(1) MEMBERS OF THE AVON FIRE AUTHORITY

Councillors Barrett (N), Davis (Chair), Dudd, Phipps, Shelford, Stevens and Windows

(2) STANDING INVITEES

FBU – Chris Taylor
UNISON – Susan Halliday
UNITE - Tony Venn

(3) APPROPRIATE OFFICERS

(3) PRESS AND PUBLIC

Dear Member

You are invited to attend a meeting of the Performance Review and Scrutiny Committee to be held on Friday 20 January 2017 commencing at 10.30am. The meeting will be held in the Main Conference Room, Avon Fire and Rescue Service HQ, Temple Back, Bristol.

The Agenda is set out overleaf.

Yours sincerely

Guy Goodman
Clerk to the Fire Authority
Notes

**Attendance Register:** Members should sign the Register which will be circulated at the meeting.

**Code of Conduct – Declaration of Interests:** any Member in attendance who has a personal interest in any matter to be considered at this meeting must disclose the existence and nature of that interest at the commencement of that consideration, or when the interest becomes apparent. A Member having a prejudicial interest must withdraw from the meeting room whilst the matter is considered.

**Emergency Evacuation Procedure:**

- The fire alarm or notification of any other threat is a continuous siren.
- In such cases Members must leave the building by the nearest exit.
- In the event of explosion or smoke where controlled evacuation is not possible, Members must follow fire exit signs.
- All corridors are lit with emergency lighting.
- The assembly point is situated between the entrance and exit barrier on Temple Street.

**Exempt Items:** Members are reminded that any Exempt reports as circulated with the agenda for this meeting contain exempt information and should therefore be treated accordingly. They should not be disclosed or passed on to any other person(s). Members are also reminded of the need to dispose of such reports carefully and are therefore invited to return them to the Clerk at the conclusion of the meeting for disposal.

**Inspection of Papers:** any person wishing to inspect Minutes, reports, or a list of the background papers relating to any item on this Agenda should contact Kathlin Baty on 0117 926 2061 ext. 231 or by visiting Avon Fire & Rescue Headquarters, Temple Back, Bristol (during normal office hours).

**Public Access:** under Standing Order 21 and providing 2 clear working days' notice has been given to the Clerk ([the.clerk@avonfire.gov.uk](mailto:the.clerk@avonfire.gov.uk)) any resident or representative of a business or voluntary organisation operating in Bristol, South Gloucestershire, Bath and North East Somerset or North Somerset Council may address the Fire Authority or one of its Committees (for no more than 5 minutes) to present a petition, make a statement, or as leader of a deputation. This is a time limit of 30 minutes for Public Access

**Reports:** reports are identified by the relevant agenda item number.

**Substitutes (for Committees only):** notification of substitutes should have been received from Group Leaders by the Clerk prior to the meeting.
A G E N D A

1. Apologies for Absence
2. Emergency Evacuation Procedures
3. Declaration of Interests
4. Chair’s Business
5. Minutes of the Committee Meeting held on 21 October 2016
6. Public Access
7. Performance Report
8. Health and Safety Report
9. Community Safety - Case Studies
10. Energy and Environmental Performance
11. Date of Next Meeting – Friday 7 April 2017 (10.30am)
AVON FIRE AUTHORITY

PERFORMANCE REVIEW AND SCRUTINY COMMITTEE

21 OCTOBER 2016

PRESENT: Councillors Barrett (N), Davis, Davies, Dudd, Phipps, Sheldof and Windows.

Gary Spindler attended on behalf of the Fire Brigades Union.

The meeting started at 10.27am.

13. APOLOGIES FOR ABSENCE
Apologies were received from Councillors Dudd and Stevens.

14. EMERGENCY EVACUATION PROCEDURES – The Chair drew attention to the emergency evacuation procedures as set out in the Agenda.

15. DECLARATION OF INTERESTS – The Chair drew attention to the requirements of the Code of Conduct as set out in the Agenda.

16. CHAIR’S BUSINESS - None.

17. MINUTES OF THE COMMITTEE MEETING HELD ON 15 JULY 2016
It was noted that the FBU was present at the last meeting and that a report on the annual operational incident statistics was missing from the work plan.

RESOLVED:
The Committee approved the minutes with amendments for signing by the Chair.

18. PUBLIC ACCESS – None.

19. PERFORMANCE REPORT
The Committee received a report informing Members on the organisation’s performance against targets for the first five months of 2016/17.

The Corporate Assurance Manager provided an overview of the report and the progress being made to reach the targets set. Members considered the report and reviewed the Scorecard. A Member raised a concern with the layout of the Scorecard and requested for it to be printed on A3 for the future.

RESOLVED:
The Committee noted the report.

20. INTEGRATED RISK MANAGEMENT PLAN, SAVINGS PLAN AND RE-INVESTING FOR THE FUTURE INITIATIVE – UPDATE
The Committee received an update on the associated savings plans and reinvesting for the future aspects of the Integrated Risk Management Plan (IRMP).

The Deputy Chief Fire Officer (DCFO) provided an overview of the report and advised Members of the work being carried out for the IRMP which seeks to capture all reasonably foreseeable fire and rescue related risks that could affect communities up to the year 2020. The DCFO highlighted the work being carried out to ensure the organisation is prepared and has the capacity to respond to a variety of different incidents as well as continuing to improve fire safety and the training and welfare of staff.

The Committee discussed the plans and congratulated the DCFO and staff for their work.

**RESOLVED:**
The Committee noted the report.

21. **MANAGEMENT OF SICKNESS**

The Committee received a report on the sickness absence rates and the organisation’s management of sickness. This report outlined the work carried out to improve the response to sickness and to balance and maintain the frontline capacity.

The Human Resource Managers provided a presentation on the management of sickness and highlighted the improvements made within the last few years and advised that the organisation is showing good performance with the new changes and pressures they are faced with. The presentation also provided an overview of the proposed management action programme.

The Committee discussed the risks and factors that may affect the programme and a Member requested more detail on costs and how much may be lost for each shift of absence to be able to make a decision on whether it would be worthwhile to employ on a full-time basis a physiotherapist to complete tours around the Stations. The Human Resource Managers advised that more detail on work related absences can be found in the Health and Safety report but a report for all absences will be provided at a later date. A Member raised a query about the fitness standards and the support in place for Staff and the Human Resource Managers advised of the enhanced fitness standards and new testing regime.

The discussion also highlighted the importance of working with the Fire Brigade Union and Blue Light Campaign to improve staff welfare by supporting them.

**RESOLVED:**
The Committee noted the report.

22. **HOME FIRE SAFETY - CASE STUDY**
The Assistant Chief Fire Officer (ACFO) provided an overview of the case study received which demonstrated the multi-tiered approach to Home Fire Safety Visits and the success of signposting to partner agencies and ensuring a holistic approach to safety in the home.

The Committee congratulated the Service for the work carried out and agreed that they would like to continue to receive case studies.

23. UPDATE ON HICKS GATE FIRE STATION AND POTENTIAL FUTURE PLANS

The Committee received a report on the early running of the new Fire Station at Hicks Gate and the potential future plans for the station and training facility.

The ACFO provided an overview of the report and highlighted that the Station received 686 operational calls since their official opening on 19 April 2016. The Committee discussed the initial business case for building additional facilities and the costs involved.

RESOLVED:
The Committee noted the report.

24. ENERGY AND ENVIRONMENTAL PERFORMANCE – UPDATE

The Committee received a report on the Energy and Environmental performance indicators as at the end of September 2016.

The DCFO provided an overview of the report and highlighted that the performance indicators show positive trends with the exception of water consumption:

- Total Building Energy Consumption has fallen by a further 3% compared to last year, and is well ahead of Target.
- Total Reported Carbon Emissions have fallen by 12% compared to the same period last year.
- Water consumption has increased by 13% compared to the same period last year a number of major leaks have been discovered and have been repaired.

RESOLVED:
The Committee noted the report.

25. DATE OF NEXT MEETING – FRIDAY 20 JANUARY 2017 (10.30am)

The meeting closed at 12.05pm

.................................
Chair
MEETING: Performance Review and Scrutiny Committee

MEETING DATE: 20 January 2017

REPORT OF: Chief Fire Officer / Chief Executive

SUBJECT: Performance Report

1. SUMMARY

The purpose of this report is to inform the Committee of the performance of the organisation against targets for the period April to November 2016.

2. RECOMMENDATIONS

The Committee is asked to note report.

3. BACKGROUND

3.1. The intention of this report is to provide the Committee with a regular update on the work being undertaken to manage the Services:
   - Performance
   - Corporate risks
   - Community risks.

3.2. Members are reminded that the scorecard (see the Appendix) looks at monthly performance progress and also compares annual targets, year to date targets, positive or negative progress and comparisons to national benchmarking data. Green indicates monthly progress, on or exceeded targets, amber indicates ‘just off target’ and red indicates ‘not achieving target’.

3.3. The following summary provides an indication of progress against targets for the first eight months (April – November) of financial year 2016/17.

3.4. Fires - 3 of the 4 fire indicators have met target indicating a reduction of risk in our community. Deliberate vehicle fires are off target with 286 recorded against a target of 263.
3.5. **Alarms** - the number of attendances to Automatic Fire Alarms (AFAs) in non-domestic premises is just off target with 1,533 recorded against a target of 1,527. 13% (20 out of 150 incidents) of Malicious False Alarms were successfully “call challenged”, meeting the 5% target.

3.6. **Deaths and injuries** - tragically the first fire fatality of the year was recorded in November. 43 injuries in fire (where hospital treatment was required) have been recorded.

3.7. **Response** - all of the response indicators have met target. The handling of 999 calls (LPIR9) continues to be excellent with 97% answered within the seven second target.

3.8. **Call handling** - 13,265 calls for emergency assistance have been received and 7,906 (59.6%) were attended under emergency conditions.

3.9. **People** - both sickness indicators are off target. However we are making good progress. Return to work interviews completion is on target. Personal Development Reviews have been undertaken for 89% of staff (749 out of 845). Our target was to complete for all staff by the end of August.


3.11. For incident data the organisation compares favourably for Accidental Dwelling, Deliberate Primary (excluding vehicle) and Deliberate Secondary fires but less favourably for Deliberate Vehicle fires and Attendance at Alarms. Performance for Attendance at Alarms is very much an outcome of the Fire Authority’s Attendance Policy.

3.12. Sickness benchmarking shows that although off target, performance is either better or just above average compared to other Fire and Rescue Authorities.

4. **CONSIDERATIONS**

4.1. **Contribution to Key Policy Priorities**

It is recognised that effective Performance Management and Corporate Risk Management are key to achieving all the objectives and targets of the organisation. In particular:

- The Fire Service National Framework
- Corporate Plan 2015/18
- Corporate Risk Register
4.2. **Financial Implications**

It is acknowledged that proficient, robust and effective performance and risk management will result in economic efficiencies and evidence of value for money.

4.3. **Legal Implications**

Mitigation under the Health and Safety at Work Act 1974

4.4. **Equality & Diversity Implications**

Equality impact assessments are carried out in all aspects of the organisation. These are monitored and reviewed as part of the performance management framework.

4.5. **Corporate Risk Assessment**

Providing evidence of outcomes in this area is a key control measure in reducing the Corporate Risks for the Fire Authority, in particular CR1 and CR15.

4.6. **Environmental/Sustainability Implications**

None

4.7. **Health & Safety Implications**

None

4.8. **Crime & Disorder Implications**

Targets and objectives are set to contribute to making improvement in this area. Progress and improvement is monitored closely at the Performance and Risk Management Forum.

5. **BACKGROUND PAPERS**

None

6. **APPENDIX**

Scorecard - November 2016/17

7. **REPORT CONTACT**

Simon Flood, Corporate Performance Manager, ext 358.
## Scorecard 2016-17: YTD Nov 2016

### Appendix

#### Measure

<table>
<thead>
<tr>
<th>Measure</th>
<th>Annual Target 2016/17</th>
<th>YTD 2015/16</th>
<th>YTD Target</th>
<th>Amber Target</th>
<th>YTD Actual</th>
<th>Prog ress % change compared to last year</th>
<th>Benchmarking Data $ April - Sept. 2016/17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fire</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>LP142i2 Fire</td>
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<tr>
<td>No. of calls to accidental fires in dwellings attended</td>
<td>1% reduction</td>
<td>525</td>
<td>307</td>
<td>350</td>
<td>385</td>
<td>298 ↓</td>
<td>4.84 2.50 5.79 4.47</td>
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<tr>
<td>LP2D06i Fire</td>
<td></td>
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</tr>
<tr>
<td>No. of deliberate primary fires (excluding deliberate primary fires in vehicles)</td>
<td>over</td>
<td>287</td>
<td>180</td>
<td>198</td>
<td>218</td>
<td>161 T</td>
<td>-11% 1.14 0.70 1.77 0.97</td>
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<tr>
<td>LP2D06i Fire</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>No. of deliberate fires in vehicles</td>
<td>previous</td>
<td>524</td>
<td>254</td>
<td>263</td>
<td>286</td>
<td>147 T</td>
<td>13% 1.21 0.53 2.36 1.66</td>
</tr>
<tr>
<td>LP2D06i Fire</td>
<td></td>
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</tr>
<tr>
<td>No. of deliberate secondary fires (excl. deliberate secondary fires in vehicles)</td>
<td>Targets</td>
<td>1433</td>
<td>868</td>
<td>1106</td>
<td>1217</td>
<td>793 T</td>
<td>-16% 6.59 1.93 21.44 5.22</td>
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<td>LP NF% Fire</td>
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<tr>
<td>% of accidental fires in dwellings where no firefighting action</td>
<td>Monitor only - last year 36%</td>
<td></td>
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<tr>
<td>Alarms</td>
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<tr>
<td>LPIFAMSi No. of false alarms</td>
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<tr>
<td>total</td>
<td>150</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
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<tr>
<td>LPIFAMSi No. of fires to malicious false alarms not attended</td>
<td>5%</td>
<td>n/a</td>
<td>28%</td>
<td>5%</td>
<td>2%</td>
<td>n/a</td>
<td>n/a</td>
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<tr>
<td>LPI149i No. of alarms caused by automatic fire detection attended (Non Domestic Prop.)</td>
<td>as above</td>
<td>2290</td>
<td>1490</td>
<td>1527</td>
<td>1679</td>
<td>1353 T</td>
<td>3% 24.26 2.22 56.88 33.74</td>
</tr>
<tr>
<td>LPI209i Fire</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>% of fires attended in dwellings where no smoke alarm was fitted</td>
<td>Monitor only</td>
<td></td>
<td></td>
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<tr>
<td>Deaths, Injuries &amp; Escapes</td>
<td></td>
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</tr>
<tr>
<td>N49i No. of deaths arising from primary fires</td>
<td>Monitor only, last year 3, YTD 1</td>
<td>n/a</td>
<td>1</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>N49i No. of injuries arising from primary fires</td>
<td>Monitor only, last year 45, YTD 27</td>
<td>n/a</td>
<td>43</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>LPI143i No. of deaths in accidental dwellings</td>
<td>Monitor only, last year 3, YTD 1</td>
<td>n/a</td>
<td>1</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>LPI143i No. of injuries in accidental dwellings</td>
<td>Monitor only, last year 30, YTD 17</td>
<td>n/a</td>
<td>27</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Response</td>
<td></td>
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<tr>
<td>LPI R51 Initial call in Building Cat.1: First Appliance in 6mins</td>
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<tr>
<td>LPI R52 Initial call in Building Cat.2: First Appliance in 10mins</td>
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<tr>
<td>LPI R53 Initial call in Building Cat.3: First Appliance in 15mins</td>
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<tr>
<td>LPI R54 Full PDA mobilised to Initial call fire in Building</td>
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<tr>
<td>LPI R55 Initial call - all other: First attendance in 15mins</td>
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<tr>
<td>LPI R56 Life threatening SSCs: First attendance in 15mins</td>
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<tr>
<td>LPI R9 Calls for assistance to Service Control answered within seven seconds</td>
<td></td>
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<tr>
<td>Call handling</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>LP001 Number of 999 calls received</td>
<td>Monitor Only</td>
<td>13265</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>LP002 Number of incidents attended as emergency</td>
<td>Monitor Only</td>
<td>7906</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>LP003 % incidents attended as emergency/999 calls</td>
<td>Monitor Only</td>
<td>52.6%</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Community Fire Safety Activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitor No. of school visits conducted by station personnel</td>
<td>Monitor Only</td>
<td>179</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Monitor No. of off-station community events attended to deliver fire safety message</td>
<td>Monitor Only</td>
<td>248</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Monitor No. of on-station community events</td>
<td>Monitor Only</td>
<td>171</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
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<tr>
<td>Monitor Total HFSVs completed (this year)</td>
<td>Monitor Only</td>
<td>5459</td>
<td>n/a</td>
<td>5470</td>
<td>20971</td>
<td>370 4085</td>
<td></td>
</tr>
<tr>
<td>Health and Safety - quarterly</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H&amp;S 2 Vehicle incidents where hit fixed/stationary &amp; at fault</td>
<td></td>
<td>-5%</td>
<td>54</td>
<td>22</td>
<td>21</td>
<td>19 n/a</td>
<td></td>
</tr>
<tr>
<td>H&amp;S 9 Days/shifts lost to work related injury/sickness</td>
<td></td>
<td>-10%</td>
<td>1137</td>
<td>665</td>
<td>599</td>
<td>632 n/a</td>
<td></td>
</tr>
<tr>
<td>Resources and Value for Money - quarterly</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>LPI ET2 Energy consumption in kWh (compared to 201/12 baseline)</td>
<td></td>
<td>-25%</td>
<td>48882652</td>
<td>2258686</td>
<td>1694900</td>
<td>1779644 1458659 n/a -35% n/a n/a n/a n/a</td>
<td></td>
</tr>
<tr>
<td>LPI ET3 Carbon emissions (compared 2015/16)</td>
<td></td>
<td>-5%</td>
<td>2136</td>
<td>935</td>
<td>888</td>
<td>933 924 n/a</td>
<td></td>
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<tr>
<td>LPI ET6 Water consumption</td>
<td>-5%</td>
<td>8991</td>
<td>4830</td>
<td>4589</td>
<td>4818</td>
<td>5437 n/a</td>
<td></td>
</tr>
<tr>
<td>LPI ET8 Renewable energy 20% by 2020</td>
<td>Not available</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Fire - Reported Monthly</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>LPI 12i Working days/shifts lost to sickness wholetime uniformed staff</td>
<td></td>
<td></td>
<td>6.10</td>
<td>5.39</td>
<td>4.07</td>
<td>4.47 5.29 T</td>
<td>3.90 1.89 8.75 3.68</td>
</tr>
<tr>
<td>LPI 12ii Working days/shifts lost to sickness all staff (excl. RDS)</td>
<td></td>
<td></td>
<td>5.40</td>
<td>4.07</td>
<td>4.47</td>
<td>5.56 T</td>
<td>3.74 1.81 7.03 4.63</td>
</tr>
<tr>
<td>LPI HR4 % of RTW interviews completed within 15 days</td>
<td></td>
<td>90%</td>
<td>95.0%</td>
<td>90%</td>
<td>85%</td>
<td>95% (249/262) T</td>
<td></td>
</tr>
<tr>
<td>LPI HR5 PDR completion</td>
<td>100% by end of August</td>
<td></td>
<td>17.0%</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>100% (249/245) T</td>
</tr>
</tbody>
</table>

*Indicative only as 2 IRS records are incomplete

$ source is either F4S or CPA

> Not currently able to measure

Annual Target 16/17 = target set this year in % and/or number

YTD Target = target figure for this year to end of reporting month

Benchmarking data compares AF&RS’s performance against 20 other FRs with whom we share data

Produced: 10/01/2017
1. **SUMMARY**

This report is intended to update the Committee on the Fire Authority’s health and safety performance.

2. **RECOMMENDATIONS**

The Committee is asked to note the report and make any appropriate recommendations.

3. **BACKGROUND**

3.1. Members will be aware that the Fire Authority has statutory duties under the Health and Safety at Work etc. Act 1974 as well as other regulations made under this Act. The role of the Health, Safety and Welfare Unit is to ensure that the statutory expectations placed on the Authority are met and delivered.

3.2. This report focuses on the following areas:

- Annual Health and Safety Performance Report 2015/16
- Vehicle Incident Trends

A presentation will be provided to the Committee at the meeting.

**Annual Health and Safety Performance report**

3.3. This report at Appendix 1 summarises the organisation’s health and safety performance in line with the Corporate Plan and the Corporate Health and Safety Strategy 2015-18.
3.4. The Strategy is for three years which outlines objectives and targets for the timeframe. The Strategy focuses heavily on operational safety following a number of firefighter fatalities in the UK and the overall drive of Fire and Rescue Services nationally to reduce risk. It also reflects the objective outlined in the Corporate Plan to continually improve health and safety for all staff.

3.5. Good health and safety differs from other measures of performance in that it is measured by the absence of an adverse event (injury, illness, near miss etc.) rather than the presence of one. In this regard the aim is to achieve a working environment that is conducive to low incident numbers. However, there is no single indicator that can easily represent health and safety performance. What is needed is a cross-section of information on various health and safety activities which reflect the overall success of the health and safety management system.

3.6. With this in mind, a process of monitoring and reporting on injury, ill health, vehicle incidents, violence, breathing apparatus (BA) emergencies, theft/security and near misses is undertaken throughout the year. Workplace inspections, committee meetings and actions plans are also monitored. In addition, health and safety also features in the operational assurance audits. Information is accessible to managers through the reporting and data functions in the electronic reporting system, the Corporate Performance reports, the scorecards, the HSW Committee reports and the BS18001 audit reports.

3.7. The report at Appendix 1 looks back on the last financial year as a whole and forms the basis of the Service Management Board’s (SMB) annual review of health and safety.

**Vehicle Incidents**

3.8. Monitoring of vehicle incidents has been on-going for several years. By drawing on the data collated through accident investigations the organisation is able to identify trends, analyse the causes and redirect resources to reduce the number of incidents.

3.9. In 2009 a target was agreed by the Fire Authority, SMB and the Strategic Health and Safety Committee to reduce vehicle incidents by 10% by 2011. Whilst three other targets were achieved within the same period, this target was not met and in fact there was a rise in vehicle incidents in 2009/10. In part this was because changes were made at the beginning of the reporting period to improve the way vehicle incidents were reported. This led to an increase in reporting and it was thought that the initial baseline figure used prior to April 2009 reflected significant under-reporting.

3.10. The vehicle incident target was retained within the Corporate Health and Safety Strategy 2012-15. Over that period we successfully reduced the number of vehicle incidents by 33%, more than three times higher than target.
3.11. This success is mainly a result of initiatives such as:

- Improving driver awareness
- Enhanced driver training program
- Examination of driver history
- Better-quality incident investigations
- Managing Occupational Road Risk SOP
- Vehicle checks
- Reversing and marshalling training, DVD and SOP
- Sharing good practice

3.12. The report attached at Appendix 2 gives an overview of our progress in reducing vehicle incidents.

4. CONSIDERATIONS

4.1. Contribution to Key Policy Priorities

Integrated Risk Management Plan (IRMP)
Corporate Plan 2015-18
Health and Safety Strategy 2015-18

4.2. Financial Implications

Costs associated with vehicle CCTV installation and general costs associated accidents and incidents are covered by existing budgets.

4.3. Legal Implications

No significant changes to legislation during this period.

4.4. Equality & Diversity Implications

Not applicable.

4.5. Corporate Risk Assessment

CRR20 on the Corporate Risk Register provides information on completed projects, current projects and the overall risk score for health and safety.

4.6. Environmental/Sustainability Implications

A reduction in road traffic collisions has a positive impact on the environment as the risk of pollution from diesel spillage is reduced.

4.7. Health & Safety Implications
See reports attached.

4.8. **Crime & Disorder Implications**

Not applicable.

5. **BACKGROUND PAPERS**

None.

6. **APPENDICES**

1. Annual Health and Safety Performance Report 2015/16
2. Vehicle Incidents 2009 - 2016

7. **REPORT CONTACT**

Lee Troake, Health Safety and Welfare Manager, ext. 384.
HEALTH AND SAFETY ANNUAL REVIEW

Health and safety review 2015-16

This annual health and safety review details our health and safety performance over the last 12 months.
Introduction

This report summarises Avon Fire & Rescue Service’s (AF&RS) health and safety performance in line with our Corporate Plan and the Corporate Health and Safety Strategy 2015-18.

Our Strategy is a three year plan which outlines our objectives and targets for the timeframe. The Strategy focuses heavily on operational safety following a number of firefighter fatalities in the UK and the overall drive of Fire Services nationally to reduce risk. It also reflects the objective outlined in the Corporate Plan to continually improve health and safety for all staff. Progress against the targets is outline in Appendix One.

Good health and safety differs from other measures of performance in that it is measured by the absence of an adverse event (injury, illness, near miss etc.) rather than the presence of one. In this regard the aim is to achieve a working environment that is conducive to low incident numbers. However, there is no single indicator that can easily represent health and safety performance. What is needed is a cross-section of information on various health and safety activities which reflect the overall success of the health and safety management system.

With this in mind, AF&RS monitors and reports on injury, ill health, vehicle incidents, violence, breathing apparatus (BA) emergencies, theft/security and near misses throughout the year. Workplace inspections, committee meetings and actions plans are also monitored. In addition, health and safety also features in the H7 operational assurance audits. Information is accessible to managers through the reporting and data functions in OSHENS, the Corporate Performance reports, the scorecards, the HSW Committee reports and the BS18001 audit reports.

This report looks back on the last financial year as a whole and forms the basis of the Service Management Board’s annual review of health and safety.
Overall there were 283 incidents reported in 2015-16. This was a slight increase on the previous financial year which was 271 incidents but is still an overall reduction on the 307 incidents in 2013-14. The sections below provide a detailed analysis of the incident types reported and the trends identified.

**Injuries**

In 2015-16 there were 102 work-related injuries, which is a significant increase on the 76 work-related injuries reported the preceding year. This figure has reversed the previous downward trend in injuries that has been apparent since 2012.

Most of the injuries reported were minor in nature, with only 15 categorised as serious. All 15 serious injuries related to operational staff and are detailed in the sections below. Operational staff accounted for 84 of the 102 injuries reported in this period, in comparison to 65 operational injuries last year. The difference between the number of incidents involving operational staff and support staff is easily explained given that operational staff form the largest staff group and equally carry out the roles which are
Injuries during operational incidents

There were 30 injuries in this period during operational incidents; 27 of these happened at fires. Two others occurred during animal rescues and one during an RTC. Notably, the injuries suffered at fires were not directly associated with exposure to heat but were a product of hazards encountered in relation to accessing premises or handling and operating equipment on scene.

Three people suffered fractures at operational incidents. One person fell whilst climbing over a 6ft fence to gain entry, fracturing their fingers as well as straining their shoulder. Neither a ladder nor was entry equipment used to reduce the risks associated with climbing over the fence. Once inside the secured area and injured there was no safe, easy or immediate means of escape. Another person fractured a hand whilst using a crowbar to open a bonnet at a car fire, the tool slipped as the car was wet from firefighting activities. The third individual fractured their foot after tripping in a depression whilst dragging a hose. Conditions were difficult in that it had been raining heavily, the ground was muddy and uneven. These hazards were compounded by the appliance mast failing, which meant reliance was placed on limited lighting such as torches and dragon lights.

One other more serious injury was a severe laceration to the leg from falling glass. This occurred when a firefighter on ladder broke a window with a ceiling hook. The injured person was footing the ladder below and, although appropriate steps had been taken to reduce the risk, it was essential for someone to foot the ladder and remain in the risk area.
In addition to the person who tripped and fractured their foot, five other slip/trip incidents occurred during operations. Two people suffered a knee strain, one from slipping down unlit stairs and the other slipping on wet timber decking. Another firefighter experienced a back strain stepping off the truck into a pothole whilst three others sustained bruising to either their back, ankle or leg when tripping over brambles, tripping over a hose or tripping over rubbish. Our operational incidents are inherently hazardous in that we cannot always control the ground conditions in which we are working. Staff carry out a dynamic risk assessment to mitigate this risk but it cannot be eliminated altogether in an emergency response situation.

There were also two further incidents, in addition to the one above, which were directly caused by climbing over structures. One firefighter climbed over a gate without using a ladder as required and injured their chest muscles. In a similar incident a firefighter sprained his knee climbing over a 5ft wall. However, on this occasion a ladder was not deemed appropriate as crews could easily see over the wall, and noted a clear and evenly-laid patio area with good access and egress. It is likely that this injury was caused by an awkward landing.

Only six of the injuries at operational incidents were associated with manual handling, which is an encouragingly low number given the significance of handling within the operational role. These included three back strains, one whilst re-stowing the 105 ladder, one rolling out hose for the TL water tower and another whilst rescuing a casualty from a house fire. In the case of the 105 ladder, the injury occurred in cold weather and the individual had not sufficiently warmed up. In relation to the water tower and the house fire the individuals were found to have applied the correct technique but simply over exerted themselves. Two further shoulder strains occurred, one whilst opening a seized hydrant that had not been maintained and the other whilst attempting to retrieve a snagged hose, although this latter incident exacerbated a pre-existing injury. A firefighter also stumbled and twisted their knee following a drop and then surge of pressure at the jet. This incident was related to the newly installed ipump.

Other injuries included bruising and minor cuts to varying degrees. One person experienced a bruised back when a hydraulic ram slipped out of position during a winching operation and hit the firefighter on the back and helmet. Another person's face
was bruised when a vehicle door flung upwards as it was cut away, hitting them on the visor (which was in place) and the cheek. A firefighter also experienced bruising and minor swelling when a house brick fell from a burning cooker hood, hitting them on the foot above the steel toe cap of the boots. A minor facial cut was also sustained when communication between staff failed and a delivery valve was mistakenly opened supplying water to a hose that someone was still coupling together. The hose flung up under pressure and made contact with the firefighter’s face. In addition, one person suffered bruising to their finger whilst gaining entry with a sledge hammer. In all of these incidents either the hazard present was not fully recognised or it was not fully controlled. There was also an element of human error in many cases.

Two people suffered minor burns on the incident ground. One was to the eyelid when molten metal began to drip down a chimney that was on fire, the other was caused by sun exposure at a protracted incident in hot weather. One person also suffered temporary hearing loss when the sound of explosion at a car fire was amplified by a nearby metal container. Staff are provided with both eye protection and ear protection but were not using them on two of these occasions. In the case of sun exposure staff are reminded of their personal responsibility to protect themselves from the sun using a suitable sun cream, particularly in the summer months.

Only two incidents involved animals during this period, one firefighter suffered a puncture wound to the hand after being bitten by a raccoon dog, another strained their fingers during a horse rescue.

**Responding to the call out system / pager**

Two people slipped on the internal staircase in the station whilst responding to the same incident. It was established that the emergency lighting system had failed leaving the stairs unlit that night. The lights were repaired the following day. Another person lost their footing on the stairs and, similarly, a fourth person lost their footing whilst embarking the appliance via the external step. No defect or contamination was found that could have caused this in either instance. Two further people slipped or tripped on a public path whilst responding to their pager. Although the condition of a path that is not part of AF&RS’s estate is outside of our control, Retained staff are classed as ‘at work’ once their pager has sounded. All staff involved in these incidents sustained minor sprains and/or bruising only.
Operational training injuries

In the last financial year there were 31 injuries during operational training. Key trends and significant injuries are discussed below. 17 of those incidents occurred at Severn Park mostly within the CFFT or the BA requalifier course, which is an increase on the seven incidents reported the preceding year.

Burns and reddening

Eight cases of minor burns and reddening occurred at Severn Park which were generally caused by the excessive use of water during firefighting training activities. This generated unnecessary quantities of steam within the confined space and, although our PPE is rigorously tested and meets the required standard, steam can still penetrate it. Investigating officers identified that skills-fade was the leading cause of the use of excessive water during training sessions. Other causes of reddening included a delay going into the container so the fire was more developed than usual, a wet flash hood and the spraying of water towards another person's head allowing water to ingress under the helmet onto the skin. Again, skills-fade and human error were identifiable causes.

It is foreseeable that skills-fade will be present in some candidates at the point of their refresher, perhaps owing to poor habits forming or a lack of opportunity to apply learned skills in a live fire situation. The training is specifically designed to capture this and candidates are given a theory session first and a practical on hose techniques before training in the containers. Candidates are also given a full safety briefing, follow strict procedures and are closely supervised throughout each session. The temperature in the container is monitored and students are withdrawn at temperatures above 200°C. Despite these measures, firefighters may still misjudge the level of water required. The question has been raised again regarding the wearing of long sleeve tops under the tunic for added protection against reddening in training. Our PPE provider states this is not necessary.

Other incidents occurring within BA and CFFT training included a number of BA emergencies. These are discussed separately below.

Other training injuries at Severn Park include knee pain when crawling, general leg pain whilst working in the container and elbow pain after bumping into the container structure.
Manual handling injuries in training

The nine manual handling incidents during training were caused by poor technique, adopting an awkward position or were linked to the exacerbation of a pre-existing or underlying condition. Five occurred at Severn Park and the rest during station drills.

At Severn Park, one individual was discovered to have used just one arm to move a 50kg dummy several times whilst still holding the hose in the other hand, another person adopted poor posture stooping over a BA board lying flat on a table. Another candidate injured their back moving a casualty by themselves when their BA partner did not have sufficient strength to assist and in a similar case a lack of body strength was identified when a candidate injured themselves during a specific manual handling training session. A fifth person experienced arm pain when carrying the 135 ladder.

On station a manual handing injury occurred when a firefighter carried a casualty after undertaking heavy digging work at home in the days before. Others instances include a firefighter experiencing a strain after kneeling down to extract a casualty from a vehicle, another when losing grip on a working platform which then fell as it was being taken from the locker and whilst lifting a dummy during training at the docks. Two of these cases were also linked to a pre-existing condition. Another injury resulted when handling in a confined space with limited room to employ safe techniques.

Our rescue techniques are designed to be as ergonomic as possible but it is not feasible to maintain good posture in all rescues and tasks that we must train for. Our backs are not designed for lifting and in fact the strength required for safe handling is within the thigh muscles and core abdomen. In some instances an operational situation can demand the adoption of an awkward position to properly affect an urgent task. In these incidents there is little choice involved and neither a lack of awareness of the risk nor a lack of training are the cause.
Station training injuries

Excluding those already outlined above, seven injuries occurred during training on station. Three of these incidents happened during the use of the hydraulic spreaders. On one occasion a serious incident occurred when two blocks were projected at speed whilst firefighters were participating in an RTC drill. A dash board lift had successfully been completed, raising the dash by six inches. However, firefighters went on to employ an unconventional method to lift the dash further, inserting two blocks, repositioning the spreaders and extending them again. The spreaders began to twist before slipping and forcing the blocks out. Although the actual injuries were minor there was potential for this to have been very serious. Those involved were re-trained and all staff were alerted to the risks of adopting this practice. In another incident there was a loss of purchase on the vehicle structure as the operative hadn’t noticed the vehicle door had started to give and in the third event the grab handle unexpectedly snapped off; this is still being investigated with the manufacturer. Again the injuries were minor but there was potential for serious harm.

In two further incidents on station, a firefighter was hit in the tooth by a karabiner and another slipped on the metal stairs of a training tower.

Injuries during routine activities (Ops Staff)

There were 10 injuries to operational staff during routine activities this period, the nature of which varied greatly from someone straining their back putting on a shoe, to being scratched by the local cat. Trends or similarities within these injuries are highlighted below.

Only two incidents reported related to premise defects, which in view of the size of our estate and the age of most buildings, is a very low number. One related to a pothole in the yard and the other slipping on ice that had formed on an untreated surface.

Five injuries occurred during routine stowing, moving and checking of operational equipment. One person dislocated their finger pushing the sliding tray back into the appliance locker, another person experienced a tendon injury to their finger whilst pulling out the tool tray and a third bruised their finger pulling out trays for a kit check. In addition, one individual strained a muscle when restowing the foam pod directly after exercising the same muscles in the gym and another experienced temporary hearing loss from the noise of a cylinder leak, although ear plugs were provided and accessible. With the exception of the latter these incidents were a result of poor grip on the load or poor
handling techniques as oppose to any defect with the equipment itself or lack of manual handling training.

One person suffered reddening after spilling hot liquid on themselves.

**Injuries during physical training activities**

There were five injuries reported to have occurred during physical fitness activities, a slight increase on last year (two incidents) but still a very low number. Our fitness related procedures require staff to properly warm up and ensure they are hydrated before, during and after exercise. Physical training instructors are provided to assist with safe personalised exercise programs and staff must complete an induction and health questionnaire before using our gyms. AF&RS has also embarked on a trial fitness programme to improve general fitness and health. However, strains are foreseeable where staff do not follow advice, experience age or health-related conditions or exert themselves beyond their physical capabilities.

Four people strained muscles, one on the treadmill, one doing resistance exercises, one whilst skipping and another whilst doing the bleep test. One person was also distracted by a mobile phone call and fell getting back onto a moving treadmill. Staff have been reminded that mobiles should not be taken into, or used, in our gyms.

**Non-operational training**

There were no injuries associated with non-operational or managerial training activities.

**Support staff injuries**

There were 15 injuries to support staff, which includes injuries to support staff whose permanent place of work is on a station.

Eight injuries were associated with a specific group of staff and kitchen duties. One incident related to a long term pre-existing back condition which was exacerbated by normal aspects of their role such as using a sink or bending down to retrieve items. A personal risk assessment was put in place in this instance and reasonable adjustments made to the kitchen facilities and the tasks. Our workplace inspection programme and Prem 1 system are designed to proactively identify these types of hazards and provide a route for them to be rectified. However, occasionally a defect materialises that leads to
injury. Last year two of these concerned electrical shock whilst carrying out kitchen duties. In the first instance the dishwasher earth wire had become detached and made contact with the sink, which was full of water. This was rectified immediately by a competent contractor. The second instance involved the same individual and sink. The connections were rechecked but no further fault was found. It was concluded that on this second occasion it may have been a static shock, for example built up through contact with nylon-based materials. The individual was wearing the correct kitchen footwear at the time. There were also three minor burns from contact with hot surfaces in the kitchen and one instance of a minor cut whilst cleaning the sink plughole. Staff were reminded to use oven gloves, take extra care when near to hot surfaces and to wear gloves when cleaning.

One person injured themselves moving equipment onto a boat during maintenance and another whilst carrying out maintenance on, and handling, ladders in the cold weather. One person felt back discomfort when opening a window. Another bruised their toe when the secure fixing of the demonstration unit failed causing part of it to fall. An individual also grazed their leg when a toolbox drawer slid out. In addition, one person experienced pain after hammering which was associated with a pre-existing and long term condition. Adjustments were put in place to assist this individual in their recovery. Another person experienced bruising when a stacked chair slipped onto them and someone else suffered reddening after touching a hot surface whilst cleaning the showers.

**Display screen equipment (DSE) and associated ill-health**

DSE refers to equipment such as PCs, monitors, laptops, touch-screens devices, mobile phones and other similar devices. Our training and assessment records are held on OSHENS in the DSE module. A total 144 risk assessments and online training courses were completed in the DSE module in 2015-16, with most staff reporting they feel well and comfortable when using their DSE.

In a small number of cases staff raised minor issues such as the need for new IT equipment, eye strain/headaches, or a lack of knowledge as regards access to eyesight tests. This information and guidance has been readily available to staff on the intranet for many years and concerns have been easily resolved by directing staff to the appropriate guidance.

Some cases, however, have required a more detailed face-to-face ergonomic assessment at the individual’s workstation. A total of 16 staff have been assessed by our trained assessors. These assessments are not designed to replace occupational health or medical
advice but the assessor works with the individual, applying any medical advice provided, to identify any issues with the workstation that may be causing, or adding to, discomfort.

In many cases assessors identified that the user had not followed the guidance and/or training and were, for example, sat too low, had positioned themselves on the curve of the desk, kept their arm abducted (positioned away from the body) when operating the mouse or had their monitor at the incorrect height. Following simple adjustments, the generalised discomfort associated with DSE work was often resolved.

Other staff needed equipment outside of the normal workstation provisions. For example, a different seat pan, ergonomic chair, a raised desk or a longer gas stem on their chair. As with most organisations, our office furniture and equipment is standardised and so there will always be individuals who find it difficult to adopt the optimum ergonomic position for their physical characteristics. For staff with long-term underlying conditions that are not work-related, DSE work can exacerbate discomfort and it may be impossible to achieve a pain-free position. It is even more important for these individuals to follow the advice on correct posture, to move around during the day and take small five minute breaks. As with those experiencing general discomfort, most of those seen were positioned incorrectly or were not moving around to avoid discomfort caused by a static position.

Five operational staff have been assessed after being placed on modified duties. These staff were recovering from injuries or medical operations, not necessarily work-related, and were placed in office roles during their physical recovery process. As with those who have long-term conditions, it may be impossible to achieve a pain free working position until the injury has fully healed. However, assessors ensured that the most optimum position possible was achieved and reinforced any medical advice on hours, movement and rest breaks.

Injuries to the public

One member of the public alleged they had tripped over a delivery hose between a pump and hydrant on the fire ground. This incident was not witnessed and the cordon was in place. Another member of the public tripped over a parking bollard when using the forecourt of a station as a short cut as opposed to using the public path. Our construction contractors also experienced a personal injury claim after a jogger fell into a trench outside a building site. The contractor contends the trench was lit and properly guarded by a barrier. Another member of the public slipped down the stairs at Lansdown SWCDC whilst carrying a cup of coffee brought in from home.
There were a 674 days lost in 2015/16 to workplace injuries. The chart below shows the data over the last five years. However, please note this section does not include lost time as a result of injuries sustained in vehicle collisions at work (see below).

A total of 35 operational staff were absent from work with work-related injuries, which amounted to 532 days lost. The majority of these cases were not long term, and the longest absence was 86 days following an injury during Tac Vent training where the individual slipped on metal stairs. A further five cases led to more than 28 days absence (the longest of these being 38 days). All other cases were less than 21 days absent, 10 of those related to manual handling injuries and eight were a result of slipping or tripping.

There were three lost time injuries to support staff, one case resulted in 86 lost days following an arm injury in the Technical Centre and one was a 30 day absence from a back injury. Both these cases involved the exacerbation of pre-existing non-work related conditions. The third support staff injury was fairly minor with only three days absence.

The reduction of long-term absence now forms part of our objectives for 2015-18 and is cited in our Corporate Health and Safety Strategy. Our aim is to encourage and support staff back into work earlier by offering appropriate modified duties, shorter hours and supporting treatment where possible. AF&RS offers accessible occupational health provisions and staff work together to agree the best approach for each individual case. We recognise the costs associated with injuries; which are discussed later in this report.
There were 18 illnesses reported in 2015-16, which represents only a minor increase on last year. Trends for all staff (operational and support) are discussed below.

**Work-related stress**

There were 13 instances of work-related stress reported to the Service. 10 related to operational staff and three to support staff. The table below summaries the underlying causes of the reported illnesses.

<table>
<thead>
<tr>
<th>Staff group</th>
<th>Identified cause(s)</th>
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<tr>
<td>Operational</td>
<td>Personal and work-related issue regarding transfer</td>
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<tr>
<td>Operational</td>
<td>Home-life issues exacerbated by transfer</td>
</tr>
<tr>
<td>Operational</td>
<td>Home-life issues exacerbated by transfer</td>
</tr>
<tr>
<td>Operational</td>
<td>Home-life impacts on ability to take up new role</td>
</tr>
<tr>
<td>Operational</td>
<td>Personal preference /perception regarding transfer location</td>
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<tr>
<td>Operational</td>
<td>Disciplinary related</td>
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<tr>
<td>Operational</td>
<td>Personal health issues affect performance at assessable training event</td>
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<tr>
<td>Operational</td>
<td>Personal health issues affect performance at assessable training event</td>
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<tr>
<td>Operational</td>
<td>Adapting to change in line management and procedures</td>
</tr>
<tr>
<td>Operational</td>
<td>Concern for member of the public with health and social issues</td>
</tr>
<tr>
<td>Support</td>
<td>Work demands/ ability to cope</td>
</tr>
<tr>
<td>Support</td>
<td>Work demands/ ability to cope</td>
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<tr>
<td>Support</td>
<td>Adapting to change in line management and procedures</td>
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By comparison the most frequent cause identified in 2014/15 related to working relationships or the behaviour of other staff. In the last 12 months there has been a clear trend of staff experiencing stress where a transfer affected their home-life demands or did not meet their personal preferences. A number of transfers have been necessary this year as a result of the various station closures and the opening of Hicksgate. Operational staff contracts allow for such transfers and in all cases the transfer process has been
properly applied. Decisions are made based on the business needs associated with fulfilling our statutory duties and account is taken of the availability of posts across the Service, the need to fulfil those posts, the staff qualified to fill those posts, the location of the post and, where reasonably practicable, the home address of the individual. It is unfortunately not reasonably practicable to prioritise either individual home life issues or personal preference over the business need. There will always be an inherent risk that a transfer may impact individuals to a greater or lesser degree at any given stage in their private lives.

Other causes of stress have included personal health issues that have affected performance, adaption to change and involvement in a discipline. Stress may of course be a very natural response when a person feels they are under negative scrutiny at work. All staff have access to support during a discipline.

In addition, two support staff incidents relate to the perception of work demands and a personal ability to cope with those demands. In both cases an investigation was undertaken and, where necessary, adjustments were made to assist with any perceived or actual stressors.

We are currently looking at the way we assess, report, investigate and resolve cases of stress. In most instances the physical or mental illnesses caused by stress are a result of the interaction of any number of psychosocial hazards (relationship between social factors and individual thought and behaviour) and it can be very difficult to disentangle what is purely caused by work and what is caused the impact work can have on someone’s personal circumstances or health outside the control of the organisation.

Staff tend to report symptoms at the point when they are feeling so unwell that they can no longer cope. This means that early intervention is not always possible and symptoms may be more advanced by the time the Service is made aware. This may be a result of the stigma still attached to mental health and stress generally within society and we recognise that destigmatising stress is an important step towards addressing it. Our current generic risk assessment identifies the potential causes of stress within the organisation but over the coming year we will consider whether we can explore this further.

**Other illnesses**

One incident commander has reported a sore throat and chest complaint from exposure to smoke on two separate occasions. In one instance the individual was carrying out a 360 assessment without a dust mask and in the other it was thought the wind direction may
have changed. Another person suffered respiratory symptoms which they attributed to a site visit although when investigated further, this may have been a result of lifestyle or existing health issues.

A member of staff also reported headaches from a substance used by contractors during the refit of a premise floor and one swift water rescue technician experienced a digestive illness after training in a weir. However, a viral (as opposed to bacterial) cause could not be ruled out.
DAYS LOST TO WORK-RELATED ILLNESS/DISEASE

Nine members of staff took time off work after reporting work-related illness, with a total of 617 days lost. Eight were related to stress and one to exposure to dust.

With the exception of one case, all absences were in relation to operational staff which accounted for 579 of the days lost due to work-related illness. The longest two absences were 181 and 148 days respectively. One support member of staff was absent 30 days.

Given the direct correlation between work-related stress and days lost for illness, work will continue this year between the Health, Safety and Welfare Unit and Human Resources department to reduce this.
BREATHING APPARATUS EMERGENCIES

In 2015-16 there were 11 Breathing Apparatus (BA) emergencies reported to AF&RS, which is the exact number reported the previous year. Eight occurred during training and three during operational incidents.

The three BA emergencies during operational incidents were all accidental actuations of the DSU caused by contact with structures or equipment, for example, when leaning over a window frame.

There was a similar pattern in the causes identified in 2015/16 to those seen in 2014/15. One person experienced an air leak due to a faulty O ring that had not been checked pre-use, another person’s demand valve failed and two separate individuals noted the face seal had a minor leak or did not fit properly. A further air leak was caused by frosting although no fault could be found with the set, and another person reported a faulty gauge. In two separate incidents, staff had been overcome by fatigue and heat after making a wrong turn during a search in the training facilities. In one instance a lack of sleep led to tiredness and a reduced ability to cope with the heat.

One issue that has been identified as a result of BA emergency investigations is the way they are managed by the contractor (Babcock). The three Fire and Rescue Services (FRS) using Seven Park have been working with the contractor to ensure their understanding of what is classed as a BA emergency under each FRS’s procedures, when this becomes RIDDOR reportable and the required response to one. There has also been work completed on the cleaning of BA sets at Severn Park.
VERBAL AND PHYSICAL ABUSE

There were eight incidents of verbal and physical abuse during this period. These included both physical and verbal acts towards our staff. A serious incident occurred when a member of the public driving a vehicle approached the scene of an incident at speed. The driver failed to stop as directed by a fire service vehicle marshal and responded by driving their vehicle towards our staff at increasing speed. After narrowly missing firefighters, the driver alighted their vehicle and became verbally abusive to staff. The incident escalated further when the driver physically assaulted a firefighter. The police were called and our staff were able to assist the police with their enquiries.

In another serious incident, firefighters were physically pushed, threatened and verbally abused at the scene of a deliberate bonfire in a public car park. Again the police were called but as they were unable to provide immediate attendance crews left the scene for their own safety. In three further incidents staff were verbally abused when attempting to address a fire risk at a domestic property, when inspecting a fire sump and during a meeting with a member of the public who was disgruntled with a neighbour.

Also in this period, firefighters experienced a member of the public standing in front of an appliance in protest that the police had left the scene. When the firefighters attempted to carefully reverse away the individual jumped onto the front grill of the appliance and clung to the windscreen wipers. A 10:49 message (request for emergency assistance) was relayed and the police returned to remove the individual.

There was also a report involving youths throwing rocks at an appliance and a flexi officer’s car was keyed whilst parked in a public car park.

It is of course unacceptable for our staff to be subjected to abusive and threatening behaviour whilst at work and we will continue to encourage staff to report these experiences to us and to work with the police, where possible, to address these events. Our staff remained professional throughout these incidents and will always be supported if there is a need to withdraw from a situation for safety reasons. More recently staff have been reminded of the increased risk associated with the similarities of our uniform to the police. As before, we will continue to work with partner agencies to identify the best approach to working with communities.
VEHICLE INCIDENTS

There were 89 vehicles incidents last year which is a slight rise on the previous downward trend we have seen, but still an overall decline over the last five years.

![Vehicle incidents graph]

Given that the number of appliance mobilisations to operational incidents last year was 25,232 and assuming that these involved a return journey, we could take a rudimentary figure of 50,464 vehicle movements last year. This equates to only 0.1% of vehicle movements resulting in an incident. In reality the percentage is even lower as the total number of vehicle movements also includes those carried out for routine travel purposes by any Service-owned, leased or hired vehicle or any private vehicle authorised for work use. As we do not currently record all journeys we are unable to establish the actual figures. This will be rectified with the introduction of data recorders in front line appliances in 2016/17.

Trends and significant vehicle incidents are outlined below.

Vehicle incidents that resulted in injury

Only two of these incidents resulted in injury, although in one incident two members of staff were injured. The injuries are detailed in the lost time section below.
Vehicles on the highway / private property

As in previous years, most of our vehicle incidents occurred on the public highway or on private property (70 of the 89) as opposed to on our own premises. This may be because drivers are less likely to have a collision in more familiar surroundings.

Responding

28 incidents occurred whilst responding on blue lights. The majority of responding incidents are a result of hitting something that is fixed or stationary. Breaking those down, 19 incidents involved minor contact with a stationary vehicle either in traffic or parked, three involving overhanging foliage, two minor scraps on a wall, one on a gate and one impact with the appliance bay door.

In addition, seven collisions also occurred with another moving vehicle. These were, however, low speed collisions in which only glancing contact was made between vehicles and only minor damage resulted. On the whole these incidents related to congested areas, heavy traffic or narrow bends.

Two other minor incidents whilst responding included a stone breaking a windscreen on the motorway and hitting a pothole in the road, neither of which could have been avoided.

At incidents

17 vehicle incidents occurred on the operational incident ground. A similar trend emerged in that 11 of these involved minor contact with fixed or stationary objects such as gates, walls, bollards and parked vehicles. There were two further minor incidents in which our appliance was damaged whilst parked by a passing third party vehicle and two where an appliance was damaged by falling debris at an incident. There were two incidents where a third party alleged their cars had been damaged by our appliance but no supporting evidence was found in either case.
**Routine / non-operational driving**

Routine driving accounted for 42 of the vehicle incidents during the relevant period. Over half of these (26) followed the same trend of minor contact with stationary objects, vehicles and structures whilst carrying out slow speed manoeuvres or passing through narrow gaps.

10 incidents occurred in which a collision took place with a third party moving vehicle but again these were all very low speed (5-10mph) and the third party was wholly liable in six of these instances (rear end shunts or clipped the side of our stationary vehicle). Two further incidents involved our vehicle and a third party vehicle making contact with each whilst both simultaneously parking.

Several other incidents involved damage being found on return to an unattended AF&RS vehicle or damage to our property caused by a third party collision.

**Reversing**

AF&RS has a very good safety record in respect of reversing which is largely down to the safe reversing procedure in place. Only four routine manoeuvres involving reserving resulted in an incident. One was reversing down a narrow lane, one was reversing the prime mover towards a load, another involved reversing to park near a domestic wall and a fourth was reversing over rough muddy terrain. The various causes of these incidents included a communication failure between the driver and the vehicle marshal, the marshal’s position did not allow full sight of the hazards and darkness/lack of street lighting. It is likely reversing cameras will form part of the technology program for vehicles in 2016/17.

**Incidents on non-operational AF&RS premises**

Four incidents during routine driving were a result of contact made with a pillar in the underground carpark at HQ and two with the post at the front of HQ. In all cases the driver had misjudged the position of the vehicle in relation to the post.
Fault and non-fault incidents

Of the 89 vehicle incidents AF&RS was deemed 100% responsible for 66 of them. In some of these incidents drivers and the OIC must make quick decisions on whether to attempt to pass through a small gap or whether to take a longer route or stop to use the Go-Jacks. The nature of the call will dictate whether the latter two options are feasible. A third party was considered wholly responsible for 15 incidents, a 50/50 decision was recorded for four incidents and on four other occasions liability was attributed on a proportional split such as 70/30 or 80/20.

LOST DAYS TO VEHICLE INCIDENT INJURIES

Three members of staff took time off after being involved in a vehicle incident at work. This led to a total of 279 days lost from work. One of these incidents alone led to an individual being absent for 274 days. In all cases of physical injuries the third party was liable.
NEAR MISSES

There were 46 near misses in 2015/16 which is a lower figure than the previous three years (78, 72 and 84 respectively). This could represent a period of under-reporting; however a change in the number of near miss reports for just one year may not be statistically significant enough to support the under-reporting theory. When examining near misses our aim is to use the opportunity to prevent a future occurrence and/or an injury materialising. We also look for trends within the data which can be indicative of a wider, non-isolated issue.

A significant number of the near misses related to the ipumps installed on our appliances from 2014 onwards. This has a touch screen display which replaces the previous manual pump. There were seven reports concerning the loss of pressure and/or water whilst operating the ipump and concerned were raised by staff regarding the reliability and predictability of the pumps. An initial investigation revealed that further training and instruction was necessary in order to ensure that operators were familiar with the way the ipump worked. Each station was visited and additional input was delivered. However, further concerns were raised by staff and this led the Service to explore the suitability of the ipump for our operational needs. As yet this matter has not been concluded and a report will be provided to the SMB in the near future.

There were also two incidents involving debris within a diffuser. The effect of this was to block the flow of water and in one instance it was estimated that the flow was reduced by up to 80%. Minor changes were made to the design in order to reduce the risk and staff have been reminded to regularly inspect and clean equipment.

Other near misses which varied in seriousness included:

- failure to correctly isolate a lift before placing oneself in the risk zone
- fire-fighting from an unsafe position in a carriageway with fast moving traffic
- a ceiling collapse which led to debris and a water tank collapsing onto a ladder
- a bolt missing from a vehicle brake calliper
- condensation on the BA board clocks
- failure of a Go-Jack under load
- a contractor did not directly monitor the fuel delivery process, causing the tank to over flow and parts the station to be contaminated with fuel
- omitting to unplug the charging lead on an appliance
- a low pressure oil leak from the hydraulic spreaders
- placing a BA set near moving equipment
• a glass food hot plate shattering and arcing whilst in use
• bent cab struts
• potential exposure to blood borne contaminants
• potential exposure to chemicals
• exposure to alarm noise via the telephone
• a fire in a drying room
• fire damage to an oven accidentally left on unattended (during a fire call)
• a ladder slipping from its position whilst people were nearby
• PPE falling from a locker during a journey
• incorrect bollarding causing a cylinder to fall
• a light fitting falling down from height
• a defective ladder being used
• a hose caught between rounds of a ladder when housed
• Potential exposure to ringworm from an infected horse

In each instance staff rightly identified that there was the potential for a more serious incident to have occurred and reported it on OSHENS. As these investigations have shown there are several common themes within the underlying causes of a near miss. Some relate to critical equipment failure which, although we proactively work to avoid, can still happen. In 2013 the HSW Unit identified the need to improve our equipment defect reporting, record-keeping and monitoring. This is to ensure that we can identify issues and trends before they result in a near miss or injury. Several equipment management systems have been explored and proposed but have yet to be agreed.

Others relate to human error such as lapses of concentration, the application of knowledge in the wrong circumstances or even routine violations that may have crept in over the years. The health and safety culture plays a huge role in people’s attitudes towards safety.

Appropriate and proportionate remedial measures have been put in place to prevent or reduce a similar occurrence in the future. We continue to encourage near miss reporting.
SECURITY BREACHES / THEFT

There were 11 security / theft incidents report in 2015-16. These included:

- missing tough book
- engine house window broken
- two TICs missing
- unauthorised person seen on our premises
- email received purporting to be from a member of staff
- car abandoned outside engine house doors
- lost mobile
- pelican lights stolen on incident ground
- Tom Tom and a Dictaphone stolen from vehicle parked at a private address
- two separate incidents of a wallet stolen containing an ID card

An investigation was carried out in all cases and AF&RS took steps to mitigate any loss, repair damage caused by a third party and to secure equipment, vehicles and premises effectively.

Our staff have also been reminded to remain vigilant for suspicious activity and to report anything of concern immediately.
REPORTING TO THE ENFORCING AUTHORITY

We are required by law to notify the enforcing authority HSE of reportable incidents, referred to as RIDDORs. Reports must include major injuries, work-related absences over seven days, certain occupational diseases and dangerous occurrences that meet specific criteria.

In 2015-16 we reported 23 incidents, which is closely comparable to the previous year but significantly higher than the 14 reported in 2012-13 and 13 reported in 2013-14. 20 of the RIDDORs were reported as the related absence was over seven days. These mainly consisted of sprain type injuries which took time to heal. Only two were reported under the HSE classification of major injury. One was a fractured hand whilst using a crow bar and the other was a fractured foot after slipping due to uneven and wet conditions at an incident (discussed above). One further incident was reported as a dangerous occurrence as it involved exposure to chemicals at an incident. However, no-one was injured or ill following the exposure.

The HSE has not contacted us regarding any of these incidents but as per our procedure we have fully investigated each one and taken remedial measures as appropriate.

What is evident is that as the number and length of work related absences increase so does the number of RIDDORs. As we work to reduce injuries, illness and absences this should have a positive effect on RIDDORs.
COSTS

Some of the financial the costs associated with work related incidents are recorded against each OSHENS record. For example, known vehicle repair costs and management time are recorded.

The graph below shows the total costs in pounds recorded on OSHENS for each incident type.

<table>
<thead>
<tr>
<th>Incident Type</th>
<th>Costs (£)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injury</td>
<td>£4,845.29</td>
</tr>
<tr>
<td>Illness</td>
<td>£1,555</td>
</tr>
<tr>
<td>BA</td>
<td>£267</td>
</tr>
<tr>
<td>Near Miss</td>
<td>£3,602.81</td>
</tr>
<tr>
<td>RTC</td>
<td>£48,333.7</td>
</tr>
<tr>
<td>Security</td>
<td>£434.31</td>
</tr>
<tr>
<td>Abuse, threats</td>
<td>£297.10</td>
</tr>
</tbody>
</table>

RTCs clearly account for the biggest proportion of our costs, with an average cost of £543 per vehicle incident. We already have a program in place to reduce the costs of RTCs, which includes investing in technology to enable us to make more accurate judgements on liability, improve training and driving techniques, educate the public, work with partner agencies and where necessary to settle claims at the earliest opportunity to keep costs to a minimum.

The total costs recorded on OSHENS for last year were £67,152.17.

However, this sum does not include the average cost (in wages) for each day lost to work related injury and ill health. Each day of absence has been calculated to cost the organisation an average of £148 in paid salary. With a total of 1,570 days lost last year this equates to approximately £232,360 lost in 2015-16 in wages alone. This is an increase of approximately £78,000 on the previous year.
So with lost wages and the costs on OSHENS together, the total estimated costs for last year are approximately £299,512.17. With 281 incidents this year, this gives an average of £1065 per incident recorded.

**Actual costs**

However, these costs are indicative of the overall cost of incidents to the Service and by no means represent the full extent of our losses following an incident. For example, they do not include:

- costs associated with damage where no event was recorded on OSHENS
- equipment repairs
- replacement of lost equipment
- clear up costs
- sick pay
- loss of productivity
- insurance premiums
- administrative/ legal costs
- all medical intervention funded by AF&RS
- provision of support services
- costs of reasonable adjustments / reasonable adjustment panel meetings
- human costs – pain, loss of confidence, morale
- reputational damage

The true costs are much more than estimated in this report.
HEALTH, SAFETY AND WELFARE COMMITTEES

Last year, departments and station HSW Committees were required to meet every quarter to discuss health and safety concerns, share ideas and develop good practices. At the request of operational response the records were also transferred to OSHENS so that there was a one-stop-shop for recording committee notes and inspections.

The table below shows the results for the last financial year. Those stations and departments achieving all four quarterly meetings are shown in green and those achieving three of the quarterly meetings are shown in yellow.

Performance was not as expected for those depicted in red, with one station and one department failing to record any committees meetings for the 12 month period.

These meetings are designed to allow staff to raise concerns and to take ownership of health and safety issues locally, with wider support from middle and senior managers for more complex issues. Operational Response has recently restructured with dedicated Station Managers responsible for performance. It is expected that those areas not performing well will be managed via this restructure.
WORKPLACE INSPECTIONS

Workplace inspections are required on a quarterly basis. The relevant SOP sets who is responsible for inspecting each premise owned or occupied by AF&RS. The table below shows the results for the last financial year.

Those stations and areas achieving all four quarterly meetings are shown in green and those achieving three of the quarterly meetings are shown in yellow.

Again, performance was not as expected for those depicted in red, with one station failing to record any inspections for the 12 month period.
KITCHEN INSPECTIONS

We are required to register our commercial kitchens as food businesses which means they are subject to food hygiene legislation and are inspected by the local authority. We have both a legal and moral duty to observe good hygiene practices within our kitchens.

Kitchen inspections are required on a quarterly basis to ensure that food hygiene standards are properly maintained and to ensure that our kitchen equipment is safe to use. The table below shows the results for the last financial year for the eleven registered kitchens. A much improved performance with eight* stations achieving all four quarterly inspections (*including Hicksgate which opened part way through the year).

Those areas achieving all four quarterly kitchen inspections are shown in green and those achieving three of the quarterly inspections are shown in yellow. Those in red did not perform as expected.

![Kitchen Inspections Chart]
CONCLUSIONS

The Service is continuing to make progress as regards its overall health and safety performance and the report will assist in focusing our efforts and resources on areas of risk that can influenced by positive action. Some of those key areas include the reduction of long term absence and the associated costs as well as the introduction of software or technology that will streamline the way we work and will ensure that we achieve much greater compliance with our legal duties.

However, this can only be achieved by adopting a self-appraising approach where we are prepared to identify issues and resolve them together through a supportive and proactive culture. This culture should be one where everybody takes responsibility for health and safety and where we take a balanced, proportionate and sensible approach to making AF&RS a healthy and safe place to work.
APPENDIX ONE

PERFORMANCE AGAINST CORPORATE HEALTH AND SAFETY TARGETS

In April 2015 the Strategy was reviewed and, following consultation with the stakeholders, the operational training targets were carried over into the next phase of the Strategy (2015-18). This reflects our continued intention to achieve these targets, given that they reflect the core skills for a firefighter and will improve health and safety across Operational Response.

The vehicle incident target was also honed following our continued success in reducing vehicle incidents. This now focuses on a specific cause relating to vehicle incidents which is outlined below. A further target in relation to work-related absence was also included following the increase seen in lost days.

Progress against the targets is regularly reported throughout the year. The sections below detail what has been achieved by the end of year one of this three year target period.

**Target One: To reduce lost time in relation to work-related injuries and illness by 10% over the next three years**

As outlined above in the sections on loss time, we have yet to achieve a decrease in lost time in relation to work-related injuries and illness. Over the period of 2015/16 lost time has increased by 17%. Over the coming year a joint approach between the HSW Unit, Human Resources department, Occupational Health and Service Managers will be implemented to support and monitor cases of work-related absence.

**Target Two: To reduce the number of vehicle incidents in which AF&RS hit something fixed or stationary and are at fault, by 5% over the next three years**

Vehicles incidents overall have reduced. We are now concentrating on reducing vehicle incidents where AF&RS have made contact with a stationary vehicle (parked or in traffic) or a fixed structure (e.g. gate, post, kerb) and are consider liable. This type of vehicle incident makes up the greatest percentage of our fault based vehicle events.
We have not made progress against this target in the first year of the target period and since an increase, albeit only small, of 3%. The Service will soon introduce vehicle cameras and data recorders which we believe will assist in achieving this target in the future. This technology will provide more accurate evidence in relation to contact between our vehicles and other objects, as well as giving invaluable information on individual driving techniques that can be used to inform driving training courses.

**Target Three: Staff identified in the course and development matrix in the Operational Training Policy must attend and pass the following courses at the frequencies stipulated in the policy:**

- BA re-qualifier and BA awareness;
- Tac Vent/CFBT and Tac vent/CFBT awareness;
- RTC ream approach and RTC awareness;
- SWAH level 1 and SWAH awareness;
- Water Rescue level 1, 2 and 3;
- Emergency response driving;
- Animal rescue level 1, 2 and 3

Industrial action during the 2014/15 training year continued to have an impact on course numbers during 2015/16 owing to the significant back-log caused by cancellations during the prolonged strike period. In addition, previous statistical representations did not take account of our USAR staff and these have now been included by the Resource Planning Unit.

The tables below set out the number and percentage of those trained within the required training frequency for each course. Baseline figures for staff at the end of March 2016 were 429 Wholetime staff, 14 USAR and 196 Retained; giving an overall operational establishment of 639 excluding Station Managers and above.
The figures show that 93% of staff had completed this course within the required frequency at the end of the financial year; an increase of 18% since the 2014/15 training year. Both our whole-time and Retained staff have achieved a high return for this course which is reflected in the positive result. However, the number of staff trained remained static from December 2015 onwards. 43 individuals remained outstanding at the end of the financial year, although seven of these are on modified duties or off sick.

Several barriers have been identified by RPU which include a back log caused by eight courses cancelled in 2014/15 (equating to 80 places) and two courses cancelled in 2015/16 (equating to 20 places) due to insufficient delegate numbers.

Whilst there are a sufficient number of course places for the 2016/17 training year, RPU have indicated that the course times are not always viable to for staff and so securing sufficient delegates to run the course can be a challenge. To maintain 100% completion RPU are planning a six month buffer period in relation to the course frequency; to be in place by August 2017. All available place opportunities are offered to the RDS and they are encouraged to use them.
CFBT (two year training cycle)

<table>
<thead>
<tr>
<th></th>
<th>Total 2014/15</th>
<th>% 2014/15</th>
<th>Total 2015/16</th>
<th>% 2015/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Watch</td>
<td>76</td>
<td>68%</td>
<td>83</td>
<td>79%</td>
</tr>
<tr>
<td>Green Watch</td>
<td>88</td>
<td>79%</td>
<td>90</td>
<td>83%</td>
</tr>
<tr>
<td>RDS</td>
<td>78</td>
<td>41%</td>
<td>117</td>
<td>60%</td>
</tr>
<tr>
<td>Red Watch</td>
<td>90</td>
<td>80%</td>
<td>91</td>
<td>87%</td>
</tr>
<tr>
<td>USAR</td>
<td>NA</td>
<td>NA</td>
<td>4</td>
<td>29%</td>
</tr>
<tr>
<td>White Watch</td>
<td>79</td>
<td>71%</td>
<td>94</td>
<td>86%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>411</td>
<td>65%</td>
<td>479</td>
<td>75%</td>
</tr>
</tbody>
</table>

The figures show that 75% of staff had completed this course within the required frequency at the end of the financial year, an increase of 10% since 2014/2015 training year. The Retained figure significantly improved by 19%, but still meant 40% of Retained staff were over the required training frequency. At the end of March 2016, there were 158 individuals outstanding across all operational staff, only 12 of which were on modified duties or sickness.

AF&RS attended over 1600 incidents involving fire that had the potential to be in a compartment in 2015/16, it is therefore possible that staff with this identified training need attended this type of incident.

In the previous training year seven courses were cancelled (equating to 70 people) and during the 2015/16 training year three courses (equating to 30 people) were cancelled by our training provider; one due to low numbers.

RPU anticipate that the Service will have achieved 100% by the end of March 2017 and will be at a position to maintain this with a six month buffer by July 2017.
### Tactical Ventilation

<table>
<thead>
<tr>
<th></th>
<th>Total 2014/15</th>
<th>% 2014/15</th>
<th>Total 2015/16</th>
<th>% 2015/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Watch</td>
<td>53</td>
<td>47%</td>
<td>94</td>
<td>89%</td>
</tr>
<tr>
<td>Green Watch</td>
<td>54</td>
<td>48%</td>
<td>88</td>
<td>81%</td>
</tr>
<tr>
<td>RDS</td>
<td>NA</td>
<td>NA</td>
<td>66</td>
<td>37%</td>
</tr>
<tr>
<td>Red Watch</td>
<td>46</td>
<td>41%</td>
<td>71</td>
<td>68%</td>
</tr>
<tr>
<td>USAR</td>
<td>NA</td>
<td>NA</td>
<td>12</td>
<td>86%</td>
</tr>
<tr>
<td>White Watch</td>
<td>68</td>
<td>61%</td>
<td>103</td>
<td>95%</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>221</strong></td>
<td><strong>49%</strong></td>
<td><strong>434</strong></td>
<td><strong>68%</strong></td>
</tr>
</tbody>
</table>

Tactical ventilation is a relatively new course, introduced in 2014. In April 2016 records showed that 68% of staff had completed this course within the required frequency. This is an increase of 19% on the previous training year which shows reasonable overall progress. However, there were 205 individuals with an identified training need at the end of the financial year (14 on modified duties or sickness).

In last year’s report, RPU predicted full competency amongst whole-time staff by the end of 2015/16. As the table shows this was not achieved. Good progress has been made towards this, with the exception of Red Watch. The HSW Unit has recommended that RPU explore whether the dates upon which the courses fall affect the results for any particular Watch. For example, if courses are not often available when Red Watch are on duty then this may explain the lower uptake of places.

The table also shows that 130 of our 196 Retained staff were yet to attend this course. However, Retained staff have only had access to the course for the last 12 months. It is worth noting that if the Retained attendance rate remains the same it will take a further two years to achieve competence across all Retained staff.

One overwhelming barrier has been that during the last two training years 31 courses have been cancelled, equating to 310 places. RPU have reported that cancellations are mainly related to trainer availability and/or the need to run additional courses to achieve competence in other skills. This may be the effect of prioritising critical core skills which with limited resources has a detrimental effect on the ability to provide this type of course.
Currently the Tactical Ventilation course has no refresher period attached to it. The HSW Unit recommend that a refresher period is set taking account of the potential for skills fade, the frequency at which staff will use these skills, the advances in knowledge and understanding of tactical ventilation and the risks involved in employing ventilation tactics.

**RTC Team Approach**

<table>
<thead>
<tr>
<th></th>
<th>Total 2014/15</th>
<th>% 2014/15</th>
<th>Total 2015/16</th>
<th>% 2015/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Watch</td>
<td>62</td>
<td>55%</td>
<td>91</td>
<td>86%</td>
</tr>
<tr>
<td>Green Watch</td>
<td>87</td>
<td>78%</td>
<td>88</td>
<td>81%</td>
</tr>
<tr>
<td>RDS</td>
<td>77</td>
<td>41%</td>
<td>84</td>
<td>43%</td>
</tr>
<tr>
<td>Red Watch</td>
<td>70</td>
<td>63%</td>
<td>76</td>
<td>72%</td>
</tr>
<tr>
<td>USAR</td>
<td>NA</td>
<td>NA</td>
<td>2</td>
<td>14%</td>
</tr>
<tr>
<td>White Watch</td>
<td>57</td>
<td>51%</td>
<td>80</td>
<td>73%</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>353</strong></td>
<td><strong>55%</strong></td>
<td><strong>421</strong></td>
<td><strong>66%</strong></td>
</tr>
</tbody>
</table>

The figures show that 66% of staff had completed this course within the required frequency at the end of the financial year. Whilst this is an increase of 11% on the previous year, it meant that 218 individuals had not completed this core skill within the required frequency; albeit 15 are on modified duties or sickness. Red and Blue Watch had almost a third of staff to be trained and less than half of the Retained staff had completed the course within the required time frame.

During the previous training year six courses were cancelled (equating to 60 places) and during the 2015/16 training year eight courses were cancelled (equating to 80 places). Seven were cancelled by the provider due to instructor shortages/sickness, and one due to non-attendance by crews. The cancellations equated to the loss of approximately 12% of places.

AF&RS attended XX RTC incidents in 2015/16. It is therefore possible that staff with this identified training need attended this type of incident.

RPU anticipate that the Service will have achieved 100% for Whole-time by the end of March 2017 and will be at a position to maintain this, with a 6 month buffer, by June
2017. However, the whole-time staff figure indicates that it is unlikely that the organisation will achieve 100% across all operational staff until the 2017/18 training year and RPU have noted that this is also subject to the availability of courses.

**Safe Work at Height (SWAH) Technicians**

<table>
<thead>
<tr>
<th></th>
<th>Total 2014/15</th>
<th>Total 2015/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Watch</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Green Watch</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>RDS</td>
<td>17</td>
<td>16</td>
</tr>
<tr>
<td>Red Watch</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>USAR</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>White Watch</td>
<td>10</td>
<td>8</td>
</tr>
</tbody>
</table>

One SWAH Technician is required per Watch/station. Green, Red, USAR and RDS achieved a full complement. However, Blue and White were both two instructors short during this data period.

**Safe Work at Height Awareness (level 1)**

During an audit of Fire Watch it was discovered that the level one training records for operational staff did not reflect the organisation’s understanding of the number of staff that had been trained. Whilst the Service is confident that the training was provided in practice, it has been repeated for all staff for whom there is no record.

At the end of March 2016 the organisation had achieved a 94% return on the number of operational staff to have completed this course; a healthy increase of 48% since last year. The remaining 40 individuals will be trained shortly.

**Water Awareness (level 1)**

Competence in this skill has declined since the last training year dropping from 61% to 53% at the end of the 2015/16 training year. This means that 338 staff entered the new training year with an identified training need which is a significant number.
RPU advised that nearly half of those yet to be trained are Retained staff and difficulties have been experienced scheduling this training in for them, whilst Whole-time staff are trained whilst on duty. RPU indicate that the remaining staff will complete this training in the 2016/17 training year.

No data was available through RPU for more advanced water rescue skills. Swift water rescue courses have historically been held locally at the specialist stations. The HSW Unit has requested that all acquisition records are now held centrally on FireWatch.

**Animal Rescue**

No data was available through RPU for animal rescue skills. As with other specialist skills, records of this training have historically been held locally at the specialist station(s). The HSW Unit has requested that all acquisition records are now held centrally on FireWatch.

**Emergency Response Driving**

AF&RS takes road safety very seriously and aims to provide drivers with the best level of training for emergency response driving. Steps have been taken to address the driver training needs identified last year. The Service acknowledges that when records were first audited the scale of the problem was initially underestimated and further exploration highlighted additional staff groups such as the flexi duty officers (FDOs) and USAR who were not initially accounted for. Significant progress has now been made over the last eight months, with encouraging results.

At the end of the year 2015/16 the Driver Training Unit had refreshed 18 FDO and Principle officers. Seven officers who were more than five years past their refresher date were also scheduled to complete their refresher by Summer 2016.

In relation to operational drivers on stations, 80% of staff had completed the ERD Class C training within the required frequency (three years) by the end of the 2015/16 training year. Only one person remained over five years, although 68 individuals were still over three years. RPU confirmed that 39 of those individuals were due to complete the course in the first quarter of 2016/17.

The RPU will continue to address the training need as we move through 2016/17.
**Target Four: To ensure that staff identified in the Incident Command Training Policy attend and pass the acquisition training, Incident Command Assessments and refresher training at the frequencies the stipulated in the policy**

**CM/WM Ops Assessments (three year cycle)**

<table>
<thead>
<tr>
<th></th>
<th>Total In Date 2015/16</th>
<th>Watch Totals</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Watch</td>
<td>23</td>
<td>24</td>
<td>96%</td>
</tr>
<tr>
<td>Day Staff</td>
<td>36</td>
<td>50</td>
<td>72%</td>
</tr>
<tr>
<td>Green Watch</td>
<td>25</td>
<td>26</td>
<td>96%</td>
</tr>
<tr>
<td>RDS</td>
<td>43</td>
<td>44</td>
<td>98%</td>
</tr>
<tr>
<td>Red Watch</td>
<td>21</td>
<td>24</td>
<td>88%</td>
</tr>
<tr>
<td>USAR</td>
<td>4</td>
<td>4</td>
<td>100%</td>
</tr>
<tr>
<td>White Watch</td>
<td>24</td>
<td>26</td>
<td>92%</td>
</tr>
<tr>
<td><strong>Grant Total</strong></td>
<td><strong>176</strong></td>
<td><strong>198</strong></td>
<td><strong>89%</strong></td>
</tr>
</tbody>
</table>

At the end of the financial year, 89% of staff had completed this course within the required frequency, which is 3% less than the previous year. These figures also do not include strategic managers (AM/ACFO/DCO/CFO).

One explanation for the decrease in those competent is that there had been an error in the timetabling of assessments. These should be every two years, on a rolling 24 month programme from the date of the individual’s assessment. Initially the Learning and Development department managed bookings by the year of the previous assessment only. So for example, if someone was assessed in 2013, they would be re-assessed by the end of 2015. However, in practice this can add up to 12 months onto the refresher period. So if an assessment took place in early January 2013 and was not re-scheduled until late December 2015, this equated to a 35 month refresher period.

As individuals were brought back into line with the 24 month refresher period, some would have been overdue when they previously appeared not to be.
ADDITONAL TRAINING PERFORMANCE DATA

RPU have provided some additional training performance data, which although are not part of the identified core skills, they are essential to all operational staff.

BA emergency training

<table>
<thead>
<tr>
<th></th>
<th>Total 2014/15</th>
<th>% 2014/15</th>
<th>Total 2015/16</th>
<th>% 2015/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Watch</td>
<td>96</td>
<td>86%</td>
<td>101</td>
<td>95%</td>
</tr>
<tr>
<td>Green Watch</td>
<td>102</td>
<td>91%</td>
<td>95</td>
<td>87%</td>
</tr>
<tr>
<td>RDS</td>
<td>132</td>
<td>70%</td>
<td>148</td>
<td>76%</td>
</tr>
<tr>
<td>Red Watch</td>
<td>106</td>
<td>95%</td>
<td>100</td>
<td>94%</td>
</tr>
<tr>
<td>USAR</td>
<td>NA</td>
<td>NA</td>
<td>11</td>
<td>79%</td>
</tr>
<tr>
<td>White Watch</td>
<td>96</td>
<td>86%</td>
<td>103</td>
<td>94%</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>532</strong></td>
<td><strong>84%</strong></td>
<td><strong>558</strong></td>
<td><strong>87%</strong></td>
</tr>
</tbody>
</table>

The figure shows that 87% of staff had completed this course within the required frequency, which is slight increase of 3% since the 2014/2015 training year. Of note, at the end of 2014/15 RPU reported 89% of Whole-time staff as competence with the remainder to be scheduled in for the first quarter of 2015/16. It is not clear whether the whole-time did not achieve full competence by that date as predicted or whether numbers have slipped over the remainder of the last financial year.

In April 2016 there were 81 individuals who had an identified training need for this skill and more than half of these are Retained staff; only six were on modified duties or sickness.

RPU confirmed that they were not in a position to advise when all staff would be trained as they were awaiting training dates for the 2016/17 training year.
HAZMAT Awareness

<table>
<thead>
<tr>
<th></th>
<th>Total 2014/15</th>
<th>% 2014/15</th>
<th>Total 2015/16</th>
<th>% 2015/16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Watch</td>
<td>62</td>
<td>55%</td>
<td>89</td>
<td>84%</td>
</tr>
<tr>
<td>Green Watch</td>
<td>55</td>
<td>49%</td>
<td>74</td>
<td>68%</td>
</tr>
<tr>
<td>RDS</td>
<td>84</td>
<td>44%</td>
<td>86</td>
<td>44%</td>
</tr>
<tr>
<td>Red Watch</td>
<td>52</td>
<td>46%</td>
<td>70</td>
<td>67%</td>
</tr>
<tr>
<td>USAR</td>
<td>N/A</td>
<td>N/A</td>
<td>1</td>
<td>7%</td>
</tr>
<tr>
<td>White Watch</td>
<td>61</td>
<td>54%</td>
<td>70</td>
<td>64%</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>314</strong></td>
<td><strong>49%</strong></td>
<td><strong>390</strong></td>
<td><strong>61%</strong></td>
</tr>
</tbody>
</table>

Around two thirds of staff had completed this course within the required frequency by April 2016. This is an increase of 12% since the 2014/2015 training year. There were 249 individuals who had an identified training need for HAZMAT at the start of the new financial year; only eight were on modified duties or sickness.

AF&RS attended 296 incidents where HAZMATs were present in 2015/16, it is therefore possible that staff with this identified training need attended this type of incident.

Like others, the HAZMAT course has been affected by cancellations, with six courses cancelled in 2014/15 and another cancelled in 2015/16. The latter was due to trainer shortages. With a loss of 70 places in the last two years, this has had an impact on the number of those competent.

RPU confirmed that the whole-time staff will be fully competent by the end of February 2017, with a six month buffer by May 2017. However, Retained are some way behind on this course and so are not predicted to achieve full competence until the early part of the 2017/18 training year and this is subject to the availability of courses.
The figure shows that 45% of staff had completed this course within the required frequency. This equated to 353 individuals with a training need in this area in April 2016 (21 on modified duties or sickness).

If all 14 courses planned during 2014/5 and 2015/6 had taken place a further 140 places would have been available. However, RPU advised last year three courses were cancelled due to trainer shortages (two through sickness, one through lack of availability). Given the need to achieve competence in a number of critical areas, the organisation has sought to prioritise courses and balance its available resources as best it can. The TDME course may have taken a back seat in order to give priority to core skills.

RPU have advised that Whole-time are likely to be competent by the end of March 2017, with a six month buffer by September 2017. However, due to the low numbers of Retained (only 48 of 196) to have completed the course, RPU predict that full competent will not be achieved for another 18 months and this is subject to the availability of courses.
This report provides an overview of vehicle incidents in Avon Fire & Rescue Service between 2009 and 2016.
# Contents

- **INTRODUCTION** ................................................................. 2
- **VEHICLE WITH / WITHOUT INJURY** ..................................... 3
- **VEHICLE INCIDENT RATE** .................................................... 4
- **TYPE OF JOURNEY** ............................................................. 5
- **WEATHER CONDITIONS** ..................................................... 6
- **LIGHT CONDITIONS** .......................................................... 8
- **TIME OF DAY** ................................................................. 9
- **INCIDENT LOCATION** ....................................................... 11
- **ROAD CLASSIFICATION** ................................................... 11
- **VEHICLE SPEED** ............................................................. 16
- **PRIMARY CAUSE** ............................................................ 17
- **ROOT CAUSES** ............................................................... 18
- **LIABILITY** .................................................................. 20
- **MOVING TO THE FUTURE** ................................................. 21
Vehicle incidents

INTRODUCTION

AF&RS has been monitoring vehicle incidents for several years. By drawing on the data collated through accident investigations we are able to identify trends, analyse the causes and redirect resources to reduce the number of incidents.

In 2009 a target was agreed by the Fire Authority, SMB and the Strategic Health and Safety Committee to reduce vehicle incidents by 10% by 2011. Whilst we achieved three other targets within the same period, we did not meet this one and in fact experienced a rise in vehicle incidents in 2009-10. In part this was because changes were made at the beginning of the reporting period to improve the way vehicle incidents were reported. This led to an increase in reporting and it was thought that the initial baseline figure used prior to April 2009 reflected significant under-reporting.

We retained the vehicle incident target within the Corporate Health and Safety Strategy 2012-15, determined to achieve the target. Over that period we successfully reduced the number of vehicle incidents by 33%; more than three times higher than we set out to. This success is mainly a result of initiatives such as:

- Improving driver awareness
- Enhanced driver training program
- Examination of driver history
- Better-quality incident investigations
- Managing Occupational Road Risk SOP
- Vehicle checks
- Reversing and marshalling training, DVD and SOP
- Sharing good practice

The chart below shows the decline in vehicle incidents since 2009.
The chart below sets out the number of vehicle incidents which resulted in injury each year, which as can be seen is extremely small. This illustrates that most vehicle incidents are minor in nature.
We are not currently able to produce an accurate incident rate for the number of incidents per vehicle movements or for the number of miles travelled as we do not yet own the technology to log and examine vehicle data.

Using mobilisation data (and return journeys) only, the incident rate per response / return journey for 2014-15 and 2015-16 was 0.2% (35,910 vehicle movements) and 0.1% (50,464 vehicle movements) respectively. This represents a very low number of incidents per vehicle movement.

Whilst the overall picture looks positive, vehicle incidents still cost AF&RS a significant sum each year and there is more we can do to reduce incidents.

The following sections look at the various factors that can influence the occurrence of vehicle incidents.
As shown in the graph below, most incidents within AF&RS occur either during non-operational driving or whilst responding to an emergency call.

Non-operational driving (grey line) includes all routine journeys between our premises or to other locations for any purpose other than when off duty. This would include, for example, home fire safety visits, returning from an operational incident, site visits, travelling to meetings, travelling to another station, travelling to a training event or to a public event.

Non-operational journeys are normally those that can be properly planned by choosing an appropriate route, allowing sufficient time and checking the vehicle is roadworthy. It should then follow that the risk of an incident occurring on this type of journey is lower, particularly as the journey is driven at normal road speeds. However, as the graph depicts, around 40% of our incidents occur during routine driving.

Responding incidents (red line) include all journeys made to an operational incident, whether or not lights and sirens are in use at the time. It is possible that the urgency of the journey may influence the quality of driving. However, drivers are trained to prepare and drive vehicles at higher speed and under emergency response conditions to mitigate this risk. There is also no correlation between vehicle incidents whilst responding and ‘persons reported’ calls. Responding incidents happen on alarm calls also. We must therefore explore which other factors may be at play.
Vehicle incidents

The third journey type of interest are those that occur at an operational incidents (yellow line), after the vehicle has arrived and been sited. Incidents may occur when a vehicle is moved during an incident or when another party collides with the sited emergency vehicle. The complexities of the incident ground do have some bearing on these incidents in that conditions can change rapidly. Whilst drivers site their vehicles away from the hot zone, there is always the risk that debris can fall or be blown onto a vehicle unexpectedly or that a member of the public will clip a car or an appliance when passing the scene of an accident, particularly if they become distracted by the scene itself.

The graph shows that we also collate data on incidents that occur during Emergency Response Driver (ERD) Training (green line). Our ERD training courses have a very good safety record and the number of incidents that occur whilst training is negligible.

Weather Conditions

Having examined the weather conditions at the time of our vehicle incidents, it is clear that the higher risk conditions such as heavy rain, fog, ice or snow, do not correlate with the greatest number of incidents. In fact around 80% of our incidents occur in dry weather.

The charts below compare the last two financial years in more detail and show that rain was a factor in no more than 11% of cases whilst bright sunshine was recorded in only 6-7% instances. This is despite that in November and December 2015 there was considerably more precipitation than was predicted by the long-term average, with almost 50% more rain in November and over 80% more in December. Storms Desmond, Eva and Frank led to localised flooding and a new record was set in daily rainfall. In addition, January, May and July were also wetter than average.
However, the Department for Transport’s research\(^1\) over a number of years concludes good weather tends to increase casualty numbers. This does not necessarily mean the number of accidents decrease in poor weather, just that the number which results in a casualty declines.

One explanation is that drivers adjust their road behaviour during rainfall which reduces the severity of an incident when it occurs. Drivers have less of a tendency to overtake, are likely to drive more slowly, and tend to increase the distance between them and the vehicle in front\(^2\). This behaviour could account for why our vehicle incidents are lower during poor weather conditions.

However, this doesn’t take account of the fact that visibility during periods of precipitation can be reduced to approximately 50 meters and spray, particularly from LGVs, can interfere considerably with the visibility of other road users\(^3\). Further, high humidity during rainfall can also lead to clouded side windows and windscreens\(^4\) and reduced friction on the road surface can lead to aquaplaning. When it has been dry for a long time, a shower can cause water droplets to mix with oil and dust to produce a thin liquid film on the road surface or flash flooding.

AF&RS mitigate these risks by performing checks on the condition of the vehicle at the change of shift each day and through a 13 week servicing schedule. This includes checking the tyres, tread

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\(^1\) Department for Transport “Reported causalities in Great Britain: main results 2015

\(^2\) Hogema, 1996; Agarwal et al., 2005

\(^3\) Terpstra, 1995

\(^4\) Fokkema, 1987
and pressure. Drivers are also trained to drive to the environmental conditions, recognising when braking distances and visibility is dramatically reduced for all road users.

There is limited knowledge on the psychological and/or physiological effect of hot weather on a driver. It is possible that emotions rise with the temperature, as people are more tired, less patient and may lose both their concentration and their ability to react quickly. Further research is required in this area.

**LIGHT CONDITIONS**

As shown below, vehicle incidents within AF&RS generally occur in the daylight, despite that night time driving conditions pose a higher risk. It is not clear why most of our incidents occur in the daylight, other than that the more movements take place in daylight hours so the opportunity for an incident is increased during the day.

However, darkness, both with and without street lighting, have accounted for up to 25% of our vehicle incidents. Visibility and fatigue are the most significant factors in night time driving. Visibility can be affected by both poor lighting conditions and the visual acuity of the individual driver. Poor lighting conditions may prevent a driver from correctly assessing a hazard ahead. For example, what might first appear to be a motorbike in the distance could actually be a cyclist or even a pedestrian with a head torch on the road.

Many people also experience halos, glare or reflections around headlights and street lamps which cause a flare effect and blur the vision. AF&RS mitigate this risk by providing an eye test at each medical, encouraging drivers to ensure that prescription glasses are clean and have an anti-glare coating and that windscreens are kept free from grease and grime. Investigators are required to ask any driver involved in an incident when they last had an eye test and if they were wearing any glasses required at the time of the incident.
We have also examined weather and lighting to assess whether any particular combination has an effect on the number of incidents. The data revealed that just over half our vehicle incidents have occurred in dry conditions during daylight and of those, nearly half were during non-operational journeys. Equally, no more than 2% of incidents occurred during dark conditions with no street lighting and in hazardous weather.

This may mean that the road design, infrastructure and traffic flow have more of a bearing on vehicle incidents than the climate. This is explored in the sections below.

**TIME OF DAY**

The rush hour is a well-known peak in traffic flow where the number of vehicles on the road significantly increases. The UK rush hour periods are generally accepted to be between 06:00 and 10:00 in the morning and 16:00 and 20:00 in the evening, with the latter period being the one in which majority of road incidents in the UK occur. In 2015 traffic volumes increased by 2.6% on motorways, 0.7% on urban ‘A’ roads and around 2% on rural A, B and unclassified roads\(^5\).

\(^5\) Department for Transport "Reported causalities in Great Britain: main results 2015"
It is thought that drivers become more distracted and may take greater risks when rushing home to families, to eat or to make an evening social engagement. This distraction, when paired with reduced alertness towards the end of the day, sets the scene for driver error. Having examined the time of day of vehicle incidents in AF&RS there is a correlation between the morning and evening rush hours and the number of vehicles incidents.

On face value, the data suggests that peak traffic flows are responsible for the increase in vehicle incidents. However, further exploration shows most incidents in fact occur away from the main traffic routes affected by the rush hour phenomena. This has led us to examine the road classification, road speed and characteristics of an area (see below).

There are also two further periods within the 24 hour clock that are recognised as higher risk. The first is the school pickup period around 15:00 to 16:00, when private vehicles are used for the end of day school run. Again, our data shows there are a greater number of incidents associated with the school pickup period.

The second period of risk is the early hours of the morning, when fatigue and the body’s circadian rhythm override the driver’s ability to stay safely alert. According to ROSPA, serious vehicle incidents caused by tiredness are most likely most to occur between 02:00 and 06:00. Drivers, particularly those on a monotonous motorway journeys, can become drowsy and may fixate on a particular part of the road, such as the white line. This causes a hypnosis effect allowing the driver to drift off into a micro sleep at the wheel with potentially fatal consequences.

There are clear safety implications in relation to shift workers such as firefighters, who may be woken by an emergency call and need to drive in the early hours. This is compounded by the exemption that exists for emergency responders from the statutory 11 hours rest required within the EU driving hours rules. In order to reduce this risk, AF&RS reinforce the statutory rest period as best practice and set out the procedure for compensatory rest periods should the 11 hours rest be interrupted by operational requirements. Drivers are also contractually obliged to be fit to drive; including declaring if over tiredness will affect their ability to drive safely. Our data reflects that very few incidents occur between 22:00 and 07:00, mainly because fewer journeys are made during this period.

---

6 Emergency Exemption & Temporary Relaxation of Drivers’ Hours and Working Time Rules, guidance 2014 Department for Transport
Vehicle incidents are mapped onto a software program to allow us to monitor for trends or clustering in relation to the location of the incidents.

The map above gives an overview of how incidents are unsurprisingly clustered in and around the cities of Bath and Bristol and the town of Weston-super-Mare. However, on closer examination it is the type of road and local infrastructure / environment that has more influence on incidents numbers. This is explored below.

**ROAD CLASSIFICATION**

The system of road classification is intended to direct motorists towards the most suitable routes for reaching their destination by identifying roads that are best suited for traffic. All UK roads (excluding motorways) fall into the following four categories:

7 Motorways are classified as Special Roads – roads where certain types of traffic are prohibited. This arrangement is determined by statute, and is not covered in this consultation.
Vehicle incidents

- A roads – major roads intended to provide large-scale transport links within or between areas.

- B roads – roads intended to connect different areas, and to feed traffic between A roads and smaller roads on the network.

- Classified unnumbered – smaller roads intended to connect together unclassified roads with A and B roads. Often link a housing estate or village to the rest of the network. Known unofficially as C roads.

- Unclassified – local roads intended for local traffic.

The chart below demonstrates that the majority of incidents involving an AF&RS vehicle occur on unclassified roads. This followed by B roads and then A roads respectively. Very few of our incidents occur on a dual carriageway or motorway.

This may be explained by the fact that 60% of roads in the UK are unclassified and the majority of our journeys are made on unclassified roads. However, our investigations have established that is it the local characteristics of a road that mostly influence the number of incidents. A greater number of incidents occur in highly congested, narrow streets where parked vehicles line the kerbside on one or both sides. Similarly, narrow, twisty lanes and areas where vegetation has overgrown or obscures visibility also have an impact on incident numbers. These areas in combination with the relative size of an LGV can prove difficult to manoeuvre through successfully.
Below is a selection of images taken from Google Earth. An incident has occurred at each of these locations. The images illustrate the difficulties drivers face when accessing private urban and rural properties.

Ravenswood Road, Cotham

Vicarage Road, Southville
Vehicle incidents

Victoria Park, Weston-super-Mare

Towerhouse Lane, Wraxall
AF&RS has also experienced a number of vehicle incidents off-roads, for example, in the station yard, forecourt or engine house or in a car park. Many of these incidents involve drivers clipping posts, supporting pillars or other parts of the car park structure when misjudging distance or available space. Others relate to third parties causing damage to our parked vehicle.

Yard or forecourt incidents follow a similar trend in that drivers misjudge distance and space, making contact with structures or other vehicles. In the engine house, drivers occasionally misjudge the timings on the electronic bay doors. When fully open there is a green traffic light to indicate a driver may pass through. A sensor in the door frame prevents the door closing whilst the vehicle passes. However, the doors are on a timer for security purposes and will automatically close after a number of pre-set minutes. This is indicated by a red light. Drivers sometimes miss the red light and drive under the closing door. In the last two financial years this has happened 2-3 times a year.
Within the UK, speed influences both the risk and the severity of a collision on the road and speed contributes to around 10% of all injury collisions reported to the police.\textsuperscript{1} This includes both ‘excessive speed’, when the speed limit is exceeded but also ‘inappropriate speed’ when driving within the speed limit but at a speed unsuitable for the conditions at the time (e.g. increased traffic flows, poor weather, poor visibility or high pedestrian numbers).\textsuperscript{8} Excessive or inappropriate speed removes the driver’s safety margin and can turn a near miss into a collision.

However, nationally almost two-thirds of collisions on UK roads that result in a fatality or an injury occur on a road with a speed limit of 30 mph or less. According to ROSPA, 45% of car drivers will exceed the limit in a 30 mph zone. At 30 mph vehicles are travelling at 44 feet (about 3 car lengths) per second and even in good conditions, the difference in stopping distance between 30 mph and 35 mph is an extra 21 feet; more than 2 car lengths.

Looking at our data for the last two years financial years, speed has not played a significant part in our vehicle incidents. The graph below shows that the majority of our vehicle incidents occur at very low speeds of 5 mph or less, with statistically insignificant numbers occurring above 40 mph.

\textsuperscript{8} "Contributory Factors to Reported Road Accidents", Article in “Reported Road Casualties Great Britain, 2014”, Department for Transport, 2015
Given that the Fire Service has a statutory exemption in relation to speed limits for emergency response purposes, this data reflects a good safety record in terms of the pace at which our vehicles are driven. However, it is also important that AF&RS drivers are able to pre-empt the driving behaviours of members of the public and assess their ability to safely react to an emergency vehicle if the member of the public is already driving at an excessive or inappropriate speed.

In this regard, our emergency response drivers are taught to position the appliance more towards the central markings of the carriageway, where conditions permit. This not only increases visibility for our driver but also helps vehicles someway in front and oncoming vehicles to see the appliance sooner. This technique encourages oncoming traffic down to react and slow down at the earliest opportunity.

**P R I M A R Y  C A U S E**

The primary or immediate cause of an incident is termed as the agent of harm. Vehicle incidents tend to fall into one of a number of primary causes such as:

- Hit something fixed or stationary (e.g. parked car, building, fixed structure or object)
- Collision with a moving vehicle
- Collision with a pedestrian, cyclist or animal
- Hit by a falling or flying object (e.g. flying debris, stones, projectiles, objects thrown at the vehicle)
- Reversing / marshalling incidents
- Substance on the road
- Third party involvement
- Procedural issue
Vehicle incidents

The chart clearly highlights that the main primary cause within AF&RS is ‘hit something fixed or stationary’. These incidents involve minor contact with a stationary vehicle either in traffic or parked, or with overhanging foliage, structures such as walls, street furniture, posts and gates. This is why, after having exceeded our target to reduce vehicle incidents by 10%, we elected to focus on reducing incidents that fall within this category.

We have also examined those that fall within the primary cause ‘collisions with another moving vehicle’. Again, these are low-speed collisions in which only glancing contact is made between vehicles and only minor damage has resulted. On the whole these incidents relate to congested areas, heavy traffic or narrow lanes or bends.

**ROOT CAUSES**

On the whole, the root causes of our vehicle incidents centre around driver visibility, human error and misjudgement of distance and space.

Driving an LGV is very different to driving a car. LGV’s can have up to 15 gears and choosing the wrong one can lead to lurching or loss of acceleration. Judging the size of the vehicle in relation to a gap between parked cars or a post can also be difficult. This can be even more exaggerated when having to commit to a narrow one-way residential street, where there may be potentially one or two cars parked inconsiderately some way up the street.
LGV’s also have well-known front, side and rear blind spots and they do not come with a rear view mirror. The forward view directly below the high rigid cab can hide lots of things like pedestrians, cyclists or posts, as can the nearside side blind spot (shown below).

(Transport for London)

LGV’s may sometimes overhang kerbs or verges when turning. Occasionally an LGV will need to make use of the opposite side of a junction to be able to make a tight left or right turn as is demonstrated in the picture below. If the driver turns too tight, they may clip the nearside kerbstone, come into contact with pedestrian or street furniture. Equally, as they make the turn, the A post of the vehicle creates a blind spot. A rigid vehicle, like a fire engine, has no pivot point (unlike the lorry shown in the picture) and so the tight turn may be even more difficult, as the back end comes out during the turn.

Our Driver Training Unit educates drivers in modern driving techniques. However, drivers must develop their skills and confidence over time and with experience. One aspect that may affect a driver’s judgement is familiarity with the vehicle. Depending on the number of emergency calls and geographical location of the station ground, some drivers may only drive a few miles or minutes each month. This can mean they are less experienced and less familiar with the size and capability of the vehicle. As we do not currently have the facility to log
driver hours or miles it is not possible to explore whether inexperience is genuinely influencing accident rates per mile.

The Driver Training Unit will also provide personalised refresher training for any driver identified as having a skills-gap or skills-fade either before or after an incident. The Unit also examines statistical accident data provided by the Health, Safety and Welfare Unit on a monthly basis in order to address any areas of concern within the main refresher programme.

**LIABILITY**

An assessment is made following each incident investigation as to whether fault (liability) lies with AF&RS, a third party or a combination of both. The chart below demonstrates that in the last few years the number of incidents we are liable for has declined but we are now experiencing a plateau as we find it harder to prove or disprove the circumstances in minor collisions.

Looking specifically at the two types of journey (non-operational driving and responding) where a vehicle incident is most likely, the trend is similar.
M O V I N G  T O  T H E  F U T U R E

Vehicle telemetry and CCTV cameras have been widely used within the LGV industry and more specifically within many UK Fire & Rescue Services for many years. This type of technology provides invaluable data relating to natural driving abilities, road conditions and vehicle use, which are otherwise difficult to observe, and not least prove, following an incident.

It can also be used as a tool to monitor the true effectiveness of safety interventions, such as training, on driver behaviour, to reduce insurance premiums and appropriately defend claims with credible evidence. It can offer a real insight to drivers as regards their own driving skills and help them to improve.

AF&RS has approved a business case to install CCTV and telemetry on its frontline appliances. We are currently going out to tender. It is expected that this technology will improve safety, reduce incidents for which we are liable and will eventually have a positive impact on our insurance costs.
Case Studies

Fire setter

The Youth Offending Team contacted the fire setter scheme co-ordinator in April 2016 to discuss two young persons (A and B) they were currently working with that had set a fire as part of a symbolic burning of a shirt that had an ex partner’s name on it. They had set fire to the shirt in B’s bedroom and thrown it from the flat window, it landed on the recycling pile below causing a larger fire. B and A are both 18 years old from an unsettled home environment and B has some learning difficulties and the social worker stated that B occasionally distorts reality.

Initially, B did not agree to a fire setter’s intervention so the advisors worked with A and quickly realised A had a good knowledge of fire risk and was remorseful for the actions taken. The intervention with A centred around the knock-on effect to the public of fire appliances dealing with an incident such as this and therefore not being available for genuine emergencies. A engaged and responded really well to the intervention and managed to persuade B that it was a beneficial thing to do.

B then agreed to a fire setter’s intervention and admitted to having a history of lighting fires, mainly to dispose of rubbish in the garden, so the intervention focussed predominantly on the risks of fire setting and how quickly fire can escalate. As A had already talked to B about the intervention the advisors built further on the information given to A. This visit was carried out jointly with the social worker who has tested B periodically since the intervention to ensure the information has been retained.

From being quite reluctant to engage both A and B worked really well with the advisors and were committed to the intervention, so much so that they have agreed to assist us to produce a short ‘talking torso’ film talking about their experience and the consequences of fire setting which we will be able to use as a deterrent in future interventions. This is being produced this month with the two young persons being supported by ‘Catch 22’.

Safeguarding

In November 2016 Station 04 attended an address in Patchway to carry out a HFSV. The occupants were two elderly gentlemen with hearing impairments and suspected dementia and due to their limited awareness the HFSV could not be fully completed.

However, the crew were able to confirm that hardwired detectors were in situ and working. They also ascertained that whilst the gentlemen were getting some assistance in the form of meals on wheels and assistance bathing, they really felt their level of care needed reviewing.

An alert was made to the relevant local authority teams expressing concerns and in December 2016 those teams confirmed that a social worker had been assigned to these two gentlemen, the care package has been reviewed and they will remain within the social care system due the level of needs identified.
1. **SUMMARY**

1.1. This report provides the Committee with a brief update on Energy and Environmental performance as at the end of November 2016.

1.2. All performance indicators are showing positive trends with the exception of Water Consumption:

   - Total Building Energy Consumption has fallen by a further 3% compared to last year, and is well ahead of Target.
   - Total Reported Carbon Emissions have fallen by 12% compared to the same period last year.
   - Water consumption has increased by 13% compared to the same period last year; a number of major leaks have been discovered and have been repaired.

2. **RECOMMENDATIONS**

The Committee is asked to note the report.

3. **BACKGROUND**

**Performance Indicators**

3.1 For the year ending March 2017 the following Environment and Energy Performance indicators have been established (quarter 3 results will be published in January 2017):

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**AVON FIRE AUTHORITY**

<table>
<thead>
<tr>
<th>MEETING:</th>
<th>Performance Review and Scrutiny Committee</th>
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</thead>
<tbody>
<tr>
<td>MEETING DATE:</td>
<td>20 January 2017</td>
</tr>
<tr>
<td>REPORT OF:</td>
<td>Chief Fire Officer / Chief Executive</td>
</tr>
<tr>
<td>SUBJECT:</td>
<td>Energy and Environmental Performance</td>
</tr>
</tbody>
</table>
- **Energy Consumption in Buildings** (Electricity, Gas and Heating Oil).
  Target: 5% yr on yr reduction from a 2011/12 baseline (total 25% this year)
  Q2 Result: 35% reduction

- **Carbon Emissions**.
  Target: 5% reduction on 2015/16 Emissions)
  Q2 Result: 12% reduction

- **Water Consumption** (Metered Supply only).
  Target: 5% reduction on 2015/16 consumption.
  Q2 Result: 13% increase

**Energy Consumption in Buildings**

3.2 Energy used in buildings has been cut by 32% compared to the baseline year of 2011/12 (target line) and is currently 8% ahead of target for this year as at the end of November. The colder temperature in November has resulted in a sharp rise in Gas consumption. This shows a more pronounced rise than previous years largely as a result of new sites (Temple and Hicks Gate) now being fully operational during the winter period.

![Energy Consumption Chart](image)

**Renewable Energy in Buildings**

3.3 In December the latest Solar Photovoltaic System was commissioned at the New Temple Fire Station. This is expected to generate up to a third of the total electricity consumption for the site.
**Solar PV**

3.4 The Fire Authority now has 6 solar PV installations on its buildings at Thornbury, Nailsea, Nova Way, Hicks Gate, Temple and Lansdown. The solar PV systems at Hicks Gate and Temple were required as part of the planning consent required from local authorities. Once all in operation, these will provide an estimated 5% of all electricity needed and a financial benefit of around £12,000 per year.

3.5 The organisation benefits financially from the PV systems in 3 ways (with pay back times for the initial cost of the systems ranging from 6-10 years):

- Any electricity generated that is used on site is free and displaces the cost of electricity that would usually be bought from the utility company.

- Payment is received for all the electricity generated, even if it is used, from the UK government’s Feed-in Tariff scheme (‘Generation tariff’). The tariff rate has decreased each year, so the rate paid for earlier installations will be significantly higher than more recent installations.

- By selling any surplus back to the grid through the Feed-in Tariff utility buy back scheme (‘Export tariff’). This is automatically deemed to be 50% of the power generated by the system.

3.6 The PV systems also help to the carbon footprint and target of a 50% carbon reduction by 2020. Solar electricity is green renewable energy and does not release any harmful carbon dioxide or other pollutants. For example, a 10kWp system will save around 5 tonnes of carbon each year, so all 6 PV systems will save around 60 tonnes each year. The total annual carbon footprint is approximately 2,250 tonnes which includes the carbon dioxide emitted from all the electricity, gas, oil, water and vehicle fuel consumed.

<table>
<thead>
<tr>
<th>Year of installation</th>
<th>Size of system (kWp)*</th>
<th>Average annual income (Feed in Tariff)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nailsea 2012</td>
<td>9.8</td>
<td>£1,560</td>
</tr>
<tr>
<td>Nova Way 2012</td>
<td>9.8</td>
<td>£1,630</td>
</tr>
<tr>
<td>Thornbury 2014</td>
<td>10</td>
<td>£1,770</td>
</tr>
<tr>
<td>Hicks Gate 2016</td>
<td>30</td>
<td>£6,000</td>
</tr>
<tr>
<td>Temple 2016</td>
<td>32</td>
<td>£6,000</td>
</tr>
<tr>
<td>Lansdown 2016</td>
<td>28</td>
<td>£4,600</td>
</tr>
</tbody>
</table>

* The power of a PV cell is measured in kilowatts peak (kWp). That is the rate at which it generates energy at peak performance in full direct sunlight during the summer.
**How do solar panels work?**

3.7 Solar panels capture the sun's energy and convert it into electricity. In a single hour, the sun transmits more energy to the earth's surface than the world uses in a year. The stronger the sunshine, the more electricity is produced, although they can still generate some electricity on a cloudy day because solar needs only light not heat.

3.8 A solar panel is comprised of photovoltaic cells, made up of layers of semiconductor materials with different electronic properties. When the sun’s radiation hits these cells it is converted to direct current (DC) energy – this is known as the photoelectric effect.

3.9 The DC energy travels to an electrical device called an inverter, which converts it into alternating current (AC) electricity. The AC electricity produced is the same as the power supplied by utility companies, and can go directly to power equipment like computers and lights. Alternatively, the power produced can be exported back to the mains national electricity grid and get redistributed around the country.

[Graphic from: http://www.solarcentury.com/uk/about-sol]


**Carbon Emissions**

3.10 The organisation’s reported carbon emissions are made up of Building Energy Consumption (Gas, Electric and Heating Oil), Metered Water Consumption, Fleet Vehicle Fuel and Private and Lease vehicle mileage claims. This was the scope of emissions originally agreed with the Carbon Trust as part of the development of the Carbon Management Plan in 2010.

3.11 The vast majority of emissions are associated with property energy consumption and the operation of the fleet. The scope of CO₂ reporting will continue to be reviewed and consideration will be given to extending this in future to include:

- Employee commuting
- Operational and training use of water
- Procurement (goods and services)
- Waste and Recycling

3.12 The Carbon Management Plan published in 2010, established a Carbon Emissions Reduction Target of 30% over 5 years. Figure 2 shows the drop in emissions year on year from a 2008/9 baseline. In March 2014 the Carbon Management Plan target of 30% reduction in emissions from the 2008/9 baseline was met. This year to date, emissions have fallen by a further 12% on the previous year.

![Figure 2 – Carbon Emissions](image-url)
Transport Emissions

3.13 Overall transport emissions have fallen by more than 20% compared to the 2008/9 baseline, and continue to fall with a reduction this year to date of a further 5%. A significant reduction in business travel has been sustained; emissions have fallen by over 50% since 2008/9 equating to over 100 tonnes CO₂ / Yr.

Water Consumption

3.14 Water consumption has increased by 13% this year to date compared to last year. This increase can be attributed to a number of major leaks at Kingswood Fire Station, Chew Magna Fire Station and more recently Bath Fire Station. These leaks have been identified following regular analysis of water use; all leaks have been investigated by Wessex Water with repairs carried out at Kingswood and further works identified at Chew Magna.

3.15 Despite these recent leaks, since 2009 we have cut annual consumption by approximately 8,800 m³ per year (equivalent to an annual saving of over £25,000 based on current unit prices).

3.16 Progress has been made on plans to install “smart meters” to all wholetime stations to get better real-time data on consumption and identify leaks and any erroneous consumption immediately via an alert system. The meters will be installed during the next 2 – 3 months.

**Figure 3 – Metered Water Consumption**
4. CONSIDERATIONS

4.1. Contribution to Key Policy Priorities

a) Environmental Policy and Carbon Management Plan
   Providing a detailed action plan to deliver against our environmental priorities and risks.

b) Avon Fire Authority Climate Change Declaration
   Underpinning our commitment to tackle both the causes and consequences of climate change establishing targets to reduce our CO2 emissions and implementing initiatives to achieve this.

c) Corporate Plan 2015 – 18
   Objectives for 2015 – 2018 and supporting Local Performance Indicators.

4.2. Financial Implications

Medium Term Financial Plan
Identifying efficiencies and delivering savings in our utility and fuel budgets.

4.3. Legal Implications

None.

4.4. Equality & Diversity Implications

None.

4.5. Corporate Risk Assessment

None.

4.6. Environmental/Sustainability Implications

Key subject matter of the report

4.7. Health & Safety Implications

None.

4.8. Crime & Disorder Implications

None.
5. **BACKGROUND PAPERS**

None.

6. **APPENDICES**

None.

7. **REPORT CONTACT**

Simon Richards, Energy and Environmental Improvement Coordinator, ext 214.