

# Introduction to the Fire Service Emergency Cover (FSEC) Toolkit

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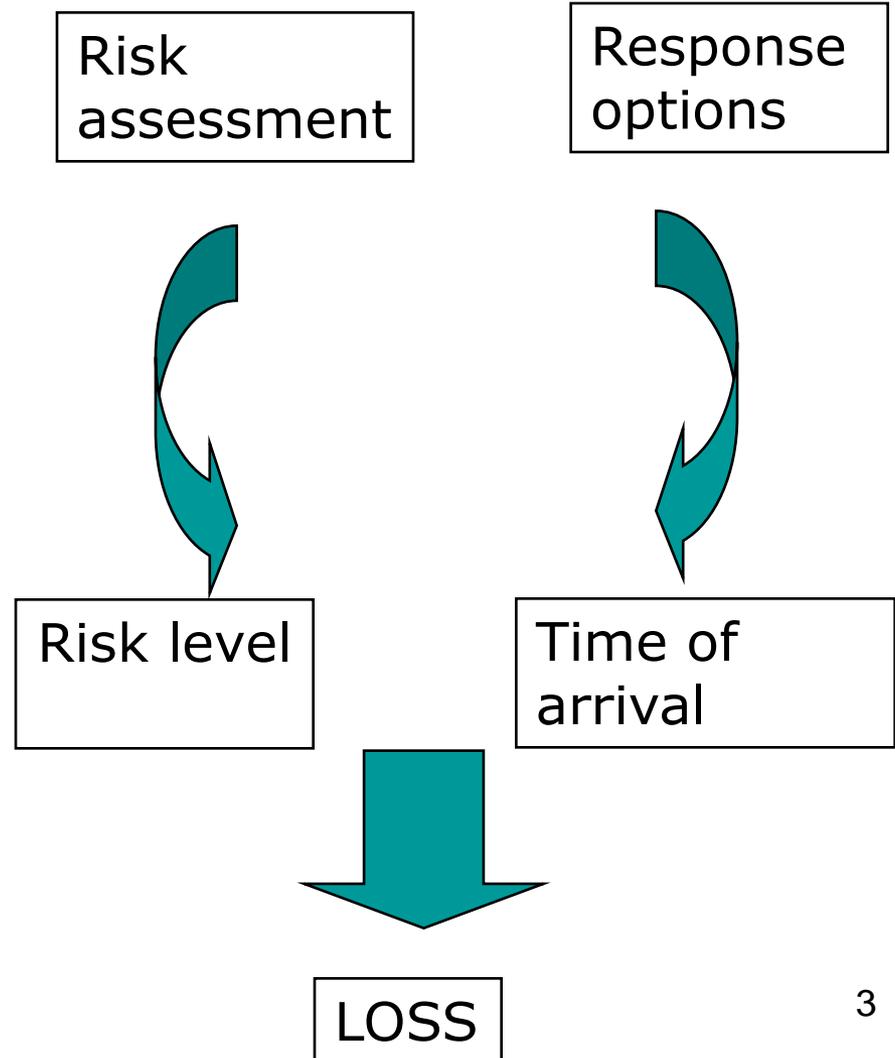
Research and Statistics Division

- **The FSEC Toolkit is a GIS based risk assessment tool provided to fire and rescue services in England, Scotland and Wales to enable them to best match risk and resources.**
- **It considers dwelling fires, ‘Other building’ fires, special services and major incidents to predict life and property loss**
  - **and the stations, vehicles and crew**

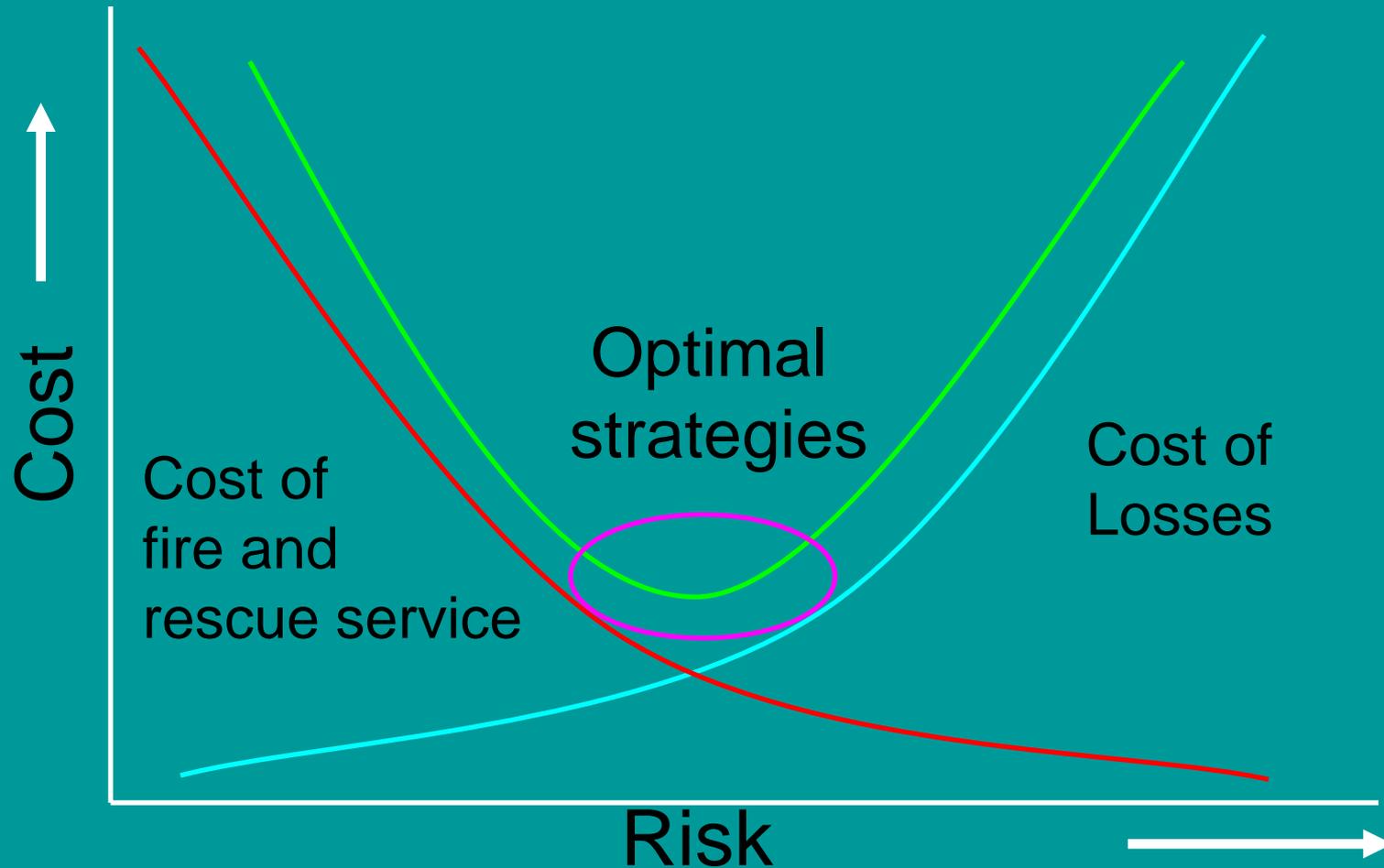
## Modelling the Consequences

### Consists of 3 main parts

- Risk assessment
- Response Planning
- Modelling the consequences of resource deployments or vehicle allocation strategies – i.e. calculate the **losses**



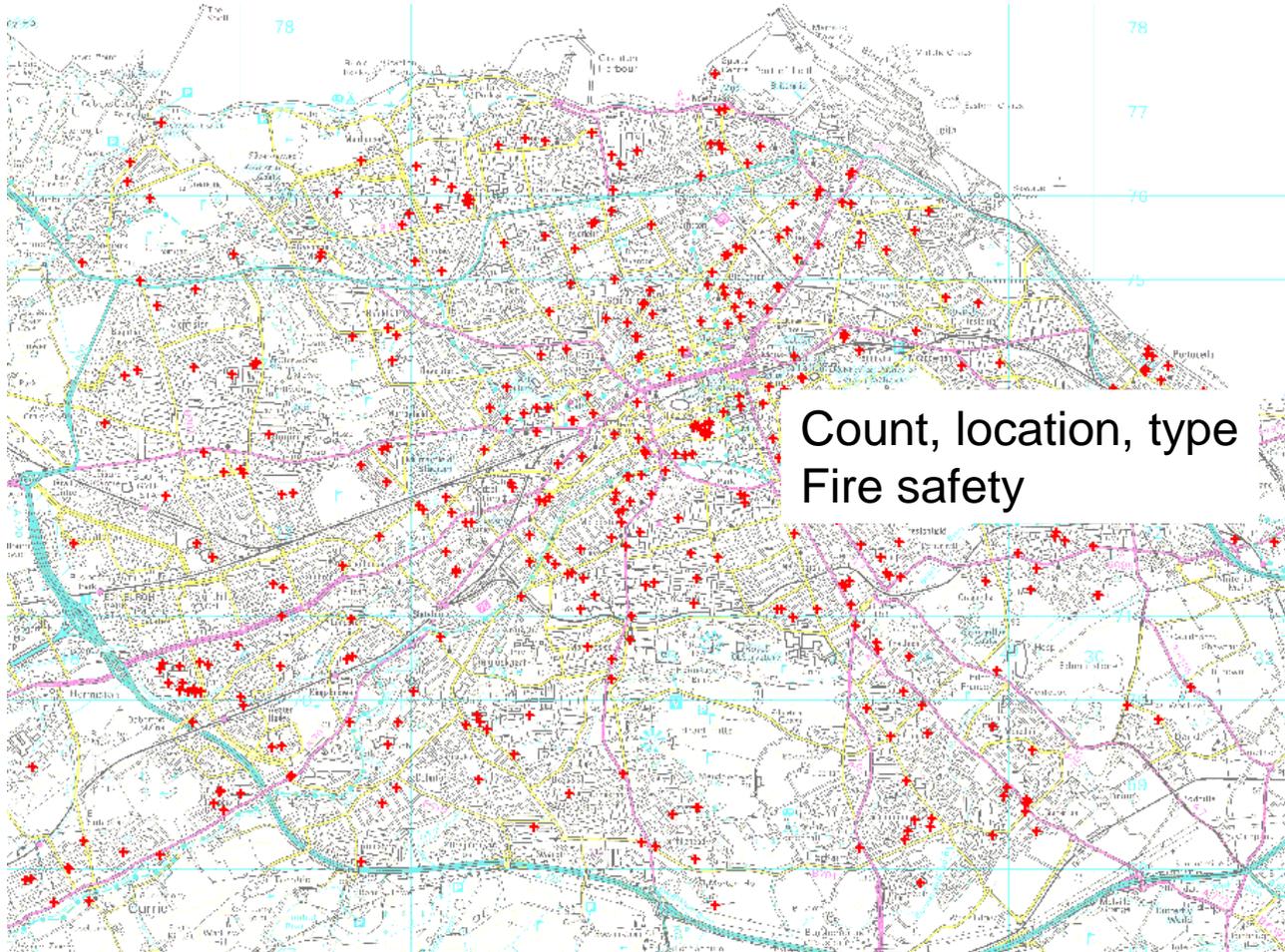
## How the FSEC Toolkit might be used to assist in making strategic decisions



# Risk Assessment

## FSEC measures risk in four modules:

Module	Inputs	Outputs
<b>Dwelling fires</b>		
➤ The risk to individual life in dwelling fires etc.	<ul style="list-style-type: none"> <li>➤ local incident data</li> <li>➤ socio-demographic factors</li> </ul>	➤ Predicted Fatalities
<b>Special Services</b>		
➤ the risk to individual life in special service incidents such as RTCs, extrications	<ul style="list-style-type: none"> <li>➤ local incident data</li> <li>➤ geography</li> </ul>	➤ Predicted Fatalities
<b>'Other Buildings' fires</b>		
➤ the risk to life and property in buildings such as commercial, industrial, public entertainment and houses in multiple occupation	<ul style="list-style-type: none"> <li>➤ local buildings data               <ul style="list-style-type: none"> <li>➤ Valuation office</li> <li>➤ Fire safety data</li> <li>➤ Size</li> <li>➤ Occupancy level</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>➤ Predicted Fatalities</li> <li>➤ Predicted Property Loss</li> </ul>
<b>Major incidents</b>		
➤ the risk to life, the environment etc from major incidents	➤ guidelines from other agencies such as the railways inspectorate, the Environment Agency	➤ Meet Required Response Times



# Predicting the effect of fire safety measures in buildings

Analysis of effect of measures such as :

- AFD/smoke alarms
- sprinklers
- management
- type of occupants

Other Building Site Assessment :School School yüAnywhere

Address: School Anywhere

Reference Numbers:  
UPRN:   
TOID:   
Other:

Building Details:  
Occupancy of Building: M School    
Total Storeys: 1 Occupancy Storeys: 1 Occupancy Occupies:  storey(s)  
Footprint: 1408 SqM Total Area 1408 SqM (calculated)  
Size: 1,001 to 2,500sqm - Medium 0 Pts Medium

Location: Relocated   
Easting: 383915   
Northing: 640038

Fire Safety:  
Alarm: Standard 0 Pts  AFA present ?  
Type of people: Normal mix 0 Pts  
Smoke control: None 0 Pts  
Management of Fire Safety: Average 0 Pts  
Sprinklers: No Sprinklers Fitted 0 Pts

Final scores:  
Life Risk: 0.00 Medium  
Property Risk: 0.00 Medium  
Relative Risk: 4.301 4.571

Date details from Fire Service records added:  Initials:   
Fire Safety File Ref.:  HOCAT Code:   
Date details of site survey added:  Initials:

DLG Version UD 17

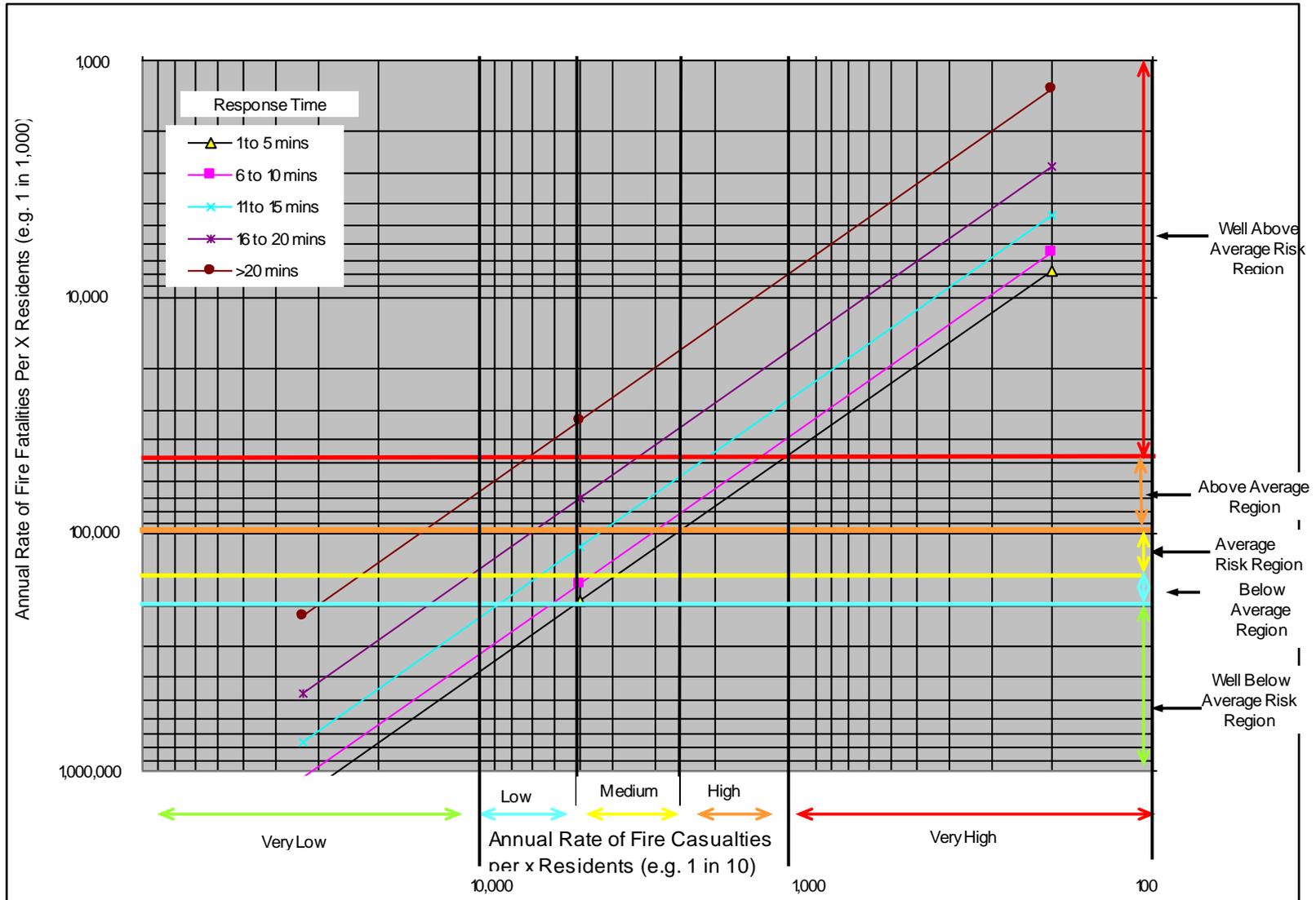
# MODELLING

Relationships derived for fire and rescue service response time  
versus:

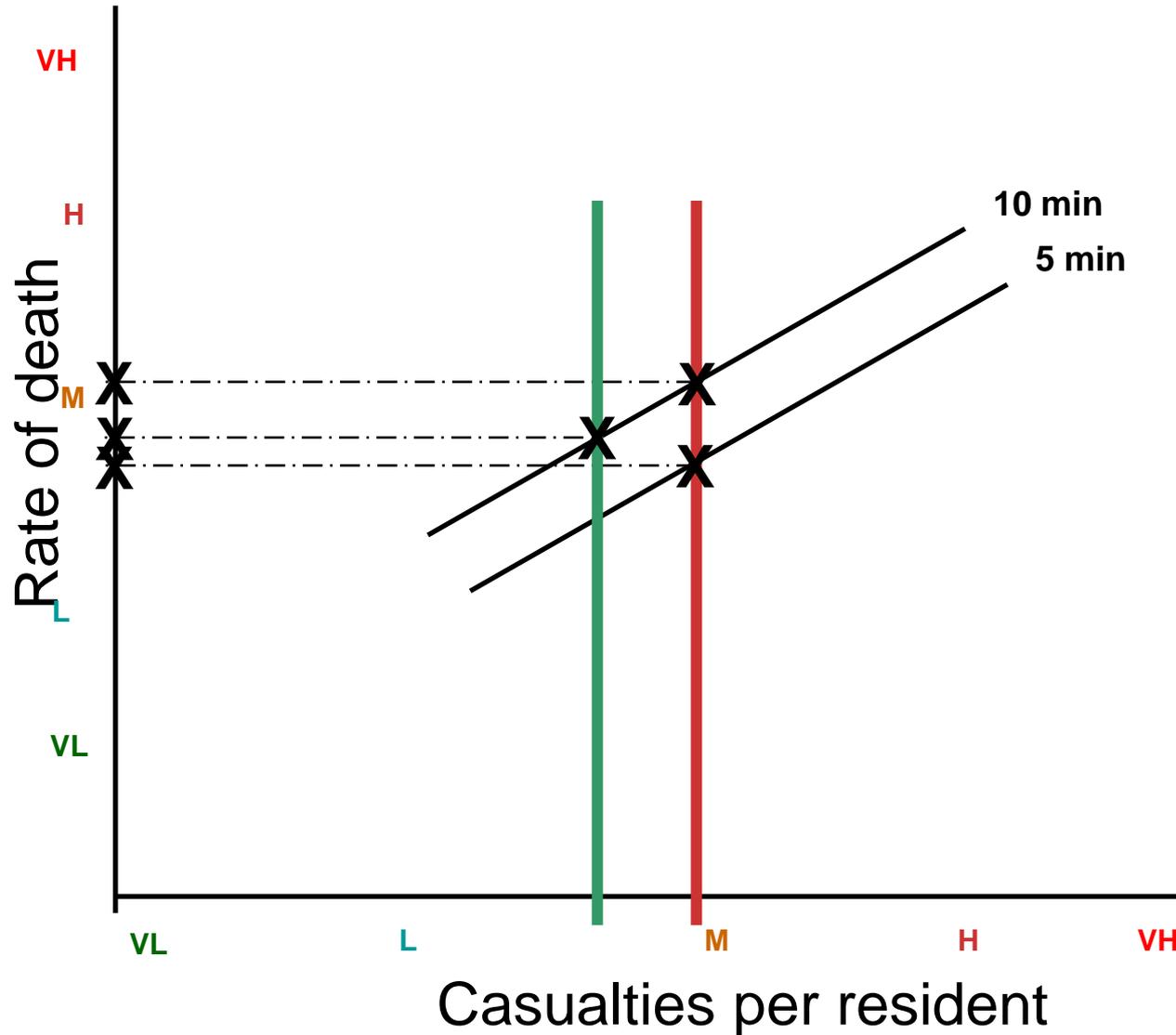
- fatalities in dwelling fires
- property loss in 'other buildings'
- fatalities in special services
- fatalities in 'other buildings'

So you can predict what the losses will be, when you know how  
long it will take to get there.

# Response time fatality rate



# Response time fatality rate - schematic



## Using FSEC – testing scenarios

- **Build base case**
- **Test scenarios**
- **Day crewing a vehicle means an extra 0.01 lives lost per annum, but saves about £134,000 in crew costs**

<b>Base Case</b>	<b>Total 7.48 deaths</b>	<b>Cost £27.74 million</b>
<b>Test case 1 – Day Crew a vehicle</b>	<b>Total 7.49 deaths</b>	<b>Cost £27.60 million</b>

## FSEC can be used as the cornerstone for Integrated Risk Management Planning by enabling :

- **Cost benefit analysis** – by predicting losses for various FRS strategies
- **Targeting** - for example highlighting the high risk population and also the high risk population who do not get a fast FRS response and providing them with Home Fire Risk Checks
- **On-going risk management** - for example providing the platform for maintaining fire safety data or information on buildings with a particular firefighter risk

PORIS : 26977

The Likelihood risk selected is . . . . UNLIKELY

SEVERITY	SEVERITY	RISK CONTROLS	Matrix Score
FIREFIGHTER SEVERITY MINOR	Exposure to hazards resulting in death or serious injury is unlikely but could result in less serious minor injuries requiring first aid treatment.	Most responders will be familiar with the SOPs and GRAs required to prevent exposure.	6
INDIVIDUAL and SOCIETAL SEVERITY MODERATE	One or Two fatalities or a single family group number of fatalities with some casualties requiring hospitalisation and medical treatment and activation of HMAA's alert notification system procedures in one or more hospitals.	Mainly SOPs and GRAs with the possibility of some additional risk controls with which most responders will be familiar to prevent exposure.	9
ENVIRONMENT SEVERITY MINOR	Minor impact on environment with no lasting effects	Most responders will be familiar with the SOPs and GRAs required to prevent exposure.	6
COMMUNITY SEVERITY MINOR	Minor damage to properties, minor displacement of a small number of people for < 24hours and minor personal support required. Minor localised disruption to community services or infrastructure for <24hours.	Most responders will be familiar with the SOPs and GRAs required to prevent exposure.	6
HERITAGE SEVERITY INSIGNIFICANT	Insignificant potential impact on structure and content(s) and therefore no impact on the community	Most responders will be familiar with the SOPs and GRAs required to prevent exposure.	3
ECONOMIC and OTHER SEVERITY MODERATE	Limited impact on local economy with some short term loss of production with possible additional clean up costs.	Mainly SOPs and GRAs with the possibility of some additional risk controls with which most responders will be familiar to prevent exposure.	9

OK Cancel

- Delivered to all FRSs in England, Scotland and Wales in spring 2004
- 43 of 46 English FRSs FSEC 'health-checked'. Provision of high quality, consistent risk data.
- Work load modelling
- CFS modelling
  
- Re-refresh of FSEC this summer
  - Replacement workstations
  - Networking
  - Major incident module
  - Seminars
  
- Due to be rolled into FiReControl project as Risk Management Functionality
  
- Continued development of existing FSEC

### **The FSEC Toolkit:**

- Measures risk in a robust and consistent manner
- Predicts the impact of fire safety measures on risk
- Predicts the impact of FRS response on risk
- Allows managers to analyse ‘What would happen if...’ scenarios
- Integration

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