

Community Risk Management Plan 2025 - 2028

ORH Fire Cover Review Data Presentation





Contents

- 1. Who are ORH? (slides 3 7)
- 2. Incident Data
- 3. Response and Performance
- 4. On Call Data
- 5. Individual Station Location Optimisation
- 6. Site Search Maps
- 7. Investments Modelling
- 8. On Call Availability Changes
- 9. Second Wholetime Reintroductions

- 10. Single Wholetime Additions
- 11. On call Upgrade
- 12. New Station Location
- 13. Efficiencies Modelling
- 14. On Call Second Pump Removals
- 15. Second Pump Downgrade Summary
- 16. Appliance Removals
- 17. Small Incident Unit Data
- 18. Rossington Options
- 19. Birley Options



1. Who are ORH?





Who are ORH? – Operational Research in Health

- ORH have supported 33 other FRS's to optimise resource use and respond in the most effective and efficient way
- Help FRS's to understand and quantify risks which allows fire services to use their people and vehicles in the most effective manner
- Evidence how they match resources to risk in an appropriate manner
- Work within a financial envelope identifying opportunities for efficiencies and reinvestment
- Their work therefore provides vital, independent, data driven support to the development of Community Risk Management Plans (CRMPs) for UK FRSs.

ORH and UK FRS



What is a Fire Cover Review

ORH supports the CRMP planning process by building a simulation models of the service to predict the impacts of potential changes.

This enables FRS's to ensure that they have the right resources in the right places at the right times to respond effectively and efficiently.

- Data-led methodology to understand the operational complexities.
- Evidence-based outcomes are easily understood and can support public consultation.
- Some of the questions we help services to address include: Where is the optimal location for a station? What is the ideal balance between on-call and wholetime resources?



This video introduces ORH's approach for fire services, taking a data-led methodology to understand the operational complexities

ORH's experienced consultants ensure that the evidence-based outcomes are easily understood and can support public consultation.

Fire – ORH (orhltd.com)

ORH Scope of Work

- Data Collection
- Analysis of Current Profile
- Model Validation
- Appliance Contribution Modelling
- On-Call Availability
- Alternative Duty Systems.

ORH Simulation Model Overview

ORH's bespoke simulation model simulates the entire life-cycle of emergency incidents, it is validated to reflect the analysed position of the service and can then be used to assess changes to operations and demand.



Model Validation – Overview

- The purpose of the model validation process was to ensure that ORH's simulation model reflects the real-life behaviour of SYFRS appliances.
- There are several stages involved in preparing a validated model. A detailed understanding of the way the service functions is required (gained through data analysis and consultation), and this is combined with a sophisticated travel time calibration process.
- ORH's simulation model considers temporal variations in demand and operational parameters, and the model validation process includes the calibration of travel times by time of day to ensure that any effects of varying travel conditions are replicated.
- For the model validation, most analysed operational parameters used the sample April 2021 to March 2023. A five-year sample (April 2018 to March 2023) of historical incident locations was used to ensure a robust sample. There was a close correspondence between the model and the actual analysed position. This can be seen in the measures of response performance and the station workload. The model could therefore be used with confidence to explore the effects of changes in operational parameters, such as crewing and station deployments.

Model Validation – Response Time Distribution



1st Response to All Incidents

The response time distribution curves, above, show the percentage of incidents responded to in a particular number of minutes. There is a close match between the modelled curve (in blue) and the analysed curve (in red). The response times shown here and in the rest of the presentation are calculated from time assigned, and so do **not** include the call handling time.

Model Validation – Mean Response and Workload



Mean First Response by Local Authority

This graph shows the mean 1st response time to all incidents by local authority and demonstrates a close match between analysed and modelled performance



Responses By Local Authority

Modelled Analysed

This graph shows the number of responses by local authority and demonstrates a close match between analysed and modelled workload

UFFICIAL



2. Incident Data





All Incidents – Average Daily Demand



All Incidents – Demand by Month



Fire – Average Daily Demand



Special Service – Average Daily Demand



False Alarm – Average Daily Demand



All Incidents – Demand by Hour and Category



Fire – Demand by Hour and Subcategory



Special Service – Demand by Hour and Subcategory



False Alarm – Demand by Hour and Subcategory



Average Pumps Per Incident



Average Pumps Per Incident – Day (08:00 – 19:00)



Average Pumps Per Incident – Night (19:00 – 08:00)



Average Pumps per Incident by Subcategory



Average Pumps per Incident by Subcategory

Incident Risk	Incident Type	Percentage of Incidents			Incidents		
Cat		1 Pump	2 Pumps	3+ Pumps	1 Pump	2 Pumps	3+ Pumps
High	Accidental Dwelling Fire	30%	23%	47%	1,164	890	1,812
	Accidental Primary Other Fire	78%	15%	7%	2,079	409	194
	Deliberate Primary Fire	76%	9%	15%	5,528	681	1,071
	Non Domestic Property Fire	40%	16%	44%	635	250	701
	Special Service RTC	39%	43%	18%	1,064	1,171	491
Medium	Special Service Other	92%	5%	2%	15,162	875	383
	Accidental Secondary Fire	94%	4%	2%	5,447	233	131
	Chimney Fire	69%	16%	16%	140	32	32
Low	Deliberate Secondary Fire	95%	4%	1%	23,896	1,065	301
	False Alarm Good Intent	77%	15%	8%	13,420	2,679	1,335
	False Alarm Malicious	59%	24%	18%	490	197	149
	False Alarm due to Apparatus	58%	32%	11%	7,403	4,068	1,391

Simultaneous Incidents

7-Year Sample:

Pumps in Use	Absolute %	Cumulative %
0	45.0%	100.0%
1	24.5%	55.0%
2	13.2%	30.6%
3	7.8%	17.4%
4	4.3%	9.5%
5	2.3%	5.2%
6	1.3%	2.9%
7	0.7%	1.6%
8	0.4%	0.9%
9	0.2%	0.5%
10	0.1%	0.3%
11	0.1%	0.2%
12	0.0%	0.1%
13	0.0%	0.1%
14	0.0%	0.0%
15	0.0%	0.0%
16	0.0%	0.0%
17	0.0%	0.0%
18	0.0%	0.0%

2-Year Sample :

Pumps in Use	Absolute %	Cumulative %
0	42.4%	100.0%
1	23.9%	57.6%
2	13.5%	33.7%
3	8.3%	20.2%
4	4.9%	12.0%
5	2.8%	7.1%
6	1.7%	4.3%
7	1.0%	2.6%
8	0.6%	1.5%
9	0.3%	0.9%
10	0.2%	0.6%
11	0.1%	0.4%
12	0.1%	0.2%
13	0.1%	0.1%
14	0.0%	0.1%
15	0.0%	0.0%
16	0.0%	0.0%
17	0.0%	0.0%
18	0.0%	0.0%

During the 2-year Sample 4.9% of the time 4 pumps were busy attending incidents at any given time. 12.0% of the time 4 or more pumps were busy attending incidents. The maximum number of pumps in use is 18 though this occurs only once in the 2-year sample.



3. Response and Performance 2-year Sample (April 2021 to March 2023)





Daily Responses by Callsign



Daily Responses by Callsign – Day (08:00 – 19:00)



Daily Responses by Callsign – Night (19:00 – 08:00)



Daily Responses by Callsign – Overnight (23:00 – 07:00)



Mean Average Call/Incident Cycle Times



Average Crew Turnout Time by Callsign



Response Time by Incident and Community Risk Category

Average Response Time From Time Assigned:

Community	Incident Risk				
Risk	Н	м	L		
н	06:44	07:04	07:32		
М	07:19	07:07	07:53		
L	07:40	07:24	08:04		

Percentage of Responses in Target:

Community	Incident Risk				
Risk	Н	М	L		
н	63%	80%	87%		
м	76%	89%	90%		
L	85%	93%	93%		

7 Year Sample (April 2016 – March 2023)


4. On Call Data





On Call Availability by Month



Availability by Pump (pre/post Jan 2023)

100% 90% 80% 0 70% 0 0 0 60% Availability 0 0 50% 0 0 0 40% 30% 0 0 0 0 20% 0 0 10% Ο О 0% S01P1 S12L2 S12P1 S03L2 S04P2 S05P1 S10P1 S17P1 S19P2 Callsign

OPre 2023 OPost 2023

All Pumps operate as 24/7 except:

- S01P1 19:00 08:00
- S03L216:00-23:59
- S12L2 16:00 23:59

Availability by Pump – Full Sample Overview



All Pumps operate as 24/7 except:

- S01P1 19:00 08:00
- S03L216:00-23:59
- S12L2 16:00 23:59

Demand and Pump Availability by Hour





5. Individual Station Location Optimisation





Individual Station Location Optimisation

- ORH have used optimisation modelling to assess potential new individual station locations. This has been completed by assessing lots of different locations within a 7minute radius of the existing location.
- ORH can then assess the impact on average service-wide travel times from moving each station to its optimal location.
- ORH investigated lots of locations within the 7-minute radius and can assess the percentage of locations within 7 minutes which provide better travel times than the existing station location.
- This enables an assessment of how easy it would be to move an existing station to a new location to improve average travel times.
- The output from this modelling can be used to identify potential station moves and could be used to generate a list of stations where site-search maps could be created.

- ORH have completed two types of optimisation modelling: Existing Stations This involves picking up the appliances and optimally placing them at existing stations
- Greenfield Locations This is a blank canvas approach that removes all stations from the service and places them at optimal locations across South Yorkshire. After these new optimal locations have been found, the appliances are optimally distributed across these stations
- Both optimisation runs have been completed with to minimise mean first response to high-risk incidents. It is important to understand that the solutions provided here are the mathematical best solutions and do not take into account things like operational practices, political barriers or financial constraints.
- Once the optimal locations and appliance distributions have been found, ORH have run these through a simulation model to show the impacts these changes would have on response performance.

Station Ranking

Station	Travel Time Impact	%age of sites providing better travel time	Station	Travel Time Impact	%age of sites providing better travel time
Thorne	-00:05	40	Penistone	-00:00	68
Dearne	-00:04	21	Adwick	-00:04	63
Edlington	-00:04	23	Rossington	-00:01	54
Adwick	-00:04	63	Thorne	-00:05	40
Rotherham	-00:03	8	Maltby	-00:01	36
Elm Lane	-00:02	19	Lowedges	-00:02	33
Doncaster	-00:02	10	Birley Moor	-00:02	27
Barnsley	-00:02	19	Edlington	-00:04	23
Birley Moor	-00:02	27	Stocksbridge	-00:00	21
Tankersley	-00:02	16	Dearne	-00:04	21
Lowedges	-00:02	33	Elm Lane	-00:02	19
Central	-00:02	2	Barnsley	-00:02	19
Parkway	-00:01	2	Tankersley	-00:02	16
Rivelin Valley	-00:01	10	Askern	-00:00	14
Maltby	-00:01	36	Doncaster	-00:02	10
Rossington	-00:01	54	Rivelin Valley	-00:01	10
Penistone	-00:00	68	Rotherham	-00:03	8
Cudworth	-00:00	3	Cudworth	-00:00	3
Askern	-00:00	14	Parkway	-00:01	2
Stocksbridge	-00:00	21	Central	-00:02	2
Aston Park	-00:00	1	Aston Park	-00:00	1

For Example: Moving Thorne station to its optimal site improves average travel times by 5-seconds service wide and 40% of the locations within its 7-minute radius provide better average travel time coverage

Existing Location Optimisation Summary

In general, the appliances are currently distributed well across South Yorkshire – there are very few differences between the base distribution and the optimal.

Changes from base to optimal:

Barnsley WT Day Only	\longrightarrow	Dearne
Dearne On-Call	\longrightarrow	Elm Lane
Rotherham WT Day Only		Doncaster
Doncaster 2 nd Wholetime	\longrightarrow	Rotherham
Birley Moor On-Call		Parkway
Rossington SIU		Edlington

Greenfield Optimisation - Optimisation Approach

- SYFR asked ORH to look at the optimal distribution of appliances across the service using new Greenfield locations. This involves placing 21 stations optimally across the county, and then distributing the 29 pumping appliances across these. Appliances have been optimised against first response to high-risk incidents.
- Initially, optimisation modelling was completed in which four double wholetime stations are used, to align to the current service configuration. Further runs were then completed to show the optimal configuration when the service has zero through three double wholetime stations instead.
- Once the optimisation runs were completed and scenarios generated, simulation modelling was used to assess the impact on modelled response performance. To fairly assess the impact of new configurations, ORH have assumed every retained pump has the same availability pattern, as per the 2023 service average. In this presentation, a station is considered double wholetime if it has two wholetime pumps during the day; either two wholetime pumps or one wholetime pump and one wholetime – day only pump.

Optimal Locations



OFFICIAL



6. Site Search Maps







- SYFR asked ORH to produce site search maps for four existing locations: Adwick, Doncaster, Lowedges and Thorne.
- The target locations have been optimised on first response to high risk incidents, and all other locations are fixed when looking at each individual station location.
- Once the optimal locations were identified, simulation modelling was used to assess the impact these moves would have on response performance. These impacts will be shown at both local authority and existing station ground level, to highlight the local changes

Adwick Site Search Map



OFFICIAL

Adwick Optimal Location Results

Mean Summary by Local Authority

Local Authority	Mea	n First Resp	onse	Mean Second Response			
	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:47	00:01	10:33	10:34	00:01	
Doncaster	08:36	08:34	-00:02	10:25	10:19	-00:06	
Rotherham	07:33	07:33	00:00	10:30	10:30	00:00	
Sheffield	06:36	06:36	00:00	08:04	08:04	00:00	
SYFR-wide Average	07:42	07:41	00:00	09:19	09:18	-00:01	

Mean Summary by Station Ground

Station Ground	Fi	rst Respons	se	Second Response			
	Base	Option	Impact	Base	Option	Impact	
Adwick	08:28	08:04	-00:24	11:28	11:29	00:00	
Askern	09:43	10:35	00:51	13:27	14:16	00:48	
Doncaster	07:09	07:04	-00:05	07:38	07:22	-00:16	
Edlington	08:39	08:35	-00:04	10:40	10:33	-00:07	

The optimal location is south of the existing location which gives the station better access to Doncaster and Edlington, where there are more high risk incidents.

However, the move would reduce the station's ability to respond into Askern's station ground as both a first and second response.

Doncaster Site Search Map



Doncaster Optimal Location Results

Mean Summary by Local Authority

Local Authority	Mea	n First Resp	onse	Mean Second Response			
	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:47	00:00	10:33	10:32	00:00	
Doncaster	08:36	08:18	-00:18	10:25	09:58	-00:28	
Rotherham	07:33	07:32	00:00	10:30	10:29	-00:01	
Sheffield	06:36	06:36	00:00	08:04	08:04	00:00	
SYFR-wide Average	07:42 07:37 -00:0		-00:05	09:19	09:13	-00:07	

Mean Summary by Station Ground

Station	Fi	rst Respons	se	Second Response			
Ground	Base Option		Impact	Base	Option	Impact	
Adwick	08:28	07:54	-00:34	11:28	10:00	-01:28	
Askern	09:43	09:40	-00:03	13:27	13:09	-00:19	
Doncaster	07:09	07:26	00:17	07:38	07:50	00:11	
Edlington	08:39	07:47	-00:51	10:40	08:47	-01:54	
Rossington	12:35	10:40	-01:55	12:12	10:30	-01:42	
Thorne	08:34	08:37	00:03	15:56	16:23	00:27	

Doncaster's optimal location is closer to the city centre, which gives the station better access to the west and south of the city. This move also gives the station better coverage of the high risk incidents.

The optimal location is on the edge of this existing station ground, which spreads towards the northeast of the city. This is why there is a degradation in the existing Doncaster station ground.

Lowedges Site Search Map



Lowedges Optimal Location Results

Mean Summary by Local Authority

Local Authority	Mea	n First Resp	onse	Mean Second Response			
	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:47	00:00	10:33	10:33	00:00	
Doncaster	08:36	08:36	00:00	10:25	10:25	00:00	
Rotherham	07:33	07:33	00:00	10:30	10:30	00:00	
Sheffield	06:36	06:33	-00:03	08:04	08:01	-00:03	
SYFR-wide Average	07:42	07:40	-00:01	09:19	09:18	-00:01	

The optimal site is to the east of the existing location and gives the station better access to the central and southern areas of Sheffield. As well as aiding first response in the current Lowedges area, this move allows a quicker second response into the neighbouring areas of Sheffield

Mean Summary by Station Ground

Station Ground	Fi	rst Respons	se	Second Response			
	Base	Option	Impact	Base	Option	Impact	
Birley Moor	05:58	05:55	-00:03	08:20	08:04	-00:16	
Central	05:38	05:35	-00:02	06:13	06:09	-00:04	
Lowedges	06:55	06:24	-00:31	11:28	11:28	-00:00	

Thorne Site Search Map



Thorne Optimal Location Results

Mean Summary by Local Authority

Local Authority	Mea	n First Resp	onse	Mean Second Response			
	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:47	00:00	10:33	10:33	00:00	
Doncaster	08:36	08:31	-00:05	10:25	10:19	-00:06	
Rotherham	07:33	07:33	00:00	10:30	10:30	00:00	
Sheffield	06:36	06:36	00:00	08:04	08:04	00:00	
SYFR-wide Average	07:42	07:40	-00:01	09:19	09:18	-00:02	

The optimal location of Thorne station is to the south of the town. This move allows quicker access to the M18 and the wider road network, resulting in improvements in both first and second response.

Mean Summary by Station Ground

Station Ground	Fi	rst Respons	se	Second Response			
	Base	Option	Impact	Base	Option	Impact	
Askern	09:43	09:39	-00:05	13:27	13:20	-00:07	
Doncaster	07:09	07:04	-00:05	07:38	07:26	-00:13	
Rossington	12:35	12:33	-00:02	12:12	12:10	-00:02	
Thorne	08:34	08:16	-00:18	15:56	15:56	-00:00	



7. Investments Modelling





Investments Modelling Overview

- The modelling options in this section show the impacts of scenarios which could be implemented if the service had long-term funding improvements. These scenarios all rely on investment in particular areas of the service. The investment options discussed here:
- Availability Improvements What are the impacts of improving on-call availability beyond its current levels?
- Second Wholetime Reintroductions How will adding in a second wholetime appliance at Barnsley and/or Rotherham affect response performance?
- **Single Wholetime Additions** Which current wholetime 1-pump station would provide the biggest impact with the introduction of a second wholetime appliance?
- On-Call Upgrade Which current on-call station would provide the biggest impact with an upgrade from an on-call to a wholetime appliance?
- **New Station Location** Where should a new station be built?



8. On Call Availability Changes







- SYFR asked ORH to assess the impact on response performance of increasing on call availability. The model base position uses availability data from 2023, where the service-wide average was 45%.
- ORH have modelled three separate scenarios, which involve increasing the availability service wide to 60%, 75%, and 90% in turn.

60% On Call Availability

SYFR-wide Mean Summary

Local Authority	Mea	an First Respo	onse	Mean Second Response			
	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:45	-00:02	10:33	10:26	-00:07	
Doncaster	08:36	08:30	-00:06	10:25	10:18	-00:07	
Rotherham	07:33	07:30	-00:02	10:30	10:18	-00:12	
Sheffield	06:36	06:36	00:00	08:04	08:04	00:00	
SYFR-wide Average	07:42	07:39	-00:02	09:19	09:15	-00:04	

Community Risk	High Incident Risk			Medium Incident Risk			Low Incident Risk		
	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	07:12	07:09	-00:03	07:35	07:32	-00:03	07:57	07:56	-00:01
Medium	07:19	07:15	-00:04	07:18	07:15	-00:04	07:52	07:49	-00:03
Low	07:21	07:19	-00:01	07:25	07:23	-00:01	07:47	07:46	-00:01

75% On Call Availability

SYFR-wide Mean Summary

Local Authority	Mea	an First Respo	onse	Mean Second Response			
	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:43	-00:04	10:33	10:21	-00:12	
Doncaster	08:36	08:25	-00:11	10:25	10:11	-00:14	
Rotherham	07:33	07:30	-00:03	10:30	10:14	-00:17	
Sheffield	06:36	06:36	00:00	08:04	08:03	-00:01	
SYFR-wide Average	07:42	07:37	-00:04	09:19	09:11	-00:08	

Community Diele	High Incident Risk			Medium Incident Risk			Low Incident Risk		
Community Risk	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	07:12	07:08	-00:05	07:35	07:30	-00:05	07:57	07:54	-00:03
Medium	07:19	07:12	-00:06	07:18	07:11	-00:07	07:52	07:47	-00:06
Low	07:21	07:17	-00:04	07:25	07:21	-00:04	07:47	07:43	-00:04

90% On Call Availability

SYFR-wide Mean Summary

Local Authority	Mea	an First Respo	onse	Mean Second Response			
Local Authority	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:40	-00:07	10:33	10:17	-00:16	
Doncaster	08:36	08:20	-00:16	10:25	10:04	-00:21	
Rotherham	07:33	07:29	-00:04	10:30	10:09	-00:21	
Sheffield	06:36	06:35	-00:01	08:04	08:01	-00:03	
SYFR-wide Average	07:42	07:35	-00:06	09:19	09:08	-00:12	

Community Dick	High Incident Risk			Medium Incident Risk			Low Incident Risk		
Community Risk	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	07:12	07:06	-00:06	07:35	07:29	-00:07	07:57	07:53	-00:04
Medium	07:19	07:10	-00:09	07:18	07:08	-00:10	07:52	07:44	-00:08
Low	07:21	07:15	-00:06	07:25	07:18	-00:07	07:47	07:41	-00:06

Availability Improvements Summary

Local Authority	Mean Fir	st Respons	e Impact	Mean Second Response Impact			
	60%	75%	90%	60%	75%	90%	
Barnsley	-00:02	-00:04	-00:07	-00:07	-00:12	-00:16	
Doncaster	-00:06	-00:11	-00:16	-00:07	-00:14	-00:21	
Rotherham	-00:02	-00:03	-00:04	-00:12	-00:17	-00:21	
Sheffield	00:01	00:00	-00:01	00:01	-00:01	-00:03	
SYFR-wide Average	-00:02	-00:04	-00:06	-00:04	-00:08	-00:12	

By improving on-call availability to 90%, mean first response improves by 6 seconds service-wide and mean second response by 12 seconds service-wide.

The largest impact is in Doncaster, where improvements to Askern and Rossington allow those stations to be on the run more often and respond to incidents in their catchment.



9. Second Wholetime Reintroductions





Second Wholetime Reintroductions – Method

 ORH have looked at the impacts of reintroducing a second wholetime appliance at Barnsley and Rotherham. Currently both stations have one 24-hour wholetime appliance and one day only wholetime appliance which operates from 08:00 – 19:00

Reintroduce Wholetime at Barnsley – Overall Impacts

SYFR-wide Mean Summary

Local Authority	Mea	n First Respo	onse	Mean Second Response			
Local Authority	Base	Option	ption Impact Base		Option	Impact	
Barnsley	08:47	08:43	-00:04	10:33	09:36	-00:57	
Doncaster	08:36	08:36	00:00	10:25	10:25	00:00	
Rotherham	07:33	07:33	00:00	10:30	10:30	00:00	
Sheffield	06:36	06:36	00:00	08:04	08:04	00:00	
SYFR-wide Average	07:42	07:41	-00:01	09:19	09:11	-00:08	

Community Diele	High Incident Risk			Med	Medium Incident Risk			Low Incident Risk		
Community Risk	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact	
High	07:12	07:12	-00:01	07:35	07:34	-00:01	07:57	07:57	-00:01	
Medium	07:19	07:18	-00:01	07:18	07:17	-00:01	07:52	07:51	-00:01	
Low	07:21	07:20	-00:01	07:25	07:23	-00:01	07:47	07:46	-00:01	

Reintroduce Wholetime at Rotherham – Overall Impacts

SYFR-wide Mean Summary

Local Authority	Mea	n First Respo	onse	Mean Second Response			
Local Authority	Base	Option	Option Impact Base		Option	Impact	
Barnsley	08:47	08:47	00:00	10:33	10:32	00:00	
Doncaster	08:36	08:36	00:00	10:25	10:25	00:00	
Rotherham	07:33	07:24	-00:09	10:30	09:12	-01:18	
Sheffield	06:36	06:36	00:00	08:04	08:04	00:00	
SYFR-wide Average	07:42	07:40	-00:02	09:19	09:07	-00:12	

Community Diele	High Incident Risk			Med	Medium Incident Risk			Low Incident Risk		
Community Risk	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact	
High	07:12	07:09	-00:03	07:35	07:31	-00:04	07:57	07:54	-00:03	
Medium	07:19	07:17	-00:02	07:18	07:16	-00:02	07:52	07:50	-00:02	
Low	07:21	07:20	-00:01	07:25	07:24	-00:01	07:47	07:46	-00:01	

Reintroduce Wholetime at Barnsley and Rotherham – Overall Impacts

SYFR-wide Mean Summary

Local Authority	Mea	an First Respo	onse	Mean Second Response			
Local Authority	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:42	-00:04	10:33	09:36	-00:57	
Doncaster	08:36	08:36	00:00	10:25	10:25	00:00	
Rotherham	07:33	07:24	-00:09	10:30	09:12	-01:18	
Sheffield	06:36	06:36	00:00	08:04	08:03	-00:01	
SYFR-wide Average	07:42	07:39	-00:03	09:19	08:59	-00:20	

Community Diele	High Incident Risk			Medium Incident Risk			Low Incident Risk		
Community Risk	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	07:12	07:09	-00:03	07:35	07:31	-00:05	07:57	07:54	-00:03
Medium	07:19	07:16	-00:03	07:18	07:15	-00:03	07:52	07:49	-00:03
Low	07:21	07:19	-00:02	07:25	07:23	-00:02	07:47	07:45	-00:02

Second Wholetime Reintroductions – Summary

Appliance Deintroduced	Mean First Res	sponse Impact	Mean Second Response Impact			
Appliance Reintroduced	Local	Service-wide	Local	Service-wide		
Barnsley	-00:04	-00:01	-00:57	-00:08		
Rotherham	-00:09	-00:02	-01:18	-00:12		
Both	-	-00:03	-	-00:20		

The local impact is the impact on that station's local authority

The impacts on response performance both locally and service-wide are greater when Rotherham is reintroduced.

Since these scenarios have no effect on the first appliances at these stations, the impacts on first response performance are less than on second


10. Single Wholetime Additions





Single Wholetime Additions – Method

ORH have added a new 24-hour wholetime appliance to each one pump station in turn and looked at the impact this has on response performance service-wide.

Station WT Added To	First Impact	Second Impact
Elm Lane	-00:03	-00:14
Tankersley	-00:03	-00:09
Stocksbridge	-00:03	-00:04
Cudworth	-00:02	-00:13
Askern	-00:02	-00:09
Parkway	-00:02	-00:10
Penistone	-00:02	-00:03
Rivelin Valley	-00:02	-00:15
Adwick	-00:02	-00:09
Edlington	-00:02	-00:09
Thorne	-00:01	-00:13
Aston Park	-00:01	-00:09
Maltby	-00:01	-00:06
Lowedges	-00:01	-00:09

The station which showed the largest impact on **first** response was Elm Lane

The station which showed the largest impact on **second** response was Rivelin Valley

Additional Wholetime Appliance at Elm Lane – Results

It was shown that adding an additional appliance at Elm Lane gave the largest impact on first response performance service-wide. The more detailed results of this move are shown below.

Local Authority	Mea	an First Respo	onse	Mean Second Response			
Local Authority	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:46	00:00	10:33	10:32	-00:01	
Doncaster	08:36	08:36	00:00	10:25	10:25	00:00	
Rotherham	07:33	07:32	-00:01	10:30	10:29	-00:01	
Sheffield	06:36	06:30	-00:07	08:04	07:35	-00:28	
SYFR-wide Average	07:42	07:39	-00:03	09:19	09:05	-00:14	

SYFR-wide Mean Summary

SYFR-wide Mean First Summary

Community Risk –	High Incident Risk			Med	ium Incident	Risk	Low Incident Risk		
	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	07:12	07:07	-00:05	07:35	07:30	-00:05	07:57	07:53	-00:05
Medium	07:19	07:17	-00:02	07:18	07:15	-00:03	07:52	07:50	-00:02
Low	07:21	07:20	-00:01	07:25	07:23	-00:01	07:47	07:46	-00:01

Additional Wholetime Appliance at Rivelin Valley – Results

It was shown that adding an additional appliance at Rivelin Valley gave the largest impact on second response performance service-wide. The more detailed results of this move are shown below.

Local Authority	Mea	an First Respo	onse	Mean Second Response			
Local Authority	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:47	00:00	10:33	10:32	00:00	
Doncaster	08:36	08:36	00:00	10:25	10:25	00:00	
Rotherham	07:33	07:33	00:00	10:30	10:30	00:00	
Sheffield	06:36	06:32	-00:04	08:04	07:33	-00:31	
SYFR-wide Average	07:42	07:40	-00:02	09:19	09:04	-00:15	

SYFR-wide Mean Summary

SYFR-wide Mean First Summary

Community Risk	High Incident Risk			Medium Incident Risk			Low Incident Risk		
	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	07:12	07:11	-00:01	07:35	07:34	-00:02	07:57	07:56	-00:01
Medium	07:19	07:18	-00:01	07:18	07:16	-00:02	07:52	07:51	-00:01
Low	07:21	07:18	-00:02	07:25	07:21	-00:04	07:47	07:44	-00:03

Single Wholetime Additions – Summary

- Looking at the results from the previous slide, the wholetime station which would provide the biggest impact to the service if it received a second wholetime appliance is Elm Lane.
- This upgrade provides extra resilience in the north of Sheffield and results in a fourteen-second improvement to second response service-wide.
- As well as adding to the resilience, this upgrade also improves first response to all incidents service-wide by three seconds, and results in a five-second improvement in first response to high-risk incidents in areas of high community risk.



11. On-Call Upgrade





ORH have upgraded the on-call appliance to a wholetime in turn at the four stations with no wholetime presence. The impacts on first and second response service-wide are shown below.

Station Upgraded	First Impact	Second Impact
Askern	-00:04	-00:05
Penistone	-00:02	-00:02
Rossington	-00:06	-00:04
Stocksbridge	-00:02	-00:03

The station which showed the largest impact on **first** response was Rossington

The station which showed the largest impact on **second** response was Askern

Upgrade Rossington On-Call – Results

It was shown that upgrading the on-call pump at Rossington to a wholetime pump gave the largest impact on first response performance service-wide. The more detailed results of this move are shown below.

Local Authority	Mea	in First Respo	onse	Mean Second Response			
Local Authonity	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:47	00:00	10:33	10:33	00:00	
Doncaster	08:36	08:15	-00:21	10:25	10:10	-00:15	
Rotherham	07:33	07:32	00:00	10:30	10:29	-00:01	
Sheffield	06:36	06:36	00:00	08:04	08:04	00:00	
SYFR-wide Average	07:42	07:36	-00:06	09:19	09:15	-00:04	

SYFR-wide Mean Summary

SYFR-wide Mean First Summary

Community Risk Bas	High Incident Risk			Medi	um Incident	Risk	Low Incident Risk		
	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	07:12	07:06	-00:06	07:35	07:30	-00:05	07:57	07:54	-00:03
Medium	07:19	07:12	-00:07	07:18	07:12	-00:07	07:52	07:46	-00:06
Low	07:21	07:14	-00:07	07:25	07:20	-00:05	07:47	07:40	-00:07

Upgrade Askern On-Call – Results

It was shown that upgrading the on-call pump at Askern to a wholetime pump gave the largest impact on second response performance service-wide. The more detailed results of this move are shown below.

Local Authority	Mea	in First Respo	onse	Mean Second Response			
Local Authority	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:47	00:00	10:33	10:33	00:00	
Doncaster	08:36	08:21	-00:15	10:25	10:06	-00:19	
Rotherham	07:33	07:33	00:00	10:30	10:30	00:00	
Sheffield	06:36	06:36	00:00	08:04	08:04	00:00	
SYFR-wide Average	07:42	07:38	-00:04	09:19	09:15	-00:05	

SYFR-wide Mean Summary

SYFR-wide Mean First Summary

Community Risk	High Incident Risk			Medi	ium Incident	Risk	Low Incident Risk		
	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	07:12	07:09	-00:03	07:35	07:31	-00:04	07:57	07:53	-00:04
Medium	07:19	07:12	-00:07	07:18	07:15	-00:03	07:52	07:47	-00:05
Low	07:21	07:19	-00:02	07:25	07:22	-00:03	07:47	07:44	-00:03



12. New Station Location





New Station Location – Method

By optimising on first response to high-risk incidents, ORH have identified a location for a new station which will maximise response times in the service.



The new site is situated at the intersection of the A635 and A6195 between Thurnscoe and Wombwell.

This location has good access to the road network and can provide support into Barnsley and Dearne as well as servicing the surrounding area.

New Optimal Station Location – Results

The tables below show the impacts of adding a new one pump wholetime station at the optimal location described previously.

Local Authority	Mea	n First Respo	inse	Mean Second Response			
Local Authority	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	07:45	-01:02	10:33	09:27	-01:05	
Doncaster	08:36	08:32	-00:04	10:25	10:16	-00:09	
Rotherham	07:33	07:26	-00:07	10:30	10:10	-00:21	
Sheffield	06:36	06:36	00:00	08:04	08:04	00:00	
SYFR-wide Average	07:42	07:28	-00:14	09:19	09:05	-00:14	

SYFR-wide Mean Summary

SYFR-wide Mean First Summary

Community Risk Base	High Incident Risk			Medium Incident Risk			Low Incident Risk		
	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	07:12	06:57	-00:16	07:35	07:23	-00:12	07:57	07:41	-00:16
Medium	07:19	06:57	-00:22	07:18	07:02	-00:16	07:52	07:33	-00:19
Low	07:21	07:12	-00:09	07:25	07:19	-00:06	07:47	07:39	-00:08



13. Efficiencies Modelling





Efficiencies Modelling Overview

- The modelling options in this section show the impacts of scenarios which are either appliance neutral or involve the removal of appliances.
- The efficiency options discussed here:
- Second Pump Removals What are the impacts of removing the on-call appliances at Birley and Dearne
- Second Wholetime Downgrade How will downgrading the second wholetime pumps to day only at Central and Doncaster affect response performance
- Small Incident Unit (SIU) Changes What are the impacts of increasing the remit
 of the SIUs and relocating the SIU at Cudworth to Dearne
- Small Incident Unit (SIU) Removal How does the removal of the two SIUs impact the service



14. On Call Second Pump Removals





Second Pump Removals at Birley and Dearne Method

- SYFR have also asked ORH to investigate the impacts of removing the two on call pumps which back up wholetime appliances, Birley Moor and Dearne. A further scenario has been completed which shows the impact of removing both appliances.
- Because second appliances have been removed, the impacts on first and second response are shown

Remove Dearne On-Call

SYFR-wide Mean Summary

Local Authority	Mea	n First Respo	onse	Mean Second Response			
	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:47	00:00	10:33	10:35	00:02	
Doncaster	08:36	08:37	00:01	10:25	10:28	00:03	
Rotherham	07:33	07:34	00:01	10:30	10:34	00:04	
Sheffield	06:36	06:36	00:00	08:04	08:04	00:00	
SYFR-wide Average	07:42	07:42	00:00	09:19	09:21	00:02	

Community, Disk	High Incident Risk			Medi	Medium Incident Risk			Low Incident Risk		
Community Risk	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact	
High	09:34	09:35	00:01	12:29	12:33	00:04	09:04	09:06	00:01	
Medium	10:07	10:12	00:05	13:14	13:18	00:05	08:52	08:56	00:03	
Low	09:56	09:57	00:01	12:06	12:07	00:02	08:17	08:17	00:00	

Remove Birley Moor On-Call

SYFR-wide Mean Summary

Local Authority	Mea	n First Respo	onse	Mean Second Response			
Local Authority	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:47	00:00	10:33	10:32	00:00	
Doncaster	08:36	08:36	00:00	10:25	10:25	00:00	
Rotherham	07:33	07:33	00:00	10:30	10:31	00:01	
Sheffield	06:36	06:37	00:01	08:04	08:09	00:05	
SYFR-wide Average	07:42	07:42	00:00	09:19	09:22	00:02	

Community Risk	High Incident Risk			Medium Incident Risk			Low Incident Risk		
	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	09:34	09:35	00:01	12:29	12:30	00:01	09:04	09:06	00:01
Medium	10:07	10:10	00:03	13:14	13:20	00:07	08:52	08:54	00:02
Low	09:56	10:00	00:04	12:06	12:10	00:04	08:17	08:19	00:03

Remove Birley Moor and Dearne On-Call

SYFR-wide Mean Summary

Local Authority	Mea	n First Resp	onse	Mean Second Response			
	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:47	00:00	10:33	10:35	00:02	
Doncaster	08:36	08:37	00:01	10:25	10:28	00:03	
Rotherham	07:33	07:34	00:01	10:30	10:35	00:05	
Sheffield	06:36	06:37	00:01	08:04	08:09	00:05	
SYFR-wide Average	07:42	07:42	00:01	09:19	09:24	00:04	

Community Risk	High Incident Risk			Medium Incident Risk			Low Incident Risk		
	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	07:12	07:12	00:00	07:35	07:36	00:01	07:57	07:58	00:01
Medium	07:19	07:20	00:01	07:18	07:19	00:01	07:52	07:53	00:01
Low	07:21	07:22	00:01	07:25	07:26	00:01	07:47	07:48	00:01

Second Pump Removals Summary

- Removing both appliances results in a 4 second degradation in second response and a negligible increase in first response to all incidents service-wide.
- There is also a negligible impact on first response to high-risk incidents.



15. Second Pump Downgrade Summary





Second Pump Downgrade Summary

SYFRS were keen to understand the impact on response performance of downgrading the two second wholetime pumps (Central and Doncaster) to wholetime day only appliances. The table below summarises the service wide impacts:

Dump	Imp	acts
Downgraded	Mean First Response	Mean Second Response
Central 2	00:02	00:24
Doncaster 2	00:02	00:16
Combined	00:04	00:39

The impacts on first response are minimal, and so in the following slides there is a greater focus on second response impacts

Impacts are shown service-wide

Second Pump Downgrades Method

- SYFR were keen to understand the impact on response performance of downgrading the two second wholetime pumps (at Central and Doncaster) to wholetime day only appliances.
- ORH have run three scenarios:
- One which downgrades Central,
- a second which downgrades Doncaster,
- and a third which downgrades both Central and Doncaster at the same time.

Change Central 2 to Wholetime Day Only

SYFR-wide Mean Summary

Local Authority	Mea	n First Respo	onse	Mean Second Response			
	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:47	00:00	10:33	10:33	00:00	
Doncaster	08:36	08:36	00:00	10:25	10:25	00:00	
Rotherham	07:33	07:33	00:00	10:30	10:31	00:00	
Sheffield	06:36	06:42	00:05	08:04	08:53	00:49	
SYFR-wide Average	07:42	07:44	00:02	09:19	09:43	00:24	

Community Risk	High Incident Risk			Medium Incident Risk			Low Incident Risk		
	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	09:34	09:46	00:12	12:29	12:39	00:10	09:04	09:18	00:13
Medium	10:07	10:27	00:20	13:14	13:34	00:20	08:52	09:20	00:28
Low	09:56	10:14	00:18	12:06	12:34	00:28	08:17	08:55	00:38

Change Doncaster 2 to Wholetime Day Only

SYFR-wide Mean Summary

Local Authority	Mea	in First Respo	onse	Mean Second Response			
	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:47	00:00	10:33	10:33	00:00	
Doncaster	08:36	08:42	00:06	10:25	11:32	01:07	
Rotherham	07:33	07:33	00:00	10:30	10:30	00:00	
Sheffield	06:36	06:36	00:00	08:04	08:04	00:00	
SYFR-wide Average	07:42	07:43	00:02	09:19	09:35	00:16	

Community Risk	High Incident Risk			Medium Incident Risk			Low Incident Risk		
	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	09:34	09:50	00:16	12:29	12:48	00:19	09:04	09:26	00:21
Medium	10:07	10:19	00:12	13:14	13:28	00:14	08:52	09:03	00:11
Low	09:56	10:11	00:15	12:06	12:33	00:27	08:17	08:32	00:16

Change Central 2 and Doncaster 2 to Wholetime Day Only

SYFR-wide Mean Summary

Local Authority	Mea	n First Respo	onse	Mean Second Response			
Local Authority	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:47	00:00	10:33	10:33	00:00	
Doncaster	08:36	08:42	00:06	10:25	11:32	01:07	
Rotherham	07:33	07:34	00:01	10:30	10:31	00:01	
Sheffield	06:36	06:42	00:05	08:04	08:53	00:49	
SYFR-wide Average	07:42	07:45	00:04	09:19	09:59	00:39	

Community Dials	High Incident Risk			Medium Incident Risk			Low Incident Risk		
Community Risk	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	09:34	10:02	00:28	12:29	12:58	00:29	09:04	09:39	00:35
Medium	10:07	10:38	00:32	13:14	13:48	00:34	08:52	09:31	00:38
Low	09:56	10:30	00:34	12:06	13:01	00:55	08:17	09:11	00:54

Second Pump Downgrades Summary

- Downgrading either appliance has a larger impact on second response than first response. Since Doncaster and Sheffield are far enough apart, the downgrades are independent of each other and hence the impacts are combined when both are removed.
- Downgrading Central's second pump has a bigger impact on second response performance service-wide increasing by 24 seconds compared to 16 seconds.
- However, when looking at a more local level, it is Doncaster which has a bigger impact in its local authority: an increase of 49 seconds in Sheffield when Central is downgraded, compared to 67 seconds in Doncaster when Doncaster is downgraded.



16. Appliance Removals





Removal of Wholetime Day Only Appliances

Assuming Central and Doncaster second appliances have been downgraded to wholetime dayonly and starting from this new base position, ORH have looked at the impact of removing each of the four wholetime day-only appliances in turn:

Wholetime day only Appliance Removed	Impact on Mean First Repsonse	Impact on Mean Second Response		
Barnsley	00:01	00:10		
Central	00:03	00:28		
Doncaster	00:03	00:18		
Rotherham	00:02	00:14		

Station Contribution – New Base Configuration



Building upon the results from the previous slide, ORH created a base scenario with one pump at every station as shown in the map opposite.

Starting from this position, SYFRS wanted to understand which station closure would have the least impact on response performance.

ORH have modelled each station removal in turn and results are shown on the following slides.

Station Contribution Results – First Response



Station Contribution Results – Second Response

Station Removed





17. SIU Data





Optimal Distribution of SIUs – Methodology

ORH have looked at relocating the two SIUs, currently at Rossington and Cudworth, to optimal locations in South Yorkshire.

Initially, the optimal location has been found by minimising the mean average first response to secondary fires, as these are the incidents typically attended to by the SIUs.

SYFRS have suggested increasing the remit of the SIUs to include gain entry calls. Running the optimisation based on this increased remit does not change the optimal locations of the SIUs.

Incidents by LA

LA	Gain Entry	Secondary Fires		
Barnsley	233	6,446		
Doncaster	351	9,135		
Rotherham	266	6,091		
Sheffield	799	9,603		
Total	1,649	31,275		

The relative lack of gain entry incidents means their inclusion does not affect the optimal location of the SIUs

SIU Changes – Response Performance Impacts

ORH have looked at the response performance impacts of moving the SIU from Cudworth to Dearne and increasing the remit of the SIUs.

SYFR-wide Mean First Summary

Community Risk	High Incident Risk			Medium Incident Risk			Low Incident Risk		
	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	07:12	07:12	00:00	07:35	07:35	00:00	07:57	07:58	00:01
Medium	07:19	07:19	00:00	07:18	07:18	00:00	07:52	07:50	-00:02
Low	07:21	07:21	00:00	07:25	07:25	00:00	07:47	07:51	00:04

SYFR-wide Mean Second Summary

Commente Dist.	High Incident Risk			Medium Incident Risk			Low Incident Risk		
Community Kisk	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	09:34	09:34	00:00	12:29	12:28	00:00	09:04	09:04	00:00
Medium	10:07	10:07	00:00	13:14	13:13	-00:01	08:52	08:52	00:00
Low	09:56	09:56	00:00	12:06	12:06	00:01	08:17	08:17	00:01

Broadening the remit of the SIUs and moving an SIU from Cudworth to Dearne has no impact on first response performance to high or medium risk incidents.

The only impacts seen are to low risk incidents

Optimal Distribution of SIUs – Results

ORH understand that the purpose of the SIUs is to respond to as many of the low-risk incidents (secondary fires and now gain entry calls) as possible within a certain response time, to allow the main appliances to respond to higher risk incidents.

The optimal location of the two SIUs (with this purpose in mind) is dependent on the choice of time in which we are maximising the coverage. The table below shows the change in optimal locations as the coverage target increases.

Coverage Target	SIU Loo	Incidents Covered	
10 Mins	Parkway	11.2%	
15 Mins	Parkway	Dearne	34.0 %
20 Mins	Parkway	Edlington	62.7%
25 Mins	Tankersley	Edlington	87.7%
30 Mins	Parkway	Adwick	97.2%
35 Mins	Aston Park	Dearne	99.4%
40 Mins	Aston Park	Dearne	99.7%

If the goal of the SIUs is to respond to as many incidents as possible in 15 minutes, then Parkway and Dearne are the best locations

With the SIUs at Parkway and Dearne, 34% of incidents can be reached in 15 minutes
Optimal Distribution of SIUs – Coverage Images

15 Minute Coverage



Optimal SIU Locations:

- Parkway
- Dearne

The black dots represent demand the SIU could respond to, and the green shading highlights the areas the SIUs can reach in the target response time

Optimal Distribution of SIUs – Response Performance Impacts

ORH have looked at the response performance impacts of moving the SIUs to Parkway and Dearne (the 15-minute coverage optimal solution). To assess the impacts fairly, the SIUs have been given the same availability as the model base scenario.

SYFR-wide Mean First Summary

Community Risk -	High Incident Risk			Medium Incident Risk			Low Incident Risk		
	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	07:12	07:12	-00:01	07:35	07:35	-00:01	07:57	08:09	00:12
Medium	07:19	07:19	00:00	07:18	07:18	00:00	07:52	07:58	00:06
Low	07:21	07:21	00:00	07:25	07:25	00:00	07:47	07:57	00:10

Increasing the remit to include gain entry calls has no impact on response performance but would slightly reduce pump workload

SYFR-wide Mean Second Summary

Community Risk	High Incident Risk			Medium Incident Risk			Low Incident Risk		
	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	09:34	09:33	-00:01	12:29	12:29	00:00	09:04	09:04	00:00
Medium	10:07	10:07	00:00	13:14	13:12	-00:01	08:52	08:52	00:00
Low	09:56	09:55	-00:01	12:06	12:06	00:00	08:17	08:17	00:00

Optimal Distribution of SIUs – Workload Impacts

Moving the SIUs to the optimal locations, Parkway and Edlington, affects the workload of the other pumps across the service. The main 'winners' and 'losers' in terms of workload are shown in the table below.

Appliance	Annual Workload Impact
S11P1-Parkway	-53
S28P1-Edlington	-51
S18P2-Rotherham	-45
S07P1-Adwick	-36
S13P1-Central	-31
S26P1-Tankersley	11
S01P1-Barnsley	12
S04P1-Dearne	24
S01P2-Barnsley	45
S03P1-Cudworth	115

Parkway and Edlington have gained an SIU each

Cudworth and Rossington have lost an SIU each (The annual workload impact on S12P1-Rossington is less than 1) It is important to not just look at the response impacts of the SIU changes. The tables below shows how the utilisation of appliances has been affected by these moves.

Appliance	Annual Workload Impact	Utilisation Impact
S04P1-Dearne	-66	-0.4%
S26P1-Tankersley	-24	-0.1%
S18P2-Rotherham	-19	-0.1%
S28P1-Edlington	-12	-0.1%
S01P1-Barnsley	9	0.1%
S01P2-Barnsley	32	0.2%
S03P1-Cudworth	75	0.4%

Broadening the remit of the SIUs and moving the SIU from Cudworth to Dearne, increases the workload and utilisation of appliances in Barnsley and Cudworth and decreases the workload and utilisation of appliances in and around Dearne (Dearne, Tankersley, Rotherham, and Edlington)



18. Rossington Options





Rossington Options

SYFRS have asked ORH to explore a couple of modelling options around Rossington:

- **Option 1:** Remove Rossington On Call and move a wholetime appliance from Doncaster to Rossington
- **Option 2:** Remove Rossington On Call during the day, so appliance is available 18:00 06:00 only (as per its current availability during these hours)



Option 1 Doncaster: WT Rossington: SIU & WT

Option 2

Doncaster: 2 x WT Rossington: SIU & OC (night only)

Replace Rossington OC with Doncaster Second Wholetime Pump

SYFR-wide Mean Summary

Local Authority	Mea	in First Respo	onse	Mean Second Response			
Local Authority	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:49	00:02	10:33	10:36	00:03	
Doncaster	08:36	09:22	00:46	10:25	12:52	02:26	
Rotherham	07:33	07:34	00:01	10:30	10:30	00:00	
Sheffield	06:36	06:36	00:00	08:04	08:04	00:00	
SYFR-wide Average	07:42	07:54	00:13	09:19	09:54	00:35	

SYFR-wide Mean Second Summary

Community Risk	High Incident Risk			Medium Incident Risk			Low Incident Risk		
	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	09:34	10:09	00:35	12:29	13:21	00:52	09:04	09:56	00:52
Medium	10:07	10:36	00:30	13:14	13:50	00:36	08:52	09:19	00:27
Low	09:56	10:24	00:28	12:06	12:57	00:52	08:17	08:47	00:31

Replace Rossington OC with Doncaster Second Wholetime Pump – Station Ground Impacts

Chables Convert	Mea	n First Respo	onse	Mean Second Response			
Station Ground	Base	Option	Impact	Base	Option	Impact	
Adwick	08:28	13:05	04:37	11:28	13:54	02:26	
Askern	09:43	12:21	02:38	13:27	17:48	04:21	
Aston Park	08:24	08:24	00:01	12:10	12:10	00:00	
Barnsley	07:28	07:29	00:00	08:36	08:35	-00:00	
Birley Moor	05:58	05:57	-00:00	08:20	08:21	00:01	
Central	05:38	05:38	-00:00	06:13	06:13	00:00	
Cudworth	08:27	08:28	00:01	13:21	13:25	00:04	
Dearne	09:39	09:42	00:03	12:12	12:22	00:10	
Doncaster	07:09	07:40	00:31	07:38	11:57	04:18	
Edlington	08:39	08:49	00:10	10:40	10:56	00:15	
Elm Lane	06:48	06:48	00:00	10:43	10:43	-00:00	
Lowedges	06:55	06:55	-00:00	11:28	11:27	-00:00	
Maltby	07:31	07:33	00:02	10:57	10:57	00:00	
Parkway	07:38	07:38	00:00	09:04	09:04	-00:00	
Penistone	09:42	09:42	00:00	11:58	11:58	-00:00	
Rivelin Valley	06:47	06:48	00:00	10:26	10:27	00:00	
Rossington	12:35	08:43	-03:52	12:12	12:01	-00:11	
Rotherham	06:57	06:57	00:00	09:29	09:29	00:01	
Stocksbridge	08:54	08:53	-00:01	11:37	11:37	00:01	
Tankersley	08:41	08:40	-00:00	10:06	10:05	-00:01	
Thorne	08:34	08:40	00:06	15:56	16:02	00:06	
Overall	07:42	07:54	00:13	09:19	09:54	00:35	

Building on the previous slide, we have looked at the impact of this move on response performance in each station ground, to try and highlight the more local impacts.

Station Ground refers solely to the geographical location where the incident took place, rather than the station which attended.

Since the on call pump has been upgraded to a wholetime appliance, the Rossington station ground sees an almost four-minute improvement in first response.

This improvement however is offset by the degradation seen in Adwick and Askern station grounds. This is caused by those appliances having to respond into Doncaster (which now only has one pump), leaving them unable to respond in their own station ground.

Remove Rossington On-Call 06:00 – 18:00

SYFR-wide Mean Summary

Local Authority	Mea	n First Respo	onse	Mean Second Response			
Local Authority	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:47	00:00	10:33	10:33	00:00	
Doncaster	08:36	08:37	00:01	10:25	10:26	00:01	
Rotherham	07:33	07:33	00:00	10:30	10:30	00:00	
Sheffield	06:36	06:36	00:00	08:04	08:04	00:00	
SYFR-wide Average	07:42	07:42	00:00	09:19	09:19	00:00	

SYFR-wide Mean Second Summary

Community Risk	High Incident Risk			Medium Incident Risk			Low Incident Risk		
	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	09:34	09:34	00:00	12:29	12:29	00:00	09:04	09:05	00:00
Medium	10:07	10:07	00:00	13:14	13:14	00:00	08:52	08:52	00:00
Low	09:56	09:56	00:00	12:06	12:06	00:00	08:17	08:17	00:00



19. Birley Options





Birley Moor Options – Double Wholetime

SYFRS have asked ORH to look at the options of relocating the wholetime appliance at Birley Moor to another location, thereby upgrading an existing station from on-call to wholetime and on-call or creating a new double wholetime station. The table below lists the service-wide impacts of relocating the Birley Moor wholetime appliance to 9 different stations.

Station	First Re	esponse	Second Response			
Station	Mean	Impact	Mean	Impact		
Askern	07:44	00:02	09:23	00:03		
Penistone	07:46	00:05	09:27	00:07		
Rossington	07:43	00:01	09:25	00:05		
Stocksbridge	07:46	00:04	09:25	00:06		
Aston Park	07:46	00:05	09:18	-00:01		
Edlington	07:46	00:05	09:20	00:00		
Elm Lane	07:45	00:04	09:15	-00:04		
Parkway	07:45	00:04	09:16	-00:03		
Tankersley	07:46	00:04	09:21	00:02		
Birley Moor	07:	:42	09:19			

Relocating the wholetime pump at Birley Moor to any of the other on-call only stations results in a degradation in both first and second response performance service wide. Therefore, the best option for first response, is to leave the wholetime pump at Birley Moor

Of the locations which already have a wholetime pump Parkway and Elm Lane produce the best results, though both do result in a degradation to first response

Impacts are shown service-wide

Relocate Birley Wholetime to Parkway

SYFR-wide Mean Summary

Local Authority	Mea	an First Respo	onse	Mean Second Response			
Local Authority	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:47	00:00	10:33	10:32	00:00	
Doncaster	08:36	08:36	00:00	10:25	10:25	00:00	
Rotherham	07:33	07:31	-00:01	10:30	10:23	-00:07	
Sheffield	06:36	06:47	00:10	08:04	07:59	-00:05	
SYFR-wide Average	07:42	07:45	00:04	09:19	09:16	-00:03	

Community Risk	High Incident Risk			Medium Incident Risk			Low Incident Risk		
	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	07:12	07:13	00:01	07:35	07:38	00:02	07:57	07:58	00:01
Medium	07:19	07:22	00:03	07:18	07:24	00:06	07:52	07:54	00:02
Low	07:21	07:27	00:07	07:25	07:35	00:10	07:47	07:52	00:05

Relocate Birley Wholetime to Elm Lane

SYFR-wide Mean Summary

Local Authority	Mea	an First Respo	onse	Mean Second Response			
	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:46	00:00	10:33	10:32	-00:01	
Doncaster	08:36	08:36	00:00	10:25	10:25	00:00	
Rotherham	07:33	07:34	00:01	10:30	10:33	00:03	
Sheffield	06:36	06:46	00:10	08:04	07:54	-00:10	
SYFR-wide Average	07:42	07:45	00:04	09:19	09:15	-00:04	

Community Risk	High Incident Risk			Medium Incident Risk			Low Incident Risk		
	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	07:12	07:12	-00:01	07:35	07:35	00:00	07:57	07:57	-00:01
Medium	07:19	07:23	00:04	07:18	07:25	00:06	07:52	07:55	00:03
Low	07:21	07:28	00:07	07:25	07:37	00:12	07:47	07:54	00:07

Relocate Birley Wholetime to Parkway & Upgrade Birley On-Call to Day-Crewed

SYFR-wide Mean Summary

Local Authority	Mea	in First Respo	onse	Mean Second Response			
	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:47	00:00	10:33	10:32	00:00	
Doncaster	08:36	08:36	00:00	10:25	10:25	00:00	
Rotherham	07:33	07:31	-00:02	10:30	10:22	-00:09	
Sheffield	06:36	06:38	00:02	08:04	07:54	-00:10	
SYFR-wide Average	07:42	07:42	00:00	09:19	09:13	-00:06	

Community Risk	High Incident Risk			Medium Incident Risk			Low Incident Risk		
	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	07:12	07:11	-00:01	07:35	07:36	00:00	07:57	07:56	-00:01
Medium	07:19	07:19	00:00	07:18	07:19	00:01	07:52	07:52	00:00
Low	07:21	07:23	00:02	07:25	07:28	00:03	07:47	07:48	00:01

Relocate Birley Wholetime to Elm Lane & Upgrade Birley On-Call to Day-Crewed

SYFR-wide Mean Summary

Local Authority	Mea	an First Respo	onse	Mean Second Response			
	Base	Option	Impact	Base	Option	Impact	
Barnsley	08:47	08:46	-00:01	10:33	10:32	-00:01	
Doncaster	08:36	08:36	00:00	10:25	10:25	00:00	
Rotherham	07:33	07:33	00:00	10:30	10:31	00:01	
Sheffield	06:36	06:37	00:01	08:04	07:46	-00:17	
SYFR-wide Average	07:42	07:42	00:00	09:19	09:11	-00:08	

Community Risk	High Incident Risk			Medium Incident Risk			Low Incident Risk		
	Base	Option	Impact	Base	Option	Impact	Base	Option	Impact
High	07:12	07:10	-00:03	07:35	07:33	-00:03	07:57	07:54	-00:03
Medium	07:19	07:20	00:01	07:18	07:19	00:01	07:52	07:52	00:00
Low	07:21	07:24	00:03	07:25	07:29	00:05	07:47	07:49	00:02



Questions



