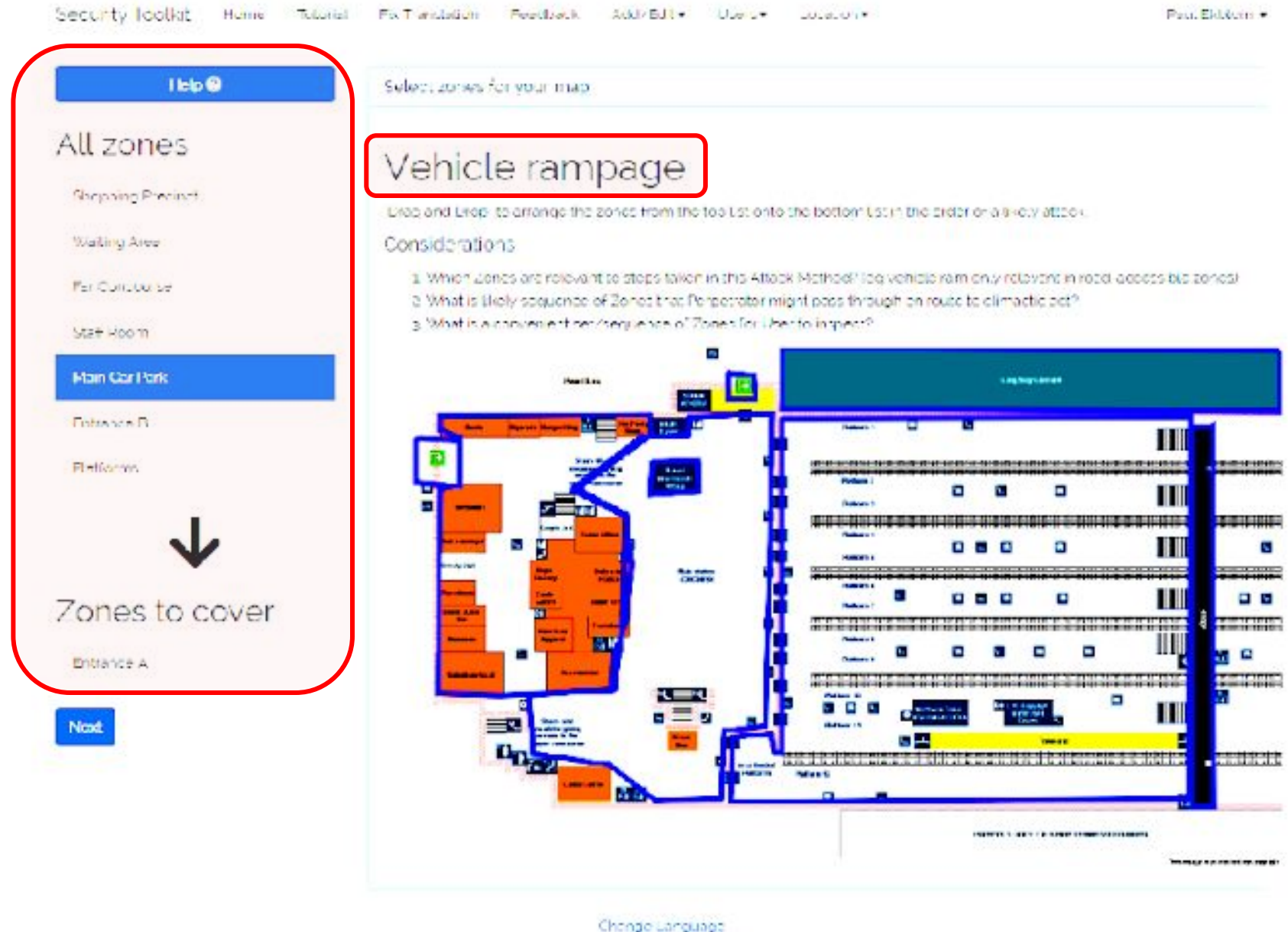
At the Heart of the Toolkit - work in progress

Reducing risk by matching security actions to the threat



Done on an **Attack Method** x **Zone-by-Zone** basis across station

- Users focus on a single **Attack Method** at a time
- Users can create **Zones** within the station that are relevant to this Attack Method, and work through these in sequence



The screenshot shows the 'Security Lookit' web application. The top navigation bar includes links for Home, Tutorial, FAQ, Translation, Feedback, Add/Edit, Users, Location, and Paul Elkhorn. The main content area is divided into two columns.

Left Column (Zones to cover): A sidebar with a blue 'Help' button at the top. Below it, a list of zones is shown: 'All zones', 'Shopping Precinct', 'Waiting Area', 'Per Carriageway', 'Staff Room', 'Main Car Park', 'Entrance B', and 'Platforms'. A large blue arrow points down to the 'Zones to cover' section, which lists 'Entrance A'. A blue 'Next' button is at the bottom of this sidebar.

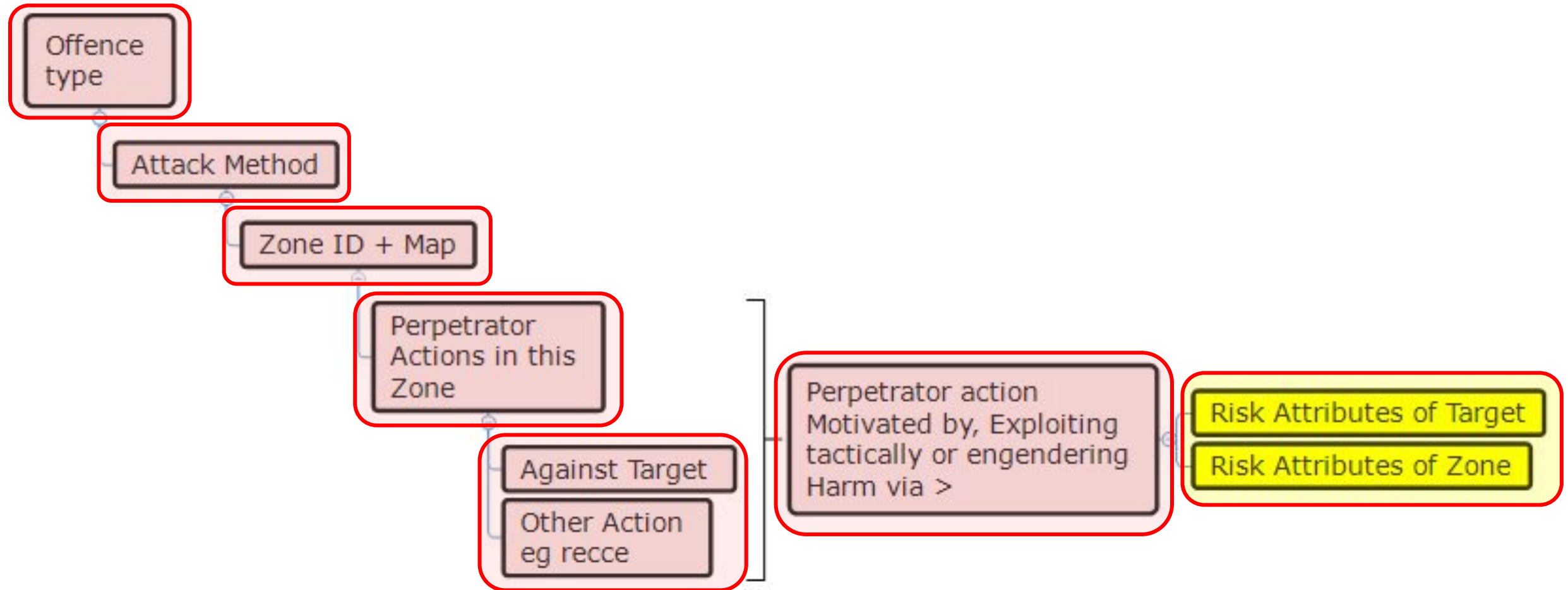
Right Column (Map and Considerations): The top section is titled 'Select zones for your map'. A red box highlights the 'Vehicle rampage' option. Below this, instructions state: 'Drag and Drop to arrange the zones from the top list onto the bottom list in the order of a likely attack.' The 'Considerations' section lists three questions:

- Which zones are relevant to steps taken in this Attack Method? (eg vehicle ram only relevant in road access bld zones)
- What is likely sequence of Zones that Perpetrator might pass through on route to climactic act?
- What is a convenient first/sequence of Zones for Uber to impact?

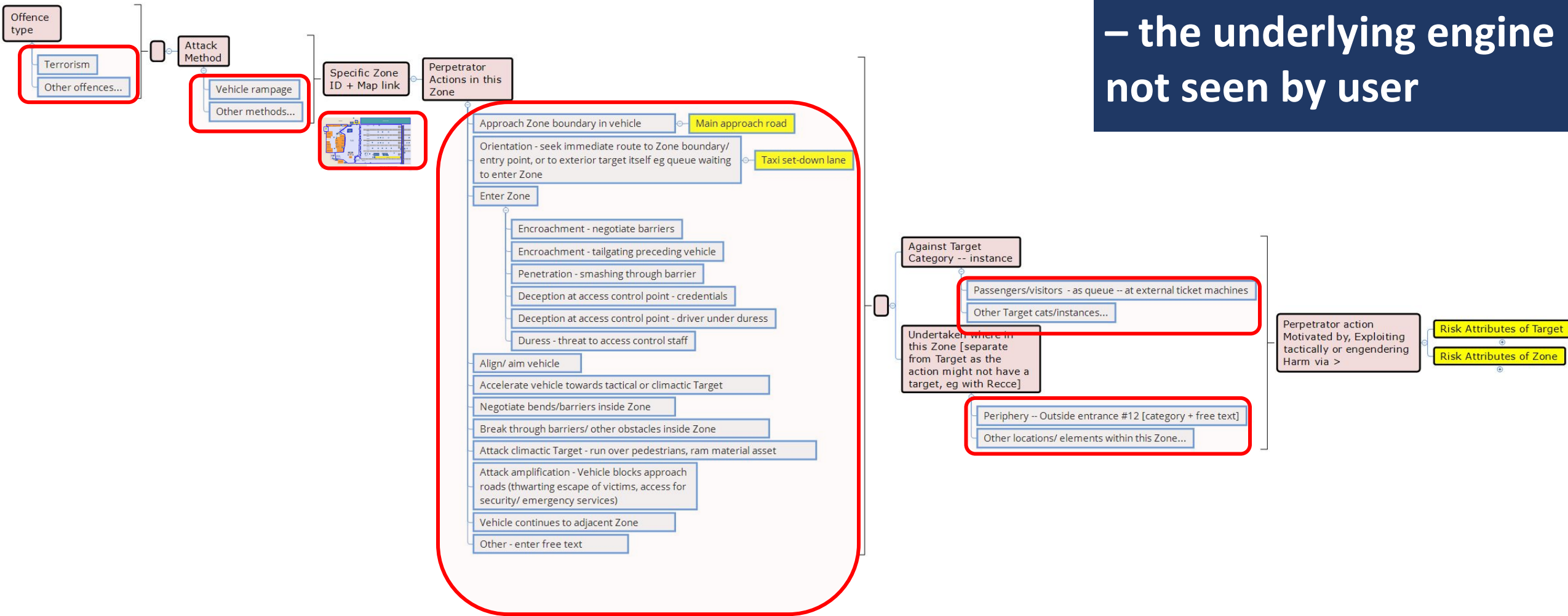
The bottom section of the right column features a detailed map of the station layout. The map shows various areas like 'Main Car Park', 'Shopping Precinct', 'Waiting Area', 'Per Carriageway', 'Staff Room', 'Main Car Park', 'Entrance B', and 'Platforms'. A blue line indicates a path through the station, starting from the 'Main Car Park' and moving through the 'Waiting Area' and 'Per Carriageway' towards the 'Platforms'. A blue box highlights the 'Vehicle rampage' area on the map.

At the bottom of the page, there is a 'Change Language' link.

What is the Threat? Think Perpetrator



In more detail – Threat
– the underlying engine
not seen by user

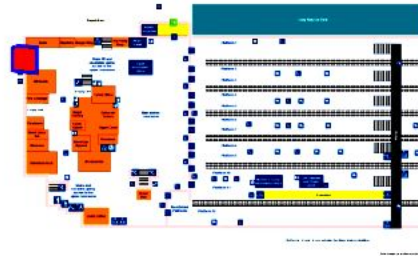


Offence Type Attack Method Chose Zone Targets Offender actions

Toolkit Progress

Step Progress

Step 5 of 10



What the offender trying to do?

Perpetrator Actions

Approach Zone boundary in vehicle

Orientation - seek immediate route to Zone boundary/entry point or to exterior target itself eg queue waiting to enter Zone

Align/ aim vehicle

Accelerate vehicle towards tactical or climactic Target

Negotiate bends/barriers inside Zone

Break through barriers/ other obstacles inside Zone

Attack climactic Target - run over pedestrians, ram material asset

Attack amplification - Vehicle blocks approach roads (thwarting escape of victims, access for security/ emergency services)

Vehicle continues to adjacent Zone

Approach via taxi rank



Enter any specific local detail relevant to zone x



Enter any specific local detail relevant to zone x



Enter any specific local detail relevant to zone x



Enter any specific local detail relevant to zone x



Enter any specific local detail relevant to zone x



Enter any specific local detail relevant to zone x



Enter any specific local detail relevant to zone x



Enter any specific local detail relevant to zone x



Previous

Next

Add new Offender Actions



Send Feedback

- Toolkit prompts user with **categories** of Perpetrator action
- User responds by entering a local **instantiation** of the action

Perpetrator action
Motivated by, Exploiting
tactically or engendering
Harm via >

Risk Attributes of Target

Utility/ value of Target to Perpetrator's Operational/Strategic goals -- Racist/anti immigrant/nationalist

Concentration of Targets in space -- crowds

Human target, incapable of self-protection/ retaliation against relevant threat -- [-]

Risk Attributes of Zone

Precipitator-Prompt: Target item exposed -- [-]

Reward: Zone contains many attractive/vulnerable targets -- [-]

Reward: Zone is of symbolic/iconic value to Perpetrator -- iconic station frontage

Effort: Zone allows easy vehicular movement within it -- [-]

Harm: Zone has insufficient/inadequate escape routes -- [-]

Harm: Lack of hiding/sheltering places for victims -- [-]

**In more detail – Risk
attributes of human Targets
located in Zone ‘Entrance A’**

Realisation – Zone Risk Attributes

- This records user’s choices in **planning for Offender’s actions, targets, weapons, exploitable hazards; intent and level of motivation**
- This presents list of pre-prepared **risk attributes of Target & Zone**, for the **Attack Method** in question – user checks those which apply and fills in box with local detail

Security ToolkitHomeTutorialFix TranslationFeedbackAdd/Edit▼Users▼Location▼Paul Ekblom▼

Offence Type / Attack Method / Chose Zone / Targets / Offender actions / Opportunity

Toolkit Progress

Step Progress

Step 6 of 10

Offender Actions in the zone

Approach Zone boundary in vehicle

Targets in the zone

Passengers/ visitors

Queue - outside Smiths newsagent

Weapon

Exploitable Hazard in the Zone

Main goals, values, intent of Perpetrator

Offenders level of Motivation

What factors make Vehicle rampage more likely in the Entrance A?

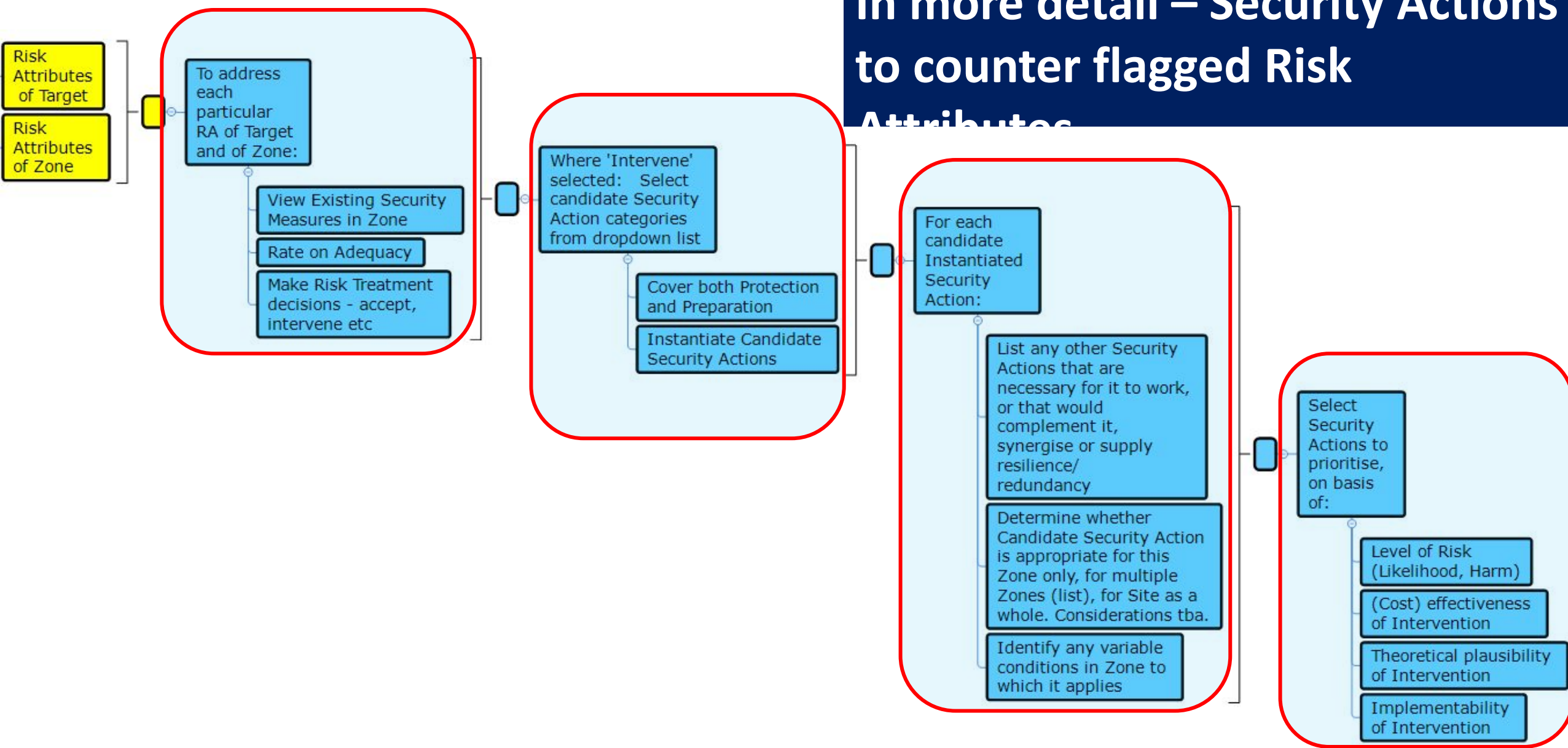
Increasing reward to Perpetrator

Decreasing risk of failure or harm to Perpetrator

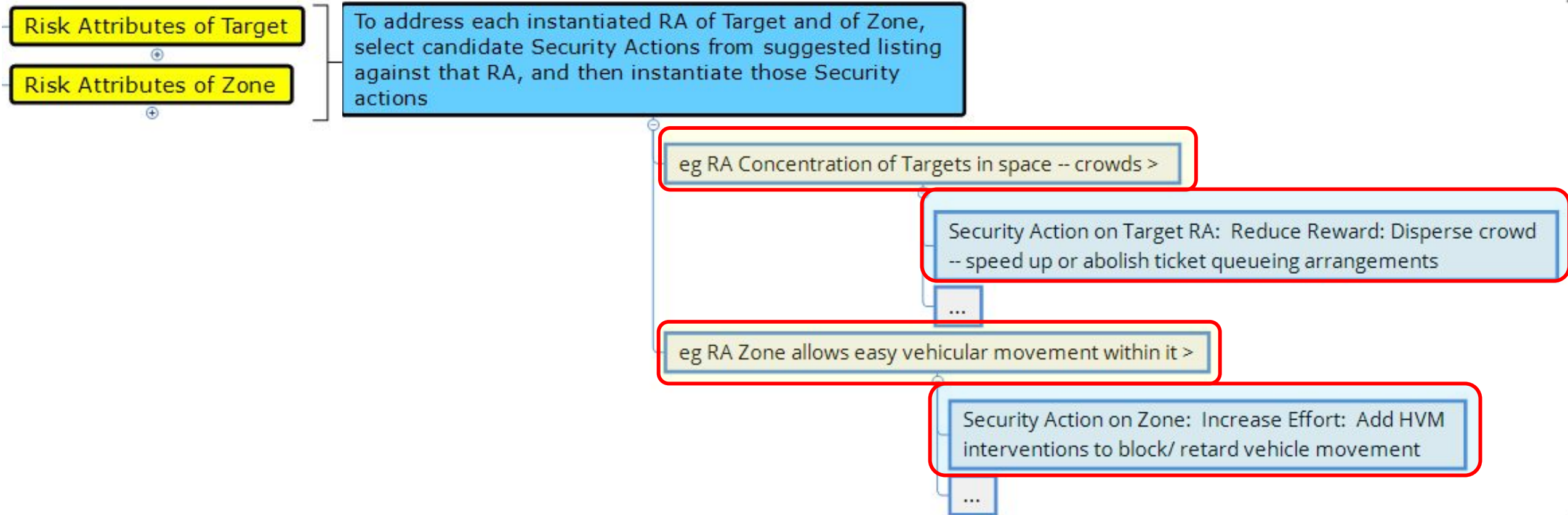
Decreasing effort, time and resources required by Perpetrator

Name	Local Detail	Select
Inadequate surveillance of targets	<div>More info</div>	<input type="checkbox"/>
Vulnerability to Weapon/Hazard deployed by Perpetrators	<div>More info</div>	<input type="checkbox"/>
Exposure to attack - presence in Zone, lack of protective enclosure/standoff	<div>More info</div>	<input type="checkbox"/>
Lack of anchorage - target is removable	<div>More info</div>	<input type="checkbox"/>
Zone contains/is close to exploitable hazards e.g. fuel tanks, steep stairs	<div>More info</div>	<input type="checkbox"/>
Zone boundaries/barriers easily breached on foot	<div>More info</div>	<input type="checkbox"/>
Zone boundaries/barriers easily breached in vehicle	<div>Weak bollards</div>	<input checked="" type="checkbox"/>

In more detail – Security Actions to counter flagged Risk Attributes



Example – Instantiated Security Actions to counter instantiated Risk Attributes



Realisation – Selecting/ instantiating candidate Security Actions on basis of risk attributes, and existing security measures in Zone

Toolkit Progress

Step Progress

Step 9 of 10

Which security interventions might address Vehicle rampage method?

Entrance A

Targets

Passengers/ visitors

Queue - outside Smiths newsagent

Risks in the Zone

Zone boundaries/barriers easily breached in vehicle

Zone allows easy vehicular movement to/from it

Zone allows easy vehicular movement within it

Existing security in this zone



Do you feel that the security measures currently in place in this zone adequately protect you against all the risk attributes you identified?

No

Security Actions

New Security Measures

Local Detail

Implement

Increase standoff distance

Widen pavement beside taxi lane



Previous

Next

[Change Language](#)

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[Send Feedback](#)

Realisation – Summary of user choices

Session Overview

Review all your sections

Crime Type

Terrorist Attack

Vehicle rampage

Entrance A

Targets

- **Passengers/ visitors -**
- **Queue - outside Smiths newsagent -**

Perpetrator Actions

- **Approach Zone boundary in vehicle -** Approach via taxi rank

Risk attributes

- **Zone boundaries/barriers easily breached in vehicle -** Weak bollards
- **Zone allows easy vehicular movement to/from it -** Easy access from taxi lane
- **Zone allows easy vehicular movement within it -** Low kerbs easily surmounted

Security Action

- **Increase standoff distance -** 1. Add bollards beside taxi lane 2. Raise kerb beside taxi lane approach

Issues still to develop

- ❑ Selecting candidate security actions
 - ❑ Effectiveness, Evidence, Harm, Prioritisation, Cost
- ❑ Which is us when project finished?



Selecting security actions to implement

What Security
Interventions to
select?

Selecting security actions to implement

