Agenda Item 6
Appendix
EFA paper EFA/003/15

ESSEX FIRE AUTHORITY
Essex County Fire & Rescue Service

MEETING	**Policy & Strategy Committee**	AGENDA ITEM	**6**
MEETING DATE	15 January 2014	REPORT NUMBER	**EFA/003/14**
SUBJECT	**Insurance Pooling**		
REPORT BY	The Chief Fire Officer and The Finance Director & Treasurer		
PRESENTED BY	The Finance Director & Treasurer, Mike Clayton		

SUMMARY

This paper seeks approval for the Authority to form, in conjunction with other Fire and Rescue Authorities (FRAs) an entity to act as a pool for insurance purposes. Under the pooling arrangements all the participating fire and rescue authorities would share financially with each other, on a proportionate basis, the cost of establishing a pool fund from which any loss incurred by an individual member of the insurance pool would be met. This proposal is being considered by eight other Fire and Rescue Authorities, all of whom have worked together on insurance and risk management issues for the past 7 years.

The paper seeks approval for membership of the proposed company, the provision of the necessary financial guarantees and the commitment to transfer insurances to the pooling entity from 1 November 2014 or thereafter subject to final arrangements being in place.

RECOMMENDATIONS

Members are asked to:

1. Agree to the Authority participating in establishing a Fire & Rescue Authorities Insurance Pool; and Agree that the Authority becomes a full member of the company and authorises the Finance Director and Treasurer, and the Clerk to take all necessary steps to achieve this;

2. Agree that the Authority utilises the pooling arrangement for its corporate property, liability, motor and other miscellaneous insurance requirements for a minimum period of three years through the pooling entity with effect from 1 November 2014, or thereafter subject to final arrangements being in place;

3. Agree to participate in a financial guarantee for supplementary premiums should claims against the pool exceed the funding available and authorise the Finance Director & Treasurer to take all necessary steps to achieve this;

4. Agree that officers may serve as Directors of the pooling entity and that the Chief Fire Officer or their nominee be empowered to represent the Authority's interests at any formal meetings of the pooling entity and to vote on its behalf; and

5. Agree to waive the Authority's existing procurement rules that would require competing bids for the provision of insurance services to allow for the provision of cover for losses through the pooling company.

[Note: Recommendations 1 to 3 are required to be agreed by all Authorities who wish to participate in the pool]

BACKGROUND

In 2005 a group of Authorities commissioned, in conjunction with Firebuy a study of the potential to achieve savings in insurance costs through an alternative to the purchase of insurance in the open market. The study modelled a range of loss scenarios for a number of different insurance structures, ranging from a discretionary mutual support to a mutual insurance company regulated by the Financial Services Authority. They concluded that a mutual insurance company structure was the preferred option. The Authority participated in the Fire and Rescue Authorities Mutual (FRAML) until a legal challenge to a similar company covering nine London Boroughs caused the arrangements to cease in 2008. Since then the nine Authorities have bought insurance together and collaborated on improving risk management and reducing the costs of high value claims.

Recent claims experience has been mixed with a small number of high value claims leading to significant premium increases for motor insurance from the current insurer. As a consequence of this the Fire and Rescue Authorities' insurance consortium has again turned to alternative risk sharing alternatives to see if they have the potential to reduce the costs of insurance.

FEASIBILITY STUDY

In March 2013 the nine authorities in the insurance consortium commissioned a study to explore various pooling scenarios. Data for the study, comprising five years claims experience for all the authorities was provided and Regis Mutual Management was selected to carry out the study. They issued their Pooling Concept Feasibility Study in May 2013. The study was conducted using confidentiality agreements to ensure that it would have no commercial impact on the tendering of the consortium's insurance renewals in the summer of 2013. These commercial considerations also delayed the bringing forward of these proposals for approval.

The report recommends the formation of an entity to act as a pooling mechanism to allow all nine Fire and Rescue Authorities to share risk and reduce insurance costs. A hybrid pooling model is suggested with a discretionary pool for the attritional losses and conventional insurance for larger losses. The use of such a discretionary route is well established and is enshrined in the Financial Conduct Authority (formerly Financial Services Authority) handbook.

The technical summary of the modelling undertaken by Regis are included as Appendix 1. A full copy of the feasibility Study is available to Members on request. Based on the historic claims experience of the nine authorities the most likely outcome would be a savings of some

£1.5m out of total premiums of £19.7m – a saving of 7.6% shared across the nine FRAs. Under this modelling scenario there would be the need for supplementary calls on Authorities in some years; these would be 5.5% of annual contributions.

Table 1: Recommended Pool Structure

Fleet Retention per Claim	£1m	Cross Class Aggregate Insurance for retained losses between £2m and £5m. Excess Layer insurance beyond £5m
Liability Retention per Claim	£250k	
Property Retention per Claim	£100k	
Risk Gap / Supplementary Call	£200k or 5.5% of Contributions	

The modelling, using the actual claims experience for the last five years, shows that provision is required for Authorities to provide guarantees of funding against supplementary calls if the pool is to be sustained before it is able to build up its balances. To achieve this a provision for supplementary calls will be including in the pooling arrangements.

RISK MANAGEMENT

The nine Authorities have worked together over the past five years to develop a risk management assessment process and to share best practice, including the benchmarking of risk management arrangements against best practice and a commitment to work to meet this standard. These activities are designed to help all authorities reduce the cost of claims and thereby reduce insurance costs. The most recent benchmarking report was commissioned in the first half of 2013 and the work was carried out on behalf of the consortium by Paragon Risk Engineering.

CURRENT INSURANCE ARRANGEMENTS

The insurance consortium previously procured insurances as a group with effect from 1 November 2008. All insurances were awarded to Zurich Municipal. During the last two years of the five year agreement there have been increases in the rates for motor and liability premiums following a small number of high value claims. In 2013 the consortium has used a new framework arrangement put in place by the Government Procurement Services in partnerships with the PRO5 group of local authority buying consortia. This is designed to be a short term arrangement pending a decision to proceed with the establishment of a pooling arrangement.

A small number of specialist policies may continue to be purchased outside of the pooling arrangements, but these are expected to fall below the thresholds that require compliance with European procurement rules.

Under the present procurement options there is still limited competition for blue light services such as Fire and Rescue Authorities. In addition, many insurers are not willing to recognise the improvements in risk management arrangements and the declining activity levels, which have resulted in lower loss ratios which benefit the insurer. These procurement issues instigated the original decision to form a mutual insurance company as referred to earlier in this report.

POOLING STRUCTURE

The establishment of a company to manage a discretionary pooling of funds to meet losses is a recognised alternative to conventional insurance. It is common amongst other groups of organisations such as Universities who share common risks. When the size of each body is not sufficiently large to carry the risk of a large policy deductible or excess these cost saving benefits can be achieved through a discretionary pool.

The discretionary element is a legal device to ensure that the arrangement is not treated as insurance and there have been a number of legal judgements confirming this view. It does mean that the Authority would have no absolute guarantee that any particular claim would be paid, however such decisions would rest with the Directors of the pool who would have the power to agree to meet any claim made. In practice, there is a similar risk with an insured arrangement if the precise terms and conditions of the insurance contract are not met. Also in practice, the basis of the pooling arrangement is one of mutual trust, and if a claim was not met then there is a risk that the pool could collapse.

Directors of the company would be appointed by the participating authorities; no single authority would have the right to appoint a director. As with the mutual insurance company it is proposed that these are drawn from appropriate professionals within each participating Fire and Rescue Authority supplemented by one or two experienced insurance industry figures. The company would be run by a professional management company who would be required to meet all the necessary professional requirements of the Financial Conduct Authority.

RISK MANAGEMENT IMPLICATIONS

Insurance is about risk, and the operation of a pooling arrangement in place of insurance is in itself risky. There will be a potential call for supplementary contributions if the overall claims experience of the pool exceeds the year’s contributions and any carried forward surplus. This is therefore a higher risk in the early years of the proposed arrangements. The maximum exposure of the Authority is projected to be 5.1% of annual insurance premiums. The risk of losing this amount is mitigated by the use of professional pool managers to deal with claims handling.

At the other end of the risk spectrum there is potential for significant reductions of 10% to 20% in our annual insurance costs, both through lower premiums and lower levels of losses. The benefits from the shared approach to best practice in risk management provides a significant opportunity to drive down both the direct and indirect costs associated with incidents that lead to insurance claims. All of the benefits of these improvements would fall to the authorities participating in the pool, through potentially lower future contributions, rather than increased profits for insurers.

LEGAL IMPLICATIONS

The Pooling arrangement recommended here takes the legal form of a Hybrid Discretionary Mutual. In arriving at this recommendation, various options have been considered. These options included a buying group, a fully authorised insurance mutual, a fully discretionary mutual and a hybrid discretionary mutual. They are all forms of pooling. However to take risk a pool needs a formal structure and one that does not infringe regulatory requirements.

The Hybrid Discretionary Mutual route was chosen since this allows pooling of risk, combines the benefits of a discretionary mutual in terms of structural precedent, flexibility and provides authorised, rated insurance for the larger losses. As well as producing financial benefits in terms of annual cost, it is also capital efficient.

Discretionary mutual have been in existence for over 150 years. The legal basis for them was well established in the seminal case Medical Defence Union v Department of Trade

(1979) 2 All ER 421 where the court ruled that such structures did not fall foul of the Insurance Acts since the members only had the right to have their claim considered.

The Financial Conduct Authority has published guidelines as to what constitutes insurance and has followed the principles laid down in the Medical Defence Union case, As a result it is clear from both the case law and the Regulatory regime that such mutual do not constitute regulatory activity.

The Mutual (through the managers) will however be purchasing insurances (group excess of loss contracts) on behalf of the members and as such will be carrying out Intermediary activities which are regulated. There are two options for the mutual under the FSMA 2000 S19 and FSMA (Regulated Activities) Order 2001. Either the mutual can be regulated under its own name or it may become an appointed representative of another authorised person. It is recommended that the mutual commences as the latter (under the appointed managers' authorisation and progresses to being authorised in its own right in due course. This regulation (as an intermediary) is comparatively light touch and the capitalisation requirements are expected to be in the range of £10K to £75K.

The Hybrid structure is based on the discretionary mutual retaining a portion of each risk, subject to a predetermined finite figure (an aggregate limit) and then the mutual arranging an insurance policy to sit above the mutuals retention with all members named as an insured on that policy (a group excess of loss policy). In this way the members can all say that they are 'insured' under the group policy but with a high excess which is covered by their discretionary mutual. This has the added advantages that a letter of credit from the mutual in favour of a fronting insurer only needs to cover the mutual' s retention and not the whole risk and there is still a substantial saving in that the contributions remaining in the mutual do not attract Insurance Premium Tax of 6%.

The structure of the pool will consist of a company limited by guarantee with members and not shareholders. Each member has one vote at an AGM and the membership will elect a Board for amongst their number. Returns of surpluses, if any, will be made pro rata to each member's proportion of contributions. The Board is non-executive and it contracts with a professional mutual management company to outsource the day to day operation of the mutual. The Board will make all the policy decisions and the managers' job is to carry out those decisions and bring all the necessary insurance and management skills into the equation to make sure the mutual runs well.

VIRES

In Brent LBC v Risk Management Partners [2009] EWCA Civ 490 the Court of Appeal affirmed the decision of the High Court that Brent had no power under either:

– Section 2 of the Local Government Act 2000 (the well-being power); or

– Section 111 of the Local Government Act 1972

to

– Become a member or participating member of London Authorities Mutual Limited (LAML), a company limited by guarantee;

– Make payments or to enter into commitments to make payments to LAML.

In response to this ruling Parliament provided via section 34 of the Local Democracy, Economic Development and Construction Act 2009 the power for local authorities including

FRA's to establish mutual insurance arrangements. The provision has not been brought into force. This is undoubtedly because of the general power of competence and new general powers for FRAs provided for in the Localism Act 2011.

As a result (of the Localism Act) Section 5A of the Fire and Rescue Services Act 2004 provides that a relevant fire and rescue authority may do:

(a) anything it considers appropriate for the purposes of the carrying-out of any of its functions (its "functional purposes");

(b) anything it considers appropriate for purposes incidental to its functional purposes;

(c) anything it considers appropriate for purposes indirectly incidental to its functional purposes through any number of removes;

(d) anything it considers to be connected with—

– (i) any of its functions, or

– (ii) anything it may do under paragraph (a), (b) or (c); and

(e) for a commercial purpose anything which it may do under any of paragraphs (a) to (d) otherwise than for a commercial purpose.

This new power overcomes the problem in the Brent case. Therefore, the Authority has the vires to become a member of a company and to make payments to that company for the purposes of providing mutual insurance cover.

FINANCIAL IMPLICATIONS

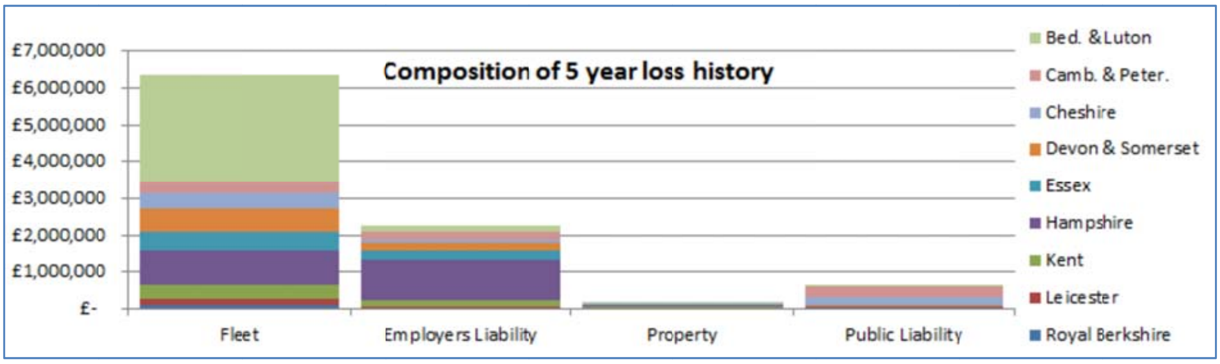
A feasibility study was carried out by Regis Mutual Management Limited (Regis) who already supports a number of similar insurance pooling arrangements. The basis of the study was to see if a pool would be feasible using as its funding the same level of insurance premiums paid by the consortium FRAs in 2012/13. The financial results from this study are reported below:

SUMMARY OF CURRENT INSURANCE ARRANGEMENTS

The data made available for modelling included coverage, spend and claims for Fleet, Employers' and General Liability, and Property. No claims information was provided for "Additional Covers" (Personal Accident, Travel and Computers etc.), hence these ancillary classes could not be included within the modelling but this premium is collectively only similar in size to the property class.

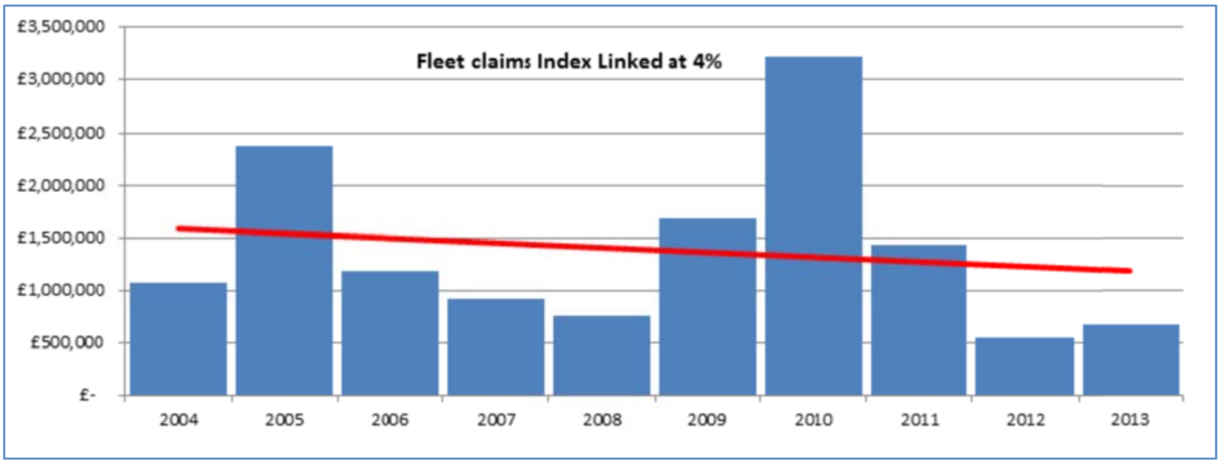
Of the four classes Regis has been able to model, the annual premium spend is dominated by Fleet (63%), followed by Public Liability (17%), Employers' Liability (14%) and Property (6%). The portion attributable to Fleet is in line with loss activity. The modelling has also looked at the composition of members losses across these classes:

Figure 1 Insurance Losses 2008-2013



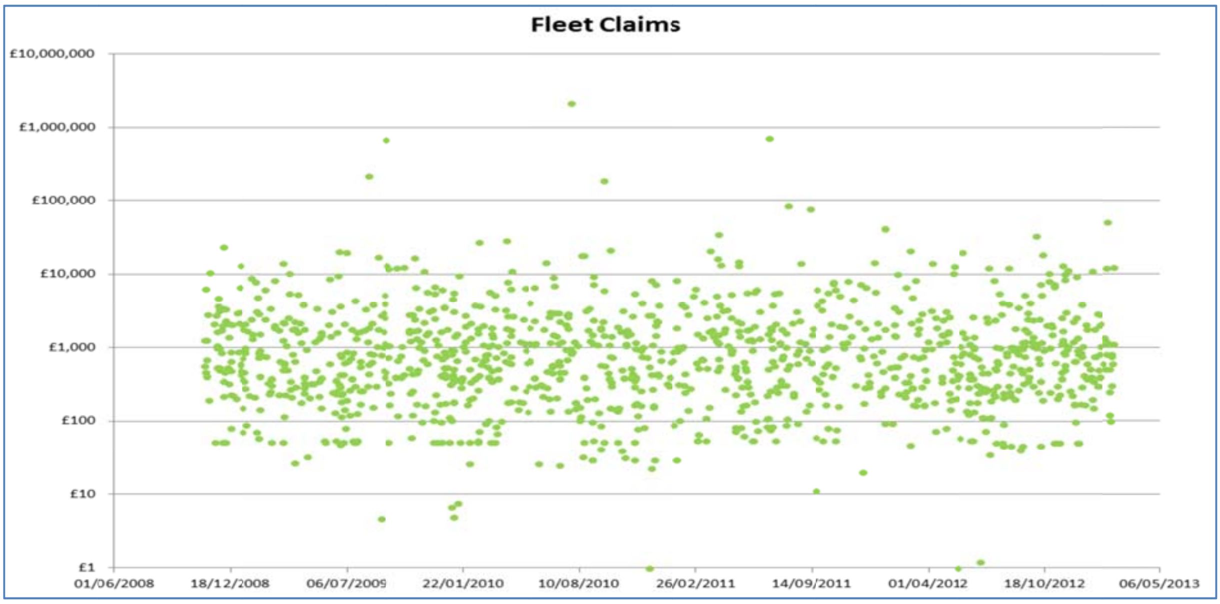
The composition of losses by class, by member, by year for Fleet was analysed. By index linking the historic fleet losses at 4% per year and extrapolating out the 4 month 2012-13 data to a full year, it can be seen that the average Fleet claims cost per annum has fallen from circa £1.6m to circa £1.2m, a 25% reduction:

Figure 2 Insurance Claims 2004 - 2013



Looking at the Fleet loss experience in the chart below (logarithmic scale), it can be seen that there is a significant volume of loss activity being passed to insurers (cost and frequency):

Figure 3 Fleet Claims 2008 - 2013



HYBRID DISCRETIONARY POOL STRUCTURE

A pool is an entity formed by a group of Authorities (the “members”) exposed to some risk or contingency common to the group who are prepared to share financially with each other, on a proportionate basis, the cost of any loss or predetermined level of risk incurred by an individual member, if the contingency occurs to the member. A discretionary pool is a pool which does not carry on insurance business.

The discretionary pool may take the form of a “fully discretionary” model or a “hybrid” model. In the discretionary model all cover given by the pool to its members is discretionary. The pool then protects itself from large single losses by purchasing insurance above a predetermined retention level and by purchasing aggregate insurance to protect itself from an unexpected aggregation of losses within its retention.

The hybrid model bears a retention which might be identical to the fully discretionary model. However, instead of the pool purchasing insurance for its own account for the large losses above its retention, the pool takes out a master excess policy with an insurer with every member of the pool named as an insured under that policy. Each member can therefore claim to be insured subject to a high excess which is covered in their discretionary pool. The modelling of both structures is identical and is set out in the next section.

The hybrid pool takes into account the need for a variety of member deductibles depending on risk appetite and financial strength/size of the different authorities in the group. It creates new “insurance capacity” from the members of the group and generates underwriting surpluses for those members.

This structure is also attractive to supporting insurers, demonstrating a desire on the part of the members to control claims and also moving the insurers further away from the attritional losses. Both factors will help attract new insurers to participate in the FRIC risk and open up the market to new entrants. Benefits accruing from improved Risk Management will also flow directly to the members. The hybrid discretionary pool structure is recommended by Regis.

POOLING SCENARIOS

A number of discretionary and hybrid pooling scenarios were considered as part of the Regis study. These included:

- Recommended scenario – hybrid pool;
- Alternative lower retention scenario – fully funded hybrid;
- Alternative aggregate first loss deductible;
- Retaining more risk in future years;
- Fleet specific large loss infill layer;
- Fleet specific stepped blue light deductible; and
- Employee benefit pool.

Each scenario description was supported by a summary financial model, 'what if' results and a description of its advantages and disadvantages. The 'what if' results for the recommended hybrid pool option are summarised below.

FIVE YEAR FINANCIAL MODEL – HISTORIC CLAIMS EXPERIENCE

The base analysis repeats the past five years of claims as if this model was in place. Claims and contributions have been index linked with Year 1 claims based on 2008/09 claims, Year 2 on 2009/10 and so on; and Year 5 is based on an extrapolation 2012/13 year to date claims. Contributions are based on 2013 premiums and we have assumed the existing allocation between members is maintained.

The Pool retentions are assumed to be ground-up and it has been assumed that the current member deductibles are maintained. Therefore, under this scenario the amount paid by the member below their deductible counts towards the Pool's retention and so the maximum the member and Pool would retain in total is £1m per fleet claim, £250K per liability claim and £100K per property claim. However, only claim amounts paid by the Pool count towards the £2m cross class aggregate retention.

Note that under this scenario the mutual suffers significant claims in the first two years of operation.

Table 2 – Financial Modeling Results based on Historical Claims Experience

Recommended Scenario Historic Claims Experience						
Mutual	Year 1	Year 2	Year 3	Year 4	Year 5	Total
			In GBP thousands			
CONTRIBUTIONS	3,718	3,830	3,944	4,063	4,185	
INVESTMENT INCOME	7	7	7	12	11	
TOTAL INCOME	3,725	3,837	3,952	4,075	4,196	
EXCESS & AGGREGATE INSURANCE	1,325	1,365	1,406	1,448	1,491	
RETAINED CLAIMS	2,100	2,163	2,228	1,053	1,526	
OPERATING EXPENDITURE	491	505	520	535	550	
TOTAL EXPENDITURE	3,916	4,033	4,154	3,035	3,567	
						Total
Surplus Generated in Year	(191)	(196)	(202)	1,040	628	1,080
Profit Share	95	-	101	104	107	407
Suplementary Call	96	196	101	-	-	393
Ultimate Surplus	-	-	-	1,144	735	1,879

The model assumes that a supplementary call (5.5% of annual contributions) is used to cover the risk gap and using the historic claims experience this is required in the first three years because of the relatively high attritional claims in 2008/09 and 2010/11 and two large losses in 2009/10 (£2.4m fleet claim and £1m Employers' Liability claim).

Alternatively, the Pool could choose to fund this upfront with a 5.5% increase on current premium levels. Over 5 years, assuming supplementary calls are made in each of the first three years, the Pool would accumulate a £1.88m surplus, of which £407K results from profit share from excess insurers and £393K from supplementary member calls.

Both the excess and aggregate insurer experience losses in Year 2 but the surpluses generated in the remaining years ensure they still accumulate a healthy surplus over five years of £2.75m and £536K respectively.

Modelling suggests that the Pool will experience losses at the level seen in 2010 about once every ten years and it has also been observed that there is a general downward trend in the attritional loss experience over the past ten years. Therefore the average five year performance of the Pool is expected to be better than that modelled above.

ACTUARIAL SCENARIO MODELLING

The claims have also been modelled using actuarial techniques. The scenarios should be interpreted as follows:

Scenario	Return Period	Interpretation
Optimistic	1 in 4 year event	25% probability claims are less than estimated amount 75% probability claims are higher than estimated amount
Average	1 in 2 year event	50% probability claims higher or lower than

Scenario	Return Period	Interpretation
		estimated amount
Prudent	1 in 4 year event	75% probability claims are less than estimated amount 25% probability claims are higher than estimated amount
Cautious	1 in 10 year event	90% probability claims are less than estimated amount 10% probability claims are higher than estimated amount
Stress Test	1 in 50 year event	98% probability claims are less than estimated amount 2% probability claims are higher than estimated amount

The Actuarial Scenario Modelling illustrates the potential volatility under extreme conditions in the Pool result. Claims experience is naturally volatile and the large loss experience is particularly volatile, as these losses are infrequent. By retaining the first £1m of each Fleet claim the Pool retains most of this volatility, benefitting from a reduction in insurance premium in return, but this also results in volatility of the Pool's annual surplus.

Under the proposed arrangements two separate insurers would provide additional cover. One for claims above the £1m pool limit, and a second where the aggregate of claims exceeded a £2m cross class aggregate.

Table 3 Financial Modeling Results based on Actuarial Scenarios

	Recommended Scenario				
	Actuarial Scenario Modelling				
Mutual	Optimistic	Average	Prudent	Cautious	Stress Test
			In GBP thousands		
CONTRIBUTIONS	3,718	3,718	3,718	3,718	3,718
INVESTMENT INCOME	10	9	8	8	8
TOTAL INCOME	3,728	3,727	3,726	3,726	3,726
EXCESS & AGGREGATE INSURANCE	1,325	1,325	1,325	1,325	1,325
RETAINED CLAIMS	1,400	1,653	2,057	2,100	2,100
OPERATING EXPENDITURE	491	491	491	491	491
TOTAL EXPENDITURE	3,215	3,469	3,873	3,916	3,916
Surplus Generated in Year	513	259	(147)	(190)	(190)
Profit Share	95	95	-	-	-
Suplementary Call	-	-	147	190	190
Ultimate Surplus	608	354	-	-	-

The "Average" scenario, which has a 50% chance of under or over-estimating the claims expense, produces an annual surplus of £259K. The £2m cross class aggregate caps the

Pool's potential deficit at £190K, this represents a call of just over 5% of premium. In a good year the Pool could generate £608K of surplus; this is 16% of premium.

ALLOCATION OF CONTRIBUTIONS (RATING)

Rating of members must adhere to a simple overarching philosophy:

It must be relevant, transparent and equitable. It must also achieve the desired overall outcome from the Pool's perspective in that it must ensure that the Pool's outgoings are funded in advance (apart from any previously agreed additional call facility).

The Pool's financial and insurance structure provides the essential framework that guides the Managers' underwriter to set the rates. The rates must cover the worst case claims scenario (I.e. up to the aggregate attachment point), the administration costs and the insurance costs for the excess programme and the aggregate cover. When the Pool has built up a reserve the Board may decide that it is not necessary to fully cover the worst case claims scenario and might be prepared to put some of the surpluses at risk.

The Board's role is to guide the managers as to what rating factors they should be applying when setting members rates. The members, through their Board, know their industry better than anyone else and can ensure that the rating methodology used is relevant, transparent and equitable.

For the purposes of the modelling it is assumed that the current rating and premium allocation will be maintained during the start-up phase. Once the Pool has commenced operation and has settled down, the subject can be examined in more detail.

At that point there are a number of variables that can be considered such as;

- Exposure base – fleet count, payroll, revenue, asset values etc.
- Member retentions
- Current claims
- Risk Management:
- Driver training, On Board cameras and telematics
- Risk Engineering (Property)

Through the rating structure the Pool can effectively adopt a carrot and stick approach to risk management and the adoption of best practice across the membership.

New members

When new members join they will be rated in the same way that existing members have been rated. In relation to accumulated surpluses, each year stands on its own and new members would not benefit from any return of surplus in relation to the years they were not members. New members would benefit from undistributed surpluses that the Board decided to accumulate, but on the other hand they would hopefully be contributing to the generation of further surpluses once they join. A more difficult question arises in relation to the start-up costs. However, if these are effectively amortised over the first few years of the Pool's existence, then all members joining during the extended period in question will effectively contribute.

ESTABLISHMENT & OPERATING COSTS

The one-off costs associated with the Delivery Stage plan are estimated to be £100K. Existing methodologies agreed within the insurance consortium for cost allocation will be used to apportion these costs.

The Pool's primary annual costs will be:

- Excess of loss and aggregate insurance costs (including brokerage costs)

These costs were included in the modelling analysis and total £1,250k for the proposed pooling arrangement.

- Claims costs (including third party costs (legal etc.) and claims handling expense)

The claims handling costs are included with the claims costs in the modelling analysis. Claims handling is estimated to be £100k per annum and would be procured as part of the management arrangements.

- Operating (or Administration) expense

These costs, including legal, audit and independent actuarial assessments are estimated to total £392K per annum.

Procurement of a manager for the pooling arrangement would be accrued out on behalf of the insurance consortium by one member Authority. All procurement would be in accordance with European procurement regulations.

USE OF RESOURCES IMPLICATIONS

Fire and Rescue Authorities do not have a competitive market place in which to purchase insurance. The insurance consortium used the most recent framework, put in place by the Government Procurement Service and the PRO5 group of regional buying consortia for the public sector. Despite a range of insurers on the framework only a limited numbers of bids were received. To overcome this the option of a risk sharing arrangement with cover provided by the market for high value losses is expected to provide a better value solution for the participating authorities in the longer term.

EQUALITIES IMPLICATIONS

There are no equalities implications associated with this report.

LOCAL GOVERNMENT (ACCESS TO INFORMATION) ACT 1985	
List of appendices attached to this paper: Appendix 1 – Modelling Process Summary	
List of background documents (not attached):	
Proper Officer:	The Finance Director and Treasurer
Contact Officer:	The Finance Director and Treasurer, Mike Clayton Essex County Fire & Rescue Service, Kelvedon Park, London Road, Rivenhall, Witham CM8 3HB Tel: 01376 576000 E-mail: mike.clayton@essex-fire.gov.uk

23.1 APPENDIX 1 – MODELLING PROCESS SUMMARY

The modelling process summary is outlined below:

Data
- Analyse and interrogate claims and exposure data including calculating averages and loss ratios
- Identify trends and extreme events

Claim Severity
- Fit statistical distribution to the claims severity data
- Assess appropriate excess layer attachment points

Claim Frequency
- Fit statistical distribution to the claims frequency data

Stochastic Simulation
- Run simulations using fitted severity parameters to derive an aggregate loss distribution
- Apply excess insurance layers to determine expected recoveries and technical premium pricing
- Assess appropriate aggregate attachment point and limit sufficiency to determine expected recoveries and technical pricing

Financial Model
- Identify and quantify all other Mutual cashflows including operating expenditure and current premium levels
- Construct Financial Model to project the overal Mutual performance using repeated claims experience, average claims experience and stochastic actuarial scenarios