

## **CHESHIRE FIRE AUTHORITY**

**MEETING OF:** CHESHIRE FIRE AUTHORITY **ITEM: 2**  
**DATE:** 12<sup>th</sup> JUNE 2013  
**REPORT OF:** DCFO CASHIN  
**AUTHOR:** HEAD OF COMMUNITY FIRE PROTECTION

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**SUBJECT: SPRINKLERS – MOTIONS TO CONSTITUENT AUTHORITIES  
AND PART-FUNDING OF INSTALLATIONS IN HIGH-RISE  
BLOCKS**

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### **Summary**

- 1.1 Lead Members from each constituent authority (Cheshire East – Councillor Flude (on behalf of Councillor Topping), Cheshire West and Chester – Councillor Johnson, Halton – Councillor Nelson and Warrington – Councillor Joyce) met with Cllr. Sara Bolton of Derby City Council in November 2012 to discuss the council's approach to supporting Derbyshire Fire and Rescue Services nationally acclaimed 'Think Sprinkler' campaign.
- 1.2 Members were then invited to attend a presentation on the benefits of retro-fitting sprinklers in high-rise residential blocks. Following the presentation, Members asked to receive this paper discussing the viability of part-funding sprinklers in high-rise blocks and taking a motion to their constituent authorities similar to that of Derby City Council.
- 1.3 This paper also details the current position with regard to the requirements for the installation of sprinklers under building regulations and the government's position on changing those regulations.

### **Recommended That Members:**

- [1] Note the current position with respect to compulsory sprinkler requirements within building regulations, both in the UK and Europe;
- [2] Consider moving a motion within their unitary authorities which will lead to an approach to the Department for Communities & Local Government, encouraging it to require the installation of sprinklers in all new homes by amending the Building Regulations;
- [3] Consider and approve the project business case ( Appendix 3) which covers the part-funding of the retro-fitting of sprinklers in high-rise blocks by social housing landlords in each unitary area;

- [4] Agree that up to £160,000 be made available for the initiative to secure the retro-fit of sprinklers in high-rise blocks as outlined in the project business case; and
- [5] Authorise the Head of Community Fire Protection to attempt to secure the retro-fit of sprinklers in a high-rise block in each unitary area (provided that suitable funding arrangements can be agreed with the owners, including a provision to the effect that no liability attaches to the Authority in respect of the works to fit the sprinklers and their ongoing 'use').

## **2. Background**

- 2.1 The Authority's Policy Committee previously endorsed sprinklers and approved a 'sprinkler policy' statement in September 2011. It states that:

"Cheshire Fire Authority has a vision of 'a Cheshire where there are no deaths, injuries or damage from fires or other emergencies'. Sprinkler systems are proven to save lives and property; they improve fire-fighter safety, minimise environmental damage and reduce economic loss. In support of these aims Cheshire Fire & Rescue Service (CFRS) proactively endorses the installation of sprinkler systems in domestic, industrial, educational, commercial and residential premises".

- 2.2 CFRS has a long record of advocating sprinklers, with officers working to increase the number of systems installed as and when legislation requires it, or more often where Community Fire Protection officers can persuade developers of the benefits. Officers recommend sprinklers when responding to Building Regulation consultations and when consulted on planning applications.
- 2.3 In the absence of legislation, persuasion alone has proven an ineffective route to securing sprinkler adoption and despite campaigning by Fire & Rescue Services nationally, change to legislation continues to be ruled out by decision makers who see this as an added burden on business. That conclusion was drawn from a 2004 DCLG commissioned report, conducted by the Building Research Establishment (BRE) which concluded that in general 'residential sprinklers are not cost effective'.
- 2.4 That conclusion was felt by the Chief Fire Officers Association (CFOA) and other bodies such as the Fire Sprinkler Association, to have been based on flawed facts and methodologies; despite this the result is consistently quoted as the reason for not changing legislation. These and other organisations now believe that the way government has selectively used the reports findings, has 'positively undermined' the value of

sprinklers not just in residential premises but within commercial and industrial applications too.

2.5 A more recent 2012 report, again conducted by the BRE but commissioned by CFOA, found that sprinklers are now cost effective for:

- All residential care homes for the elderly, children and disabled people (including those with single bedrooms)
- Most blocks of purpose built flats and larger blocks of converted flats where costs are shared
- Traditional bedsit type Houses in Multiple Occupation (HMO's) where there are at least six bedsit units per building and the costs are shared.

### 3. Current position

3.1 Despite the supposed weight of evidence against sprinkler cost effectiveness and opposition to sprinkler legislation from large developers and construction companies, Fire and Rescue Services have maintained their belief in them and have remained committed to their promotion. Over recent years England has fallen behind the rest of the UK with Scotland and Wales approving new legislation to require sprinklers in certain buildings.

3.2 The following list details the circumstances where sprinklers are currently required by Building Regulations; of particular note are the differences, not only now within the UK, but also across Europe:

#### England

- Warehouse premises in England and Wales of 20,000m<sup>2</sup> or above have to be fitted with sprinklers, as do:
- Buildings over 30m high
- Single and multi-storey shops over 2000m<sup>2</sup>
- Schools that are not classed as low risk by virtue of the risk assessment toolkit 'should', (not must), be fitted with sprinklers

#### Wales

As England except:

- The Welsh Assembly has approved a Legislative Competence Order which will require the installation of sprinklers in a wide range of residential dwellings. This will take effect in respect of new and refurbished dwellings and residential occupancies from October 2013.

#### Scotland

- From May 2005 all new care homes, sheltered housing and high rise residential accommodation over 18m high, have had to be fitted with sprinklers.

- In addition, sprinklers are required in all covered shopping centres.

### **Europe**

In the majority of the largest EU countries, sprinklers must be installed in commercial and industrial properties with an average floor space one-tenth of that required in the UK (20,000m<sup>2</sup>). For example, the following European countries have regulations requiring sprinklers in much smaller warehouses i.e.

- Austria: 1,800m<sup>2</sup>
- Belgium: 5,000m<sup>2</sup>
- Denmark: 2,000-5,000m<sup>2</sup> (dependent upon fire load);
- France: 3,000m<sup>2</sup>
- Germany: 1,800m<sup>2</sup>
- Netherlands: 1,000m<sup>2</sup>
- Norway: 800m<sup>2</sup>
- Spain 2,000m<sup>2</sup>

3.3 The benefits of sprinklers are generally agreed to include:

- Fast response to controlling a fire
- Reduced damage
- More efficient water usage
- Improved business continuity
- Greatly reduced environmental damage
- Potential for more flexible and efficient buildings
- Reduced likelihood of occupant deaths or injuries
- Reduced likelihood of Fire-fighter deaths or injuries

3.4 On the basis of these benefits, CFOA, the Local Government Association and Fire and Rescue Services have continued to advocate their adoption. Successes, whilst small, have been achieved. This usually follows cases where developers have stretched the regulations to the limits by exploiting technical 'loopholes' (trying to avoid installing sprinklers) often in public buildings such as schools or mixed use high-rise blocks.

3.5 More recently, two separate Coroners have issued Rule 43 notices relating to fires in high-rise blocks, (in one of these fires, two fire-fighters were killed). In both instances sprinklers were endorsed for consideration in that type of premises.

#### **4. Proposals for encouraging increased sprinkler adoption**

##### Sprinkler motion

- 4.1 To achieve ongoing success, sprinkler proponents need to find ever more innovative and persuasive ways with which to convince people of the benefits of sprinkler systems. One such approach, adopted by Derby City Council, involved Fire Authority Members submitting a motion (Appendix 1) before their Council in support of sprinklers.
- 4.2 The motion received unanimous support and has led to much closer working between City planners and the Fire and Rescue Service. This is of real value, as prior to this motion planning officers (for reasons of confidentiality), felt unable to approach Fire Officers and thereby failed to advise developers about the benefits of sprinklers; this usually meant that budgets and designs had been fixed before fire officers were even aware of the proposals.
- 4.3 Following the motion, the Council also wrote to the Secretary of State to press for changes to Building Regulations (Appendix 2). Whilst the response was negative, as a demonstration of Civic leadership it was effective in that the voice of community leaders was heard calling for changes to sprinkler laws instead of fire officers. The publicity surrounding the Councils stance on sprinklers also raised their own and the Fire and Rescue Service's profile, providing a springboard for wider action.
- 4.5 Expanding this approach into Cheshire would therefore help continue a growing momentum and assist officers both within unitary areas and the wider Fire and Rescue Service to further this Authority's sprinkler policy.
- 4.6 It is suggested therefore, that with Members support, a similar motion could be put to each Unitary Council in support of the Fire Authority's sprinkler policy. Then, to further that objective, Unitary Councils might consider writing to the Secretary of State asking for a change to building regulations to require sprinklers in new domestic properties (as in Wales).

##### Sprinkler funding

- 4.7 The Community Fire Protection department, in conjunction with Staffordshire Fire and Rescue Service, organised a seminar in 2012 which focused on a sprinkler retro-fit project in a high-rise tower block in South Yorkshire. The project resulted in 47 flats in the 13 storey 'Callow Mount' block in Sheffield, being fitted with a sprinkler system whilst residents remained in occupation. The project cost £55,000 or £1150 per flat.

- 4.8 Members may now wish to consider part-funding a similar initiative. This would help to reduce the hazards faced by both firefighters and residents in high-rise social housing. The project would seek to inspire housing providers, allowing them to see and experience the simplicity and benefits of sprinkler systems, thereby creating a momentum for wider adoption within their housing portfolios.
- 4.9 The intention would be to seek to secure the retro-fit of sprinklers in a high-rise block in each of the constituent authority areas. However, given the uneven spread of high-rise blocks in the area covered by the Fire Authority and with no guarantees about delivery at this stage (as this depends upon the attitude of respective owners and the reaching of agreement with them) this may be difficult to achieve.
- 4.10 The recent Rule 43 letters have increased awareness and interest in retrofitting of sprinklers so this is a good opportunity and owners may be more receptive to an approach from the Authority.
- 4.11 With pro-active promotion and publicity around these initiatives, it is hoped that it will generate the required impetus to encourage landlords and developers to increase the use of sprinklers in their buildings.

## **5. Financial Implications**

- 5.1 The cost of part funding sprinkler systems would depend on the level of contribution Members were prepared to make. Funding options include making a new growth bid or the use of the IRMP reserve or other suitable earmarked reserves.
- 5.2 Paragraph 4.7 refers to the Callow Mount project costing £55,000, or £1,150 per flat. Recent discussions with local landlords indicate that quotes are ranging from £800 to £1,700 per flat. The blocks in Cheshire comprise units of 44 to 95 flats. As the number of flats is a major determining factor in respect of the overall costs, it is difficult to determine a budget. However, officers have used certain assumptions to arrive at a figure. Firstly, if it is possible to tackle four high-rise blocks, the average number of flats per block could be in the region of (say) 60. If we assume a realistic budget to be in the region of £1,200 per flat, that would provide a figure of £72,000 per high-rise block. Further, if we assume that the Authority would only fund up to 50% of the cost, it would make the Authority's contribution limit £36,000 per high-rise block. Accordingly, the Authority's total budget could be set at £144,000. However, given the extent of the assumptions being made it would seem sensible to include a tolerance of at least 10%, bringing the total budget available (when rounded up) to £160,000. A full project business case is attached as appendix 3.

- 5.3 The business case forms the basis of this request to Members to spend capital; (the document also incorporates aspects of the wider sprinkler promotion project i.e. Chester Rows, which are outside the discussion within this paper). When Members consider the business case, it may be sensible to consider using earmarked reserves to fund this spend. Two appropriate reserves would be the IRMP reserve, or the Community Safety Reserve, which has in the past been used primarily to support the cost of Home Safety Assessments.

## **6. Legal Implications**

6. The part-funding of the fitting of sprinklers involves the Authority in committing a significant amount on something that is discretionary. Members need to be satisfied on two main issues: firstly, that there is a power available to the Authority to do this and secondly, that it is a good use of resources in light of their fiduciary duty.

### **6.2 Legal Power**

Section 9 of the Localism Act 2011 introduced a general power for the Authority which is inserted into the Fire and Rescue Services Act 2004 as Section 5A. It contains a list of descriptors that aim to explain the extent of the powers that are available to the Authority. Section 5A(1)(b), is relevant here, it states:

‘A relevant fire and rescue authority may do ‘(b) anything it consider appropriate for purposes incidental to its functional purposes.’

- 6.3 The term ‘functional purposes’ is not defined in the Localism Act, or the Fire and Rescue Services Act. However, ‘core functions’ of fire and rescue authorities are listed in Part 2 of the Fire and Rescue Services Act. Section 6 which is relevant here states;

(1) A fire and rescue authority must make provision for the purpose of promoting fire safety in its area.

(2) In making provision under subsection (1), a fire and rescue authority must in particular, to the extent that it considers it reasonable to do so, make arrangements for (a) the provision of information, publicity and encouragement in respect of the steps to be taken to prevent fires and death or injury by fire’.

Therefore, provided that Members are satisfied that part-funding the fitting of sprinklers is ‘reasonable’ in the context of the delivery of this core function, there should be no doubt that there is power to do so.

#### 6.4 Fiduciary Duty

Whilst Members must always be mindful of their general fiduciary duty when making decisions, this is a more significant issue if the sums involved are large and relate to a discretionary matter. Members may also wish to weigh up the extent to which any benefit can be measured (cost/benefit analysis). In addition, the context within which the decision is being made will also have a bearing, e.g. current funding and budgetary pressures.

#### 6.5 Arrangements

The fitting of the sprinklers should be the responsibility of the relevant social landlord, which takes on all responsibility/liability. There would need to be a form of funding agreement, which commits the Authority to the expenditure, but it need not be directly involved in the procurement and engagement of contractors. The funding agreement could require Service input to the procurement and practical elements of the project to help ensure that the social landlords secure the best outcome. It is important that the project is a success as negative publicity will damage both the campaign and the Service's reputation.

### **7 Equality & Diversity Implications**

- 7.1 Sprinkler systems provide additional escape time for individuals with a disability affecting their mobility. The installation of sprinkler systems on a risk based approach will ensure that those most vulnerable to fire are more likely to be protected.

### **8. Environmental Implications**

- 8.1 Sprinklers are known to use less water than fire hoses to extinguish the same sized fire. More significantly, restoration post fire requires considerable carbon intensive manufacturing and transport inputs; these are minimised if not eliminated where fires are extinguished with sprinkler systems.

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**BACKGROUND PAPERS:  
Policy Committee, Sprinkler Policy, September 2011**



## Appendix 1: Example motion

**MOTION**

**FULL COUNCIL**

Wednesday 18 July 2012

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Council notes with sadness the recent tragic events in this city relating to fires in the home. Council applauds the efforts of Derbyshire Fire and Rescue Service in encouraging homeowners/landlords to install fire prevention measures, and Council supports the installation of sprinkler systems in all new homes.

However, Council recognises the necessity for legislative change to enable this. It is noted that changes in Building Regulations introduced by the Welsh Assembly could see sprinklers required in all new homes in Wales by April 2013.


Council therefore calls on the Secretary of State to introduce similar changes to the Building Regulations in England as a matter of urgency, to prevent similar tragedies occurring in the future.

Furthermore, Council instructs officers to look into whether such requirements could be imposed on all new build properties on the granting of planning permission in Derby.

**Mover**            Councillor Sara Bolton


**Seconder**        Councillor Hardyal Dhindsa

## Appendix 2: DCC letter to Minister following motion approval

  
Derby City Council

**Councillor Hardyal Dhindsa**  
Labour - Normanton Ward  
Cabinet Member for Planning, Environment & Public Protection

**Andrew Stunell OBE MP**  
Department for Communities and Local  
Government  
Eland House  
Bressenden Place  
London  
SW13 5DU



Your ref  
Our ref HD/PC/mas  
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Date 8 August 2012

Dear Mr Stunell

### Building Regulations: Sprinkler Systems

I write in respect of the above matter which is of life saving importance to Derby City Council and its residents.

The Council notes, with sadness, the recent tragic events in this city, relating to fires in the home. The Council applauds the efforts of Derbyshire Fire and Rescue Service, in encouraging homeowners/landlords to install fire prevention measures, and the City Council supports the installation of sprinkler systems in all new homes. It is in this respect that I am writing to you.

The City Council recognises the necessity for legislative change to enable this to take place. It is noted that changes in Building Regulations, introduced by the Welsh Assembly, could see sprinklers required in all new homes in Wales by April 2013.

Derby City Council therefore calls on the Secretary of State, to introduce similar changes to the Building Regulations in England, as a matter of urgency, to prevent similar tragedies occurring in the future.

I should look forward to your considered response to this motion in anticipation of suitable changes to the Building Regulations.

Yours sincerely



Councillor Hardyal Dhindsa  
Cabinet Member for Planning, Environment & Public Protection

c.c. Rt Hon Margaret Beckett MP  
Chris Williamson MP  
Pauline Latham MP  
Cllr Sara Bolton – Derby City Council

**Appendix 3 BUSINESS CASE**

**BUSINESS CASE**

**Sprinkler Promotion Projects  
(Including Retro-fitting in High-Rise  
residential blocks and Chester Rows)**


**Appendix 3: Project planning toolkit – business case.**

## **Sprinkler Project Business Case**

Document Version

Project Title	Sprinkler Promotion Projects (including Retro-fitting in High-Rise residential blocks and Chester Rows)
Project Sponsor	DCFO Cashin
Project Manager	AM Brooks
Version Number	V1.1
Version Date	8/5/2013

Document Approval Signatures

Role	Name	Signature	Date
Project Manager	Keith Brooks		24/4/13
Project Sponsor	Mark Cashin		

## 1. Issue to be addressed

Fire Sprinklers save lives, protect property, the environment and help protect local jobs and the economy. The wider adoption of sprinklers in Cheshire will help CFRS achieve its vision of a Cheshire where there are no deaths, injuries or damage from fires or other emergencies.

The Community Fire Protection Department (CFP) has been tasked by the Fire Authority (CFA) with promoting the use of sprinklers in domestic, industrial, educational, commercial and residential premises.

This document details a project business case to promote the installation of automatic water sprinkler systems within the historic Chester Rows and part fund the retro-fitting of sprinklers in four high rise residential blocks across Cheshire.

The objective of this project is to increase the installation of sprinkler systems within these premises through their proactive endorsement and by increasing stakeholders understanding of their benefits. It is intended that this project will focus on changing the local picture through local projects and the national picture by working with other sprinkler advocates such as CFOA, the NFSN, BAFSA and the NFPA.

There is an aging high rise social housing stock within Cheshire, in addition the Mosaic Household Group data shows 'Elderly people reliant on state support' and 'Young people renting flats in high density social housing' together make up nearly 86% of all residents; these being the two groups most at risk from fire.

In addition two Rule 43 letters issued by Coroners after the Lakanal fire in London and Shirley Towers in Southampton have both recommended the retro-fitting of sprinklers in high-rise residential blocks.

Members have previously given their endorsement to the benefits and promotion of sprinklers and already have in place a Sprinkler Policy which this project is designed to progress.

## 2. Recommendation

The Project manager requests that PAG approves the following actions, that:

The validity of this business case is agreed,

The project approach is approved, and

That PMG monitors progress during the course of the project

### 3. Background

Despite global acceptance of the advantages that sprinklers bring, fire and rescue services (FRS's) have yet to convince decision makers that they should be compulsory or even that they are cost effective.

FRS's continue to promote sprinklers through seminars, social media and after fires etc. but despite this have consistently failed to secure changes to legislation in England. Recent updates to fire tests have demonstrated that sprinklers are in fact cost effective in a number of applications and legislative amendments in Wales (requiring all new residential properties to be fitted with sprinklers and in Scotland covering Care Homes) have also helped to increase the potential for change. In addition, Scotland requires the installation of sprinklers in buildings above 18 meters, in England it's 30 meters.

The retro-fitting of high-rise residential blocks would apply the same principles that were used in the successful installation of a sprinkler system at Callow Mount, Sheffield. This project involved the retrofitting of a fully comprehensive sprinkler system in a 1960's high-rise block of flats, whilst the residents remained in their properties and with the installation being completed in 4 weeks.

Following the 1992 Windsor Castle fire, it was concluded that automatic fire suppression systems can play an important role in the protection of heritage buildings especially where it was difficult to introduce other fire protection measures such as improved compartmentation.

Sprinklers can also significantly reduce the risk to firefighters when tackling historic building fires. Ongoing work by CFP in Chester on the protection of the Rows has increased the possibility that the Council (CWAC) and others may be willing to install sprinklers in their own properties within the Rows as a means of protecting Chester's famous heritage.

These factors have all combined to make this the best opportunity for real change there has ever been and is therefore a major consideration in the timing of this project.

A 2004 BRE Report suggested that the frequency of fire per accommodation unit increased with building height, but that the risk of death per fire was not significantly affected by height. UK fire statistics suggest that, in multi-storey buildings, the number of fires per floor was not evenly distributed and that there were more fires at ground floor level. Recent fires appear to call this conclusion into doubt or at least suggest that while the numbers proposed by the statistics may be correct, the more severe incidents which require significant fire service intervention and hence result in media coverage may receive greater attention. The LGID's document Fire safety in purpose-built blocks of flats discusses the relative risk in flats and quotes official sources which say that around 10% of the

population live in purpose-built flats. In 2009-10 some 25% of recorded dwelling fires occurred in such properties, and 23% of fire deaths were in this category of dwelling. Such statistics are clearly indicative of the real fire and life safety risks that are involved in un-sprinklered premises.

While noting that the number of deaths appears disproportionate to the number of people living in purpose-built blocks of flats, the LGID report dismisses this as 'simply the result of the number of fires occurring in such dwellings most of which occur accidentally.' This somewhat surprising conclusion has received little publicity and is, in the opinions of a number of fire safety professionals, not fully explained nor are the implications developed.

In 2008, revised guidance was issued by the Communities and Local Government Department and Scottish Government, Generic Risk Assessment 3.2 – High Risk Fire-fighting Version 2, to help ensure that fire and rescue services plan and prepare for such incidents more effectively. Updating previously published guidance from 2006, this emphasised that, by their very nature, fires in high-rise blocks pose potentially more significant and serious risks. It also recognised that high-rise fires can be more physically demanding and resource intensive for operational personnel compared to incidents in low-rise premises.

When compared to the dates when these blocks were constructed, the weight of fire service resources demanded by each incident has increased over time. This is due to the years of experience gained at such incidents, the loss of fire-fighters over the years and the more safety critical approaches being employed by the fire and rescue service. The guidance quoted acknowledges that fire service ladders, and high-reach access equipment, can only, with rare exception, access the lower levels of a high-rise block, thereby putting residences above this at greater risk. Operational tactics are therefore based on establishing a 'bridgehead' two floors below where the fire is, and requires all equipment and personnel to be transported there. Where fire-fighting lifts are available they can be used, but if lifts are unavailable the alternative use of stairs adds to the logistical difficulties. Should the bridgehead be at a high level it may be necessary to establish one or more staging areas between it and the ground floor. Establishing a bridgehead significantly increases the time before fire-fighting operations begin. This delay means that the fire can develop and spread much farther than an equivalent incident in low-rise premises. This delay can also increase the potential for a flashover or back draught that can, in turn, be exacerbated by high-level wind and weather conditions, and internal ventilation systems.

However, the installation of an effective sprinkler system can go a long way to ameliorating such challenges.

The CLG 2008 guidance also highlights the need to consider the following:

- While modern high-rise premises are generally constructed of fire-resisting materials, the possibility of internal and external fire spread to other parts of the building must be taken into account. Stairways, enclosures and other flats may have been affected due to damaged smoke stop-doors, door-closers, fire-resisting glazing, or breaches to fire compartmentation.

These last concerns played a significant factor in the fatal fire at Lakanal House in London and arise partly due to the changes imposed on buildings since their construction e.g. installation of cable TV, telephone systems, more modern plumbing etc. all of which passed through and often compromised fire resisting compartments.

#### 4. Options Considered

No	Option	Summary Explanation	Pro's	Con's
1	<b>Do nothing</b>	This option would not see any reduction in current risk levels across Cheshire or an improvement in the awareness or acceptance of sprinklers by stakeholders.	No cost, CFP resources can be deployed elsewhere	Local landlords continue to fail to recognise the benefit of sprinklers leading to stagnant levels of adoption  Continued risk to fire fighters, no improvement to higher risk environments.
2	<b>Business as usual.</b> (Continued sprinkler promotion without specific funding).	This option would simply involve the continued promotion of sprinklers using social media, campaigns, seminars etc	Relatively cheap option.	Usually involves 'preaching to the converted'; has been tried, but with limited long term or sustained effectiveness to date
3	<b>Funded &amp; targeted sprinkler project</b>	Option 3 involves the part funding of sprinkler systems in targeted premises, with the aim of making tangible the benefit of sprinklers in-situ thereby making their use the norm.	Has the most potential to show the true benefits to users; potential for significant publicity; clear demonstration of civic leadership; enhances fire-	Most expensive option; will require buy-in from partners; dependent on landlords schedules of maintenance, agreement and timetable of ongoing works.



			fighter safety in higher risk environments within Cheshire; protects vulnerable residents and improves the community feeling of well being.	
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## 5. Timescales

No	Milestones	Target Delivery Date
1	Project Initiation Stage	30/5/2013
2	Project Implementation Stage	1/6/2013
3	Budget approved by CFA	12/6/2013
4	Engagement with RSL's begins	13/6/2013
5	Four blocks identified and agreement reached with RSL's to part-fund	31/12/2013
6	Four blocks retro-fitted	TBC dependent on their schedule
7	Paper presented to CWAC Council by Cllr E. Johnson for retro-fitting of council properties in the Rows with sprinklers	TBC (within next 4 – 6 months)
8	Sprinkler motion to write to CLG approved by four unitary councils	31/12/2013
9	Project Closedown and Evaluation Stage	TBC
10	Project Handover to Business As Usual	TBC

## 6. Financial Implications

		£000
<b>Capital Expenditure</b>		
Land	A	
Buildings	B	
Other	C	160*
<b>Total Capital Expenditure</b>	$D=A+B+C$	160
Capital grant/contributions	E	0
<b>Net capital expenditure</b>	$D-E$	160
<b>Revenue Expenditure</b>		
Employee costs	F	
Other revenue costs	G	
<b>Total revenue expenditure</b>	$H=F+G$	
Fees , charges or other income	I	
Employee savings	J	
Other savings	K	
<b>Total income/savings</b>	$L=I+J+K$	
<b>Net revenue expenditure/savings</b>	$H-L$	

\*Actual, CFA approved figures to be entered after 12/6/13

There are 21 tower blocks in Cheshire, all of which should have been designed and constructed in accordance with the building regulations of the day and therefore were not fitted with sprinklers. This situation inevitably poses a significant degree of on-going risk which, based on the findings and outcomes of the Sheffield pilot project, could be readily eliminated by a commitment to retrofit sprinklers into such properties at an affordable cost per flat. If this work were undertaken as part of the standing commitment on local authorities to upgrade the tower blocks, the associated costs could be even lower, unfortunately however, this is not an imposed requirement, just a recommendation.

The frequency of fire incidents in high-rise social housing buildings has been acknowledged in both the BRE Research project and the LGID's Fire safety in purpose-built blocks of flats guidance document. Both documents note that the frequency of fires in this type of property is higher than that in single residential dwellings.

In recent years a number of serious incidents in high-rise premises have resulted in fatalities and injury of residents and fire-fighters. In the 12 months before the commencement of the Sheffield pilot project installation, that project team recorded 13 fires in comparable properties in the UK. These resulted in 9 fatalities and 12 people, including 5 fire-fighters, requiring treatment for injuries or smoke inhalation. Many other such fires will also have occurred. In addition to

this loss of life, such fires have impacted upon the daily lives of others and resulted in damage to adjacent dwellings, with all the associated disruption which that entails. Such impacts result in significant unnecessary trauma and stress for the affected occupants, while the local authority suffers the inevitable re-housing and refurbishment costs. Particular problems for the owners and tenants invariably result from water damage (from fire-fighting activities) caused to accommodation on floors below a fire.

The high population levels of many high-rise blocks of flats requires the Fire & Rescue Service to prepare more complex plans that mobilise a larger number of personnel and equipment than for low-rise domestic premises. Inevitably, this significantly increases the operational costs per incident.

In recent years there have been a number of incidents in high-rise blocks that have resulted in fatalities and serious injury of fire-fighters, with all the knock-on operational financial implications that this entails, in addition to family trauma.

The potential for numbers of residents requiring medical attention, and/or police assistance, means that an incident in a high-rise block will have much more impact and create a greater demand for resources on the other 'blue light' services than an equivalent low-rise incident. The possibility of fire and rescue service personnel also requiring medical assistance is increased, together with the need for enhanced security, crowd control, investigation and sadly, coroners' support, all of which entail additional operational costs associated with any incident.

Local authorities are required to have predetermined, tested plans in place to support the emergency services in the event of incidents such as a major fire in a high-rise block. These include the provision of technical support from maintenance engineers, health and safety advisors, and tenant liaison staff, with their associated costs. But it is highly likely that a significant number of residents could still require evacuation from a tower block during an incident. Depending upon the fire severity, and duration of fire-fighting operations, short-term temporary shelter is likely to be required in local premises such as community halls and schools. Attendance by social service staff, and voluntary groups, would also be required to ensure the welfare of evacuees, a problem which can add significantly to the financial consequences of an incident.

In the event that parts of the premises, or the whole block, cannot be occupied following a fire, the local authority will have to provide short-to-medium-term temporary accommodation for residents in local hostels, hotels or other commercial premises. In larger tower block incidents this could conceivably be for over 100 people. Consequently, there can be significant additional costs involved in doing so.

Where extensive refurbishment or repair is required a more permanent and expensive approach to re-housing might also be required. In the case of Lakanal

House, the block has remained empty and in its fire-damaged state since July 2009 and it is possible that it will never be re-occupied. While in some cases the effects of a fire may be localised and only necessitate repairs to individual flats, in many incidents fires affect other dwellings and communal areas. This will have had a significant additional impact on rebuilding costs and the time taken to restore premises, while also prolonging the need for (and costs of ) temporary accommodation.

A fire has a serious impact on any occupant, particularly so when it occurs in a domestic property. Apart from the obvious risk of personal injury or death it seriously disrupts individual and family life thereafter. It can also create damage to, or the complete loss of, personal property and possessions, some of which are likely to be irreplaceable family memories and treasures. The psychological consequence of this degree of loss is often significantly underestimated. Such trauma can render an individual unable to function normally and may, for example, make it impossible for someone to live above the ground floor or use elevators. A serious fire in a high-rise community can also be detrimental to the well-being of all those in the immediate area, and raise wider concerns amongst residents, and those who live in other tower blocks in the neighborhood.

Although the cost of a fire incident in a high-rise will vary considerably; case studies show that one flat fire cost Glasgow Housing Association £2.6 million and another in Norwich cost the city council over £230,000, a third example in Sheffield caused £10,000 worth of damage but lost rental of £3,200 per month.

The tables below show the number of incidents occurring in high-rise premises in Cheshire over a three year period; this suggests that the potential for a serious accidental or deliberate fire is a distinct possibility and that a relatively small financial incentive, could provide a real return on investment.

Appendix 3 to Item 2  
Cheshire Fire Authority  
12 June 2013

*Table to show Total & % of Incident data & deliberate fire data period 1/4/09 to 31/3/12*

All High Rise	DEL	AFA	ADF	FAM	SSC	SEC	FAGI	Total 3 year Incidents
Overall Totals	3	52	12	9	50	2	14	142
Percentage	2.1%	36.6%	8.5%	6.3%	35.2%	1.4%	9.9%	100%

DEL = Deliberate                      AFA = Automatic Fire Alarm            ADF = Accidental Dwelling Fire  
FAM = False Alarm Malicious      SSC = Special Service Call            SEC = Secondary  
FAGI = False Alarm Good Intent

The table below is set out in descending order by total number of 3 year incidents.

*Table to show Incident data & deliberate fire data period 1/4/09 to 31/3/12 for each High Rise*

Name	Storeys	DEL	AFA	ADF	FAM	SSC	SEC	FAGI	Total 3 year Incidents	Deliberate Fires within 250m
Plas Dinas Flats, Blacon, Chester	13		14	2	2	7			25	7
Waverley Court, Crewe	12		8	2		6		1	17	15
Pennine Court, Macclesfield	16		4	2	2	7	1		16	6
Churchill Mansions, Runcorn	11		5		3	4		4	16	3
Range Court, Macclesfield	16	2	5			6			13	6
Peninsula House, Warrington	12	1				4		2	7	29
Joseph Groome Towers B3, E. Port	13		6						6	47
Joseph Groome Towers B1, E. Port	13		1	2	1	1			5	42
St Oswald's Flats, Newton, Chester	13					3		1	4	18
Nant Peris Flats, Blacon, Chester	13					3	1		4	9
Haygarth Heights, Newton, Chester	11		2			1		1	4	8
Thackeray Towers, Newton, Chester	11			2				2	4	7
Stanley Park Grange, Wilmslow	13		2	1		1			4	2
Joseph Groome Towers B2, E. Port	13		1			2			3	48
St George's Flats, Newton, Chester	11					2		1	3	19
St Anne's Flats, Newton, Chester	11		1	1		1			3	12
Kingsway House, Warrington	9				1	1		1	3	10
Rowlands Heights, Newton, Chester	11					1		1	2	10
Jubilee Court, Wilmslow	13		2						2	1
Woodstock Court, Wilmslow	13		1						1	2
Glyn Garth Flats, Blacon, Chester	13								0	11

## 7. Resource Forecast

Resource (Person or Role)	Number days	Frequency	Duration	Estimated Total Days <i>(Based on 12 month work programme)</i>
<b>DCFO</b>	0.5	month	12 months	6
<b>Area Manager</b>	1	month	12 months	12
<b>Partnerships &amp; Policy Manager</b>	2	month	12 months	24
<b>CFP Group Manager</b>	3	month	12 months	36

<b><i>CFP Station Managers</i></b>	3	month	12 months	36
<b><i>Business Safety Manager</i></b>	2	months	12 months	24
<b><i>Media Officers</i></b>	1	month	12 months	12

## 8. Benefits to be realised

- Increased awareness of sprinklers amongst the business community in Cheshire, specifically residential social landlords and heritage premises owners.
- Considerably reduced risk to CFRS fire-fighters attending incidents in sprinklered high-rise blocks
- Considerably reduced risk to life of the often vulnerable residents in sprinklered high-rise blocks
- Opportunity for the exploitation of community safety messages through local and national media which result especially from more high-profile funding or heritage projects
- Improved protection of Cheshire's heritage, the loss of which impacts on the wider tourism agenda and the economy of the county and region.
- CFRS will continue to be recognised as a key influencer and proponent of the sprinkler agenda and will be seen to be behind the LGA and CFOA campaigns.
- Sprinklers are known to use less water than fire hoses to extinguish the same sized fire. More significantly restorations post fire requires considerable carbon intensive manufacturing and transport inputs; these are minimised if not eliminated where fires are extinguished with sprinklers systems.
- Increased community well being and reduced perception of the risk of fire.

## 9. High Level Risks and Assumptions

### **Risks:**

- The CFA could be accused of helping to finance other organisations to deliver their own priorities during a time of austerity. This is likely to be an accusation from both staff and the public.
- Without an adequate legal agreement in place, the organisation may be held at least partly liable, in the event of a failure to install a system to the

approved standard, a failure to activate in the event of a fire or from other consequential damage arising.

- CFP managers may not be able to persuade social landlords to divert pre-approved funding to the retro-fitting of sprinkler systems, even with the incentive of part funding.
- Publicity arising from the retro-fitting of systems may not be as positive as the Callow Mount project experience.
- Owners/landlords of high-rise residential blocks may only sprinker the part funded blocks and not in time and afterwards, expand the systems to the rest of their portfolios.
- Legislation or other events could be implemented during the course of the life of the project making it a legal requirement on RSL's to install sprinklers in tower blocks anyway (although this is currently considered highly-unlikely).
- Heritage premises within Chester Rows may be subject to unforeseen technical, legislative or other constraints which prevent the installation of sprinkler systems within council and other landlords' premises.

**Assumptions:**

The Project Manager has assumed that:

- The CFP structure will continue to contain sufficient resources to deliver the project and that this will be delivered through partnership working.
- Those partners will be open to discussions and persuasion to become involved in these projects
- The CFA will authorise a sufficient budget to persuade RSL's to participate.
- The choice of blocks to be retro-fitted will be determined primarily by Members on the advice of the landlords and Head of CFP using a risk/benefits based approach.