NOTTINGHAMSHIRE
Fire & Rescue Service
Creating Safer Communities

Creating a Pre Determined Order of Turnout for Mapping, Modelling and Analysis

Gemma Polmear

Cadcorp Emergency Services Conference

10th October 2019

Background

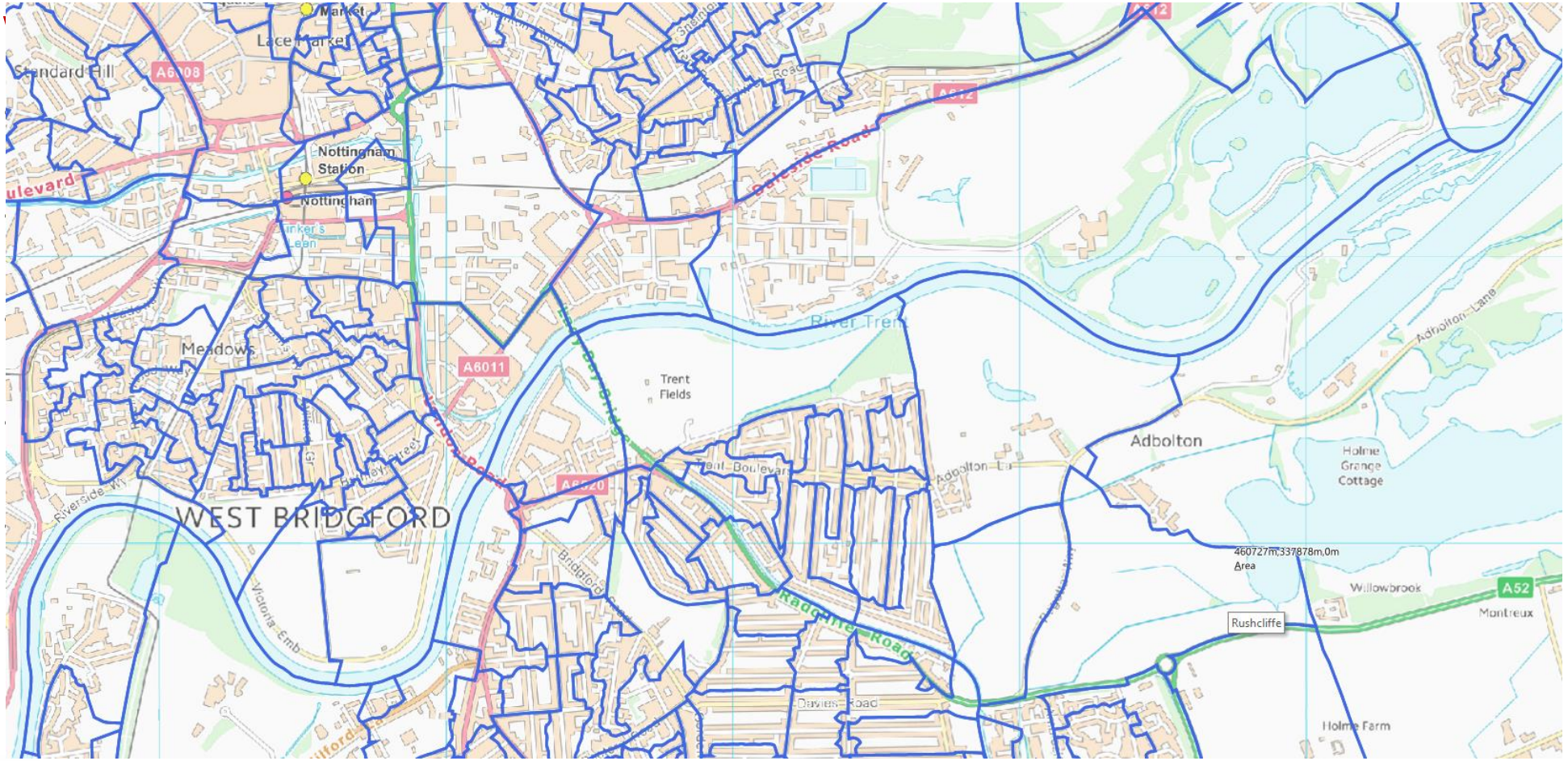
- Mapping, Modelling and Analysis
- So many questions…

Who will attend?

How quickly will they get there?

- Backup for mobilising system

Pre Determined Order of Turnout Map



Multipoint Routing

"From" Points

Routing Network

"To" Points

Fire Station Location Routing Points

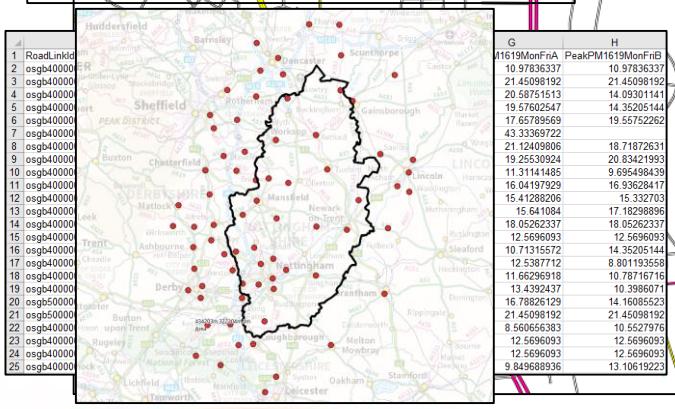
ITN

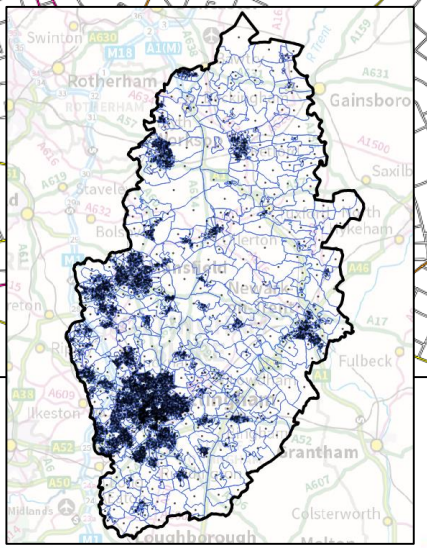
Output Area Routing Points

Speeds for Routing

TrafficMaster Speed Data

Urban Extents





Speeds for Routing

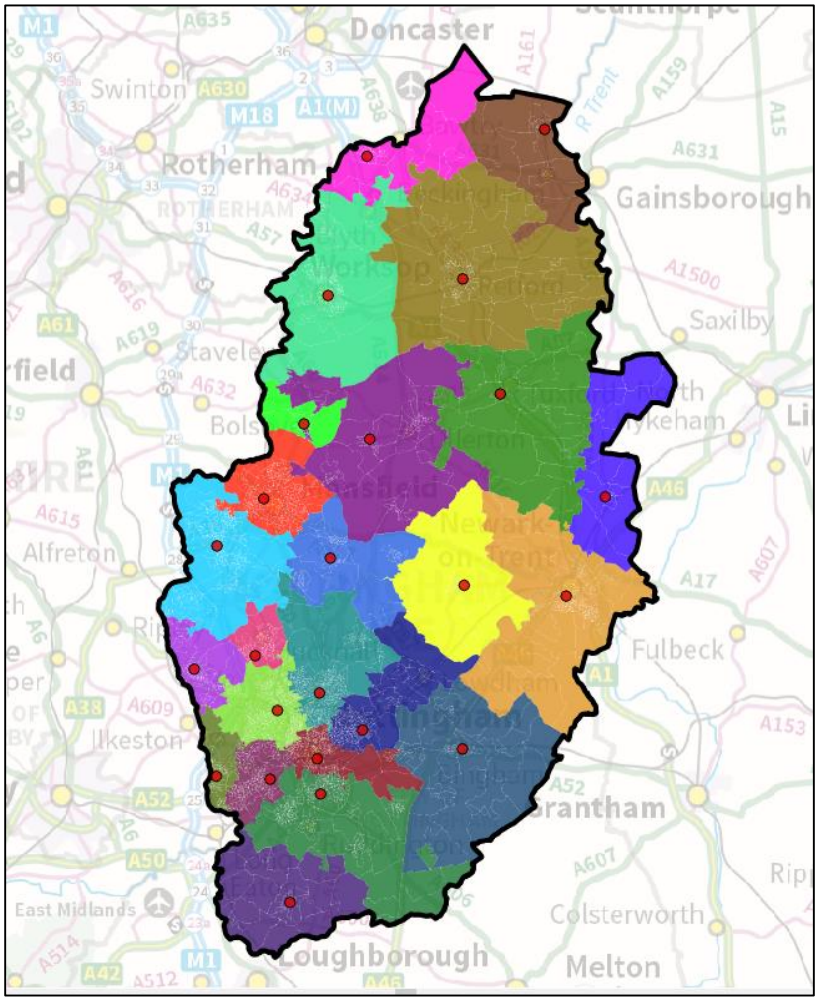
- TOID match to join TrafficMaster speeds to ITN
  - Offpeak 19:00-23:00
  - Directional speeds averaged

- Fill in the gaps

Situation_2019	Urban							
Av of Speed_MPH_1923_Av TM May 2019 (2018 Collection)	Dual Carriageway	Enclosed Traffic Area Link	Roundabout	Single Carriageway	Slip Road	Traffic Island Link	Traffic Island Link At Junction	Grand Total
A Road	28		22	27	18	31	20	**26**
Alley				16				**16**
B Road	23		21	26	15	28	18	**24**
Local Street	16	14	17	15	11	19	14	**15**
Minor Road	21		20	23	13	27	17	**22**
Motorway	59		25		31			**50**
Private Road - Publicly Accessible	13	9	15	11	12	13	11	**10**
Private Road - Restricted Access	12	10	13	11	9	9	11	**11**
Grand Total	**27**	**10**	**20**	**16**	**16**	**27**	**17**	**17**

From Multipoint Routing to Order of Turnout

- Reformat results into a travel time matrix
- Add turnout times to create arrival times
- Rank
- Reformat into OOT
- Retrieve times
- Join to OA polygons

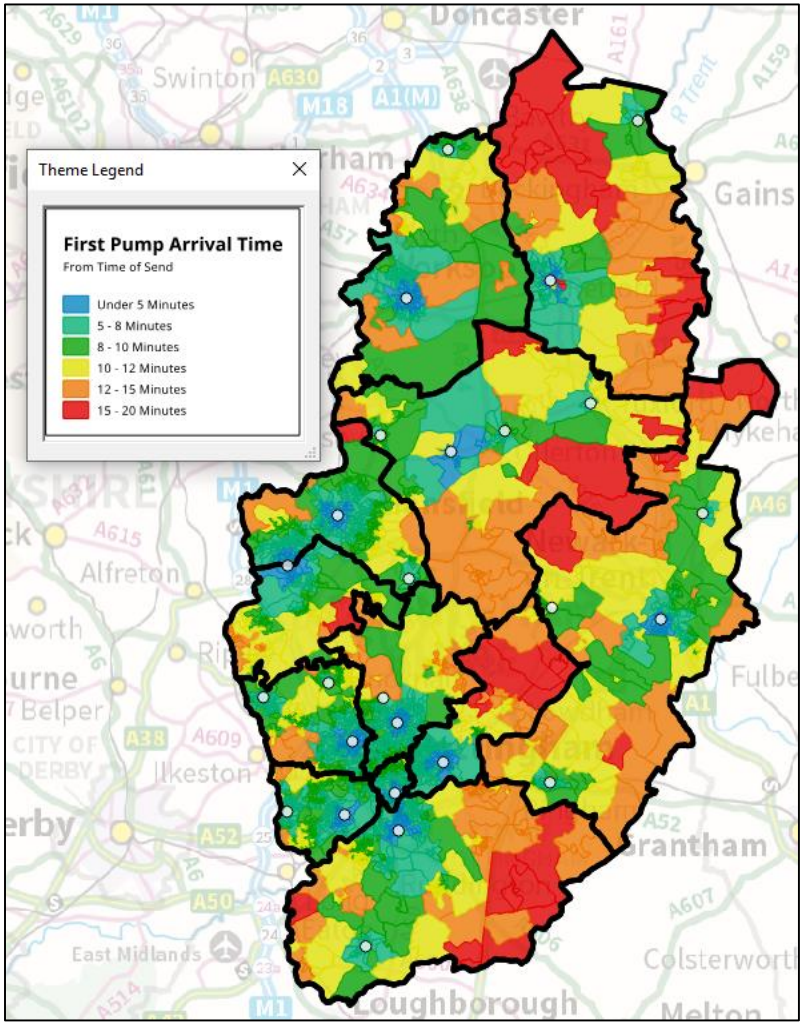


Mapping

- Likely Turnout Areas
  - Day and Night
  - Areas of Responsibility: SSRI allocation

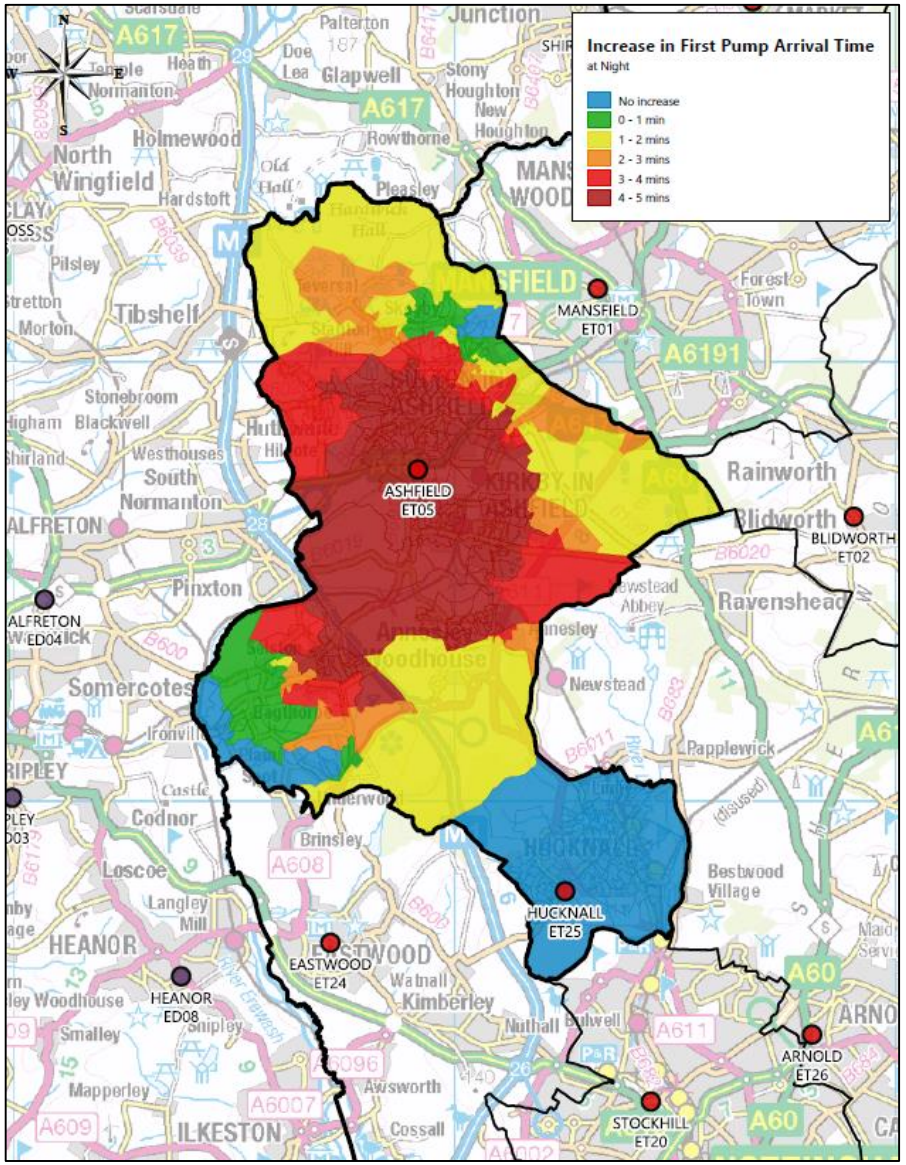
- Arrival Times
  - Identification of black spots: resource planning and engagement

- Backup to Dynamic Mobilising System
  - OA code added to Gazetteer entries to look up OOT
  - SIS Desktop Express backup system

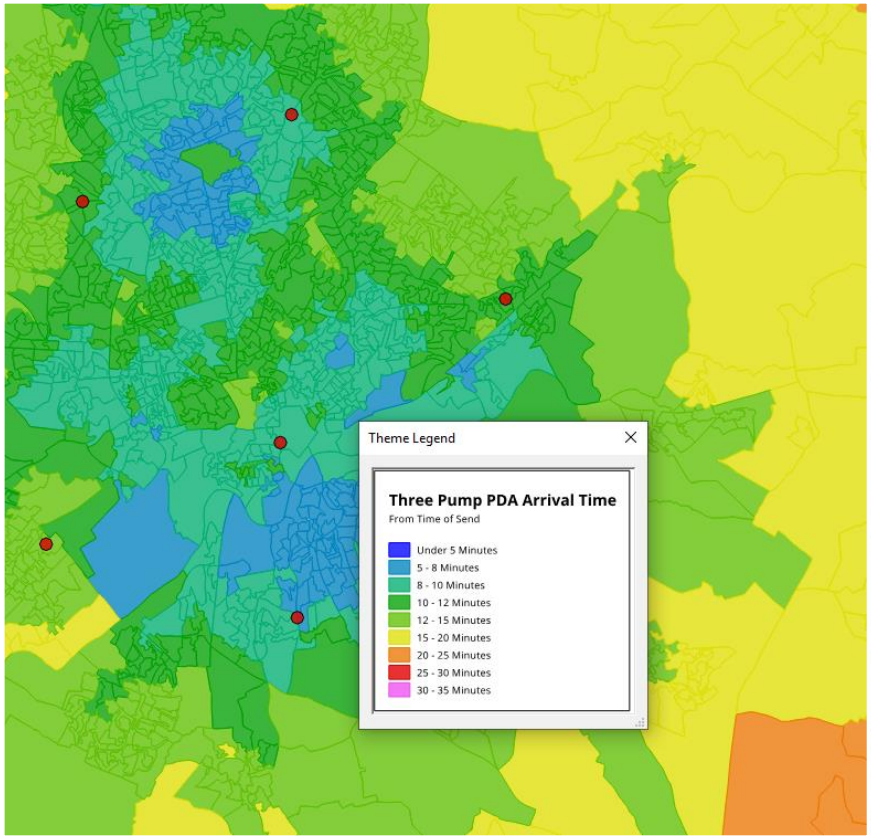


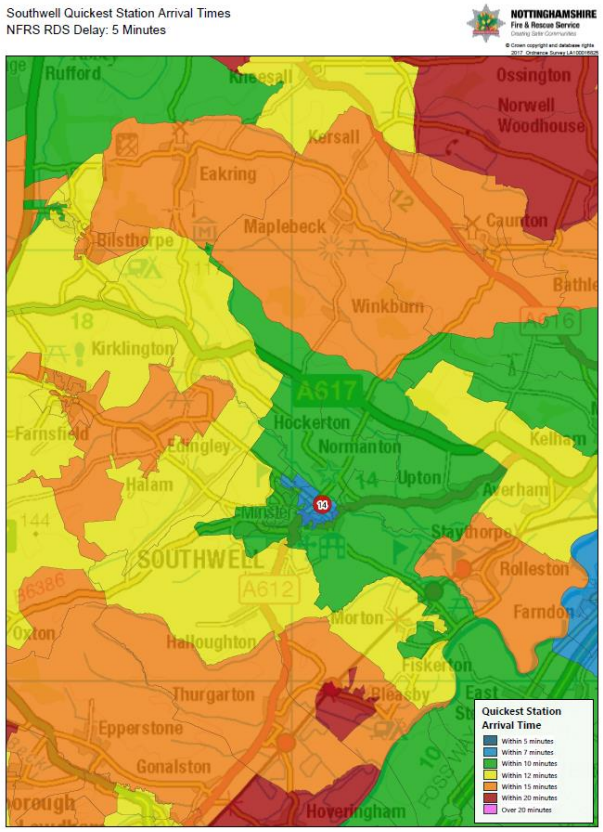
Modelling

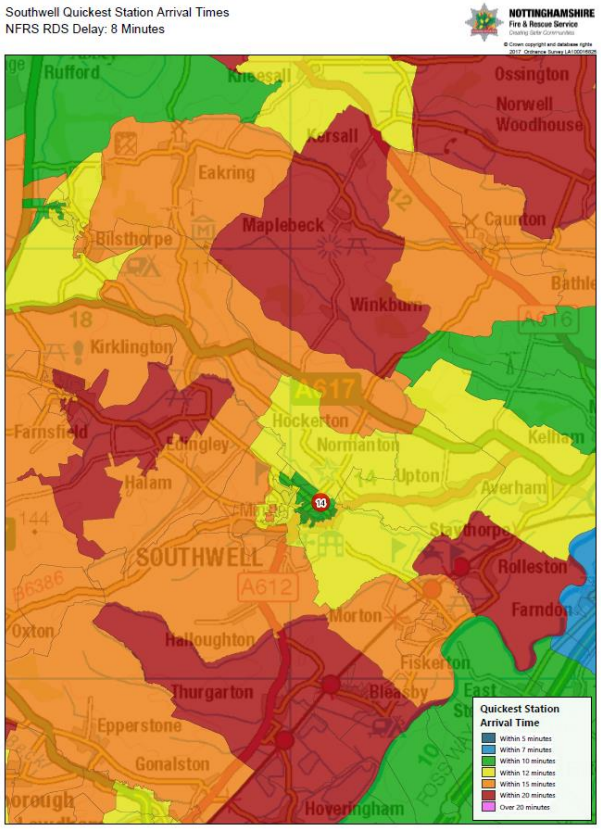
- Operational Changes
  - Mixed Crewing
  - Moving stations
- On-Call turn-in footprints
- Degradation policy
- Pre-Determined Attendance
  - High Rise: ALP
- Risk Models
  - Household Risk Index



Modelling


Theme Legend
Three Pump PDA Arrival Time
From Time of Send
Under 5 Minutes
5 - 8 Minutes
8 - 10 Minutes
10 - 12 Minutes
12 - 15 Minutes
15 - 20 Minutes
20 - 25 Minutes
25 - 30 Minutes
30 - 35 Minutes

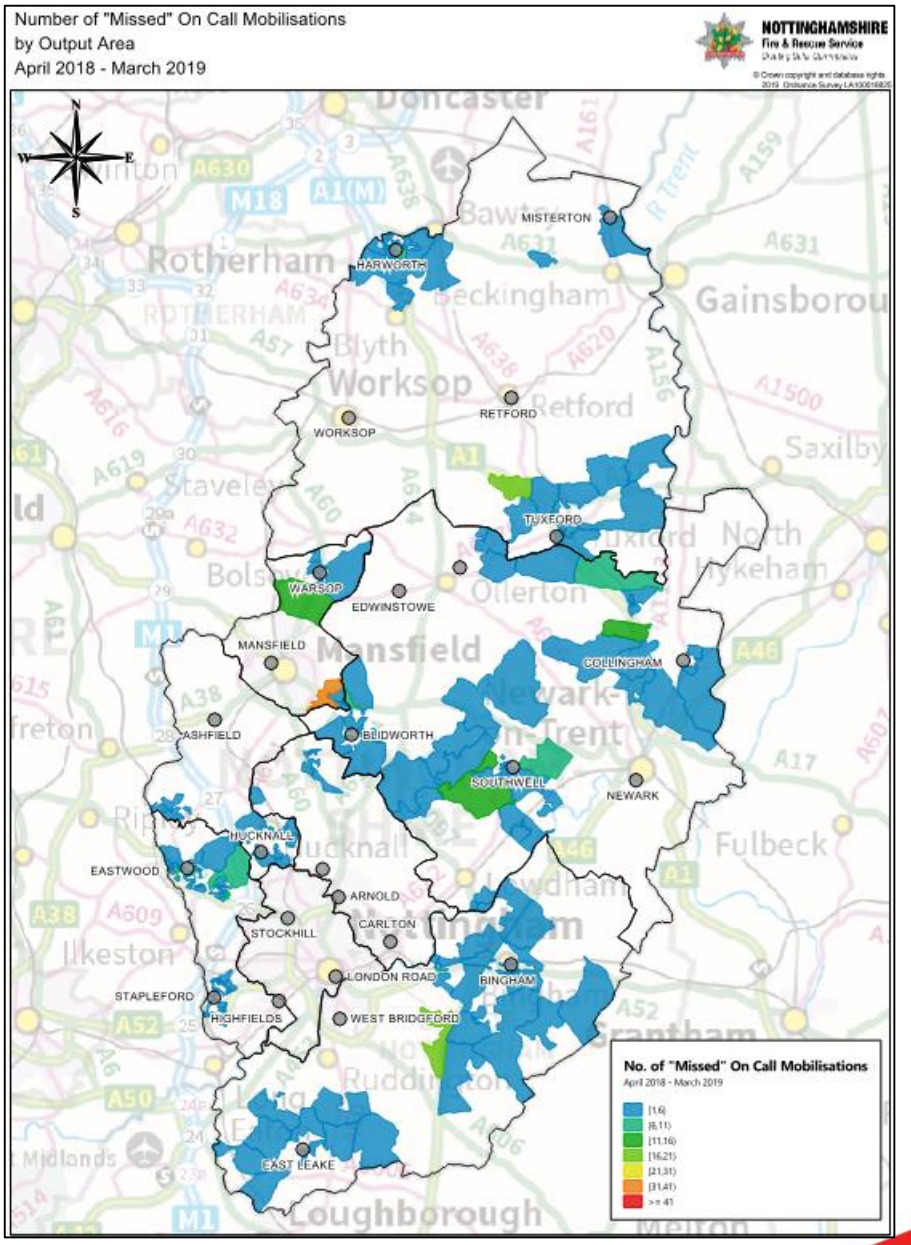

Southwell Quickest Station Arrival Times
NFRS RDS Delay: 5 Minutes
NOTTINGHAMSHIRE
Fire & Rescue Service
Rufford
Kirklington
Farnsfield
Halam
Edingley
Eakring
Kersall
Maplebeck
Bilsthorpe
Winkburn
Caunton
Ossington
Norwell
Woodhouse
Hockerton
Normanton
Upton
Averham
Kelham
Staythorpe
Rolleston
Farndon
Morton
Fiskerton
Bleasby
Thurgarton
Epperstone
Gonalston
Hoveringham
Oxton
Halloughton
SOUTHWELL
A617
A612
A616
Quickest Station Arrival Time
Within 5 minutes
Within 7 minutes
Within 10 minutes
Within 12 minutes
Within 15 minutes
Within 20 minutes
Over 20 minutes


Southwell Quickest Station Arrival Times
NFRS RDS Delay: 8 Minutes
NOTTINGHAMSHIRE
Fire & Rescue Service
Rufford
Kirklington
Farnsfield
Halam
Edingley
Eakring
Kersall
Maplebeck
Bilsthorpe
Winkburn
Caunton
Ossington
Norwell
Woodhouse
Hockerton
Normanton
Upton
Averham
Kelham
Staythorpe
Rolleston
Farndon
Morton
Fiskerton
Bleasby
Thurgarton
Epperstone
Gonalston
Hoveringham
Oxton
Halloughton
SOUTHWELL
A617
A612
A616
Quickest Station Arrival Time
Within 5 minutes
Within 7 minutes
Within 10 minutes
Within 12 minutes
Within 15 minutes
Within 20 minutes
Over 20 minutes

Analysis

- On-Call second appliance provision
- Mobilisations Out of Area
  - Tie in with On-Call Off The Run data
- Comparisons with actual attendance times
- Link to attendance standard
  - Average attendance time of 8 minutes from Time of Send

	A	B	C	D	G	H	I
1	POI	Pump 1	Pump 2	Pump 3	Time 1	Time 2	Time 3
2	Blidworth Primary School	BLIDWORTH Appl 1	MANSFIELD Appl 1	ASHFIELD Appl 1	6.177	14.963	15.778
3	British Gypsum	EAST LEAKE Appl 1	WEST BRIDGFORD Appl 1	LOUGHBOROUGH Appl 1	8.187	12.461	17.152
4	CLH Walkeringham	MISTERTON Appl 1	GAINSBOROUGH Appl 1	GAINSBOROUGH Appl 2	6.924	14.262	18.262
5	Collingham Hall	COLLINGHAM Appl 1	NEWARK Appl 1	NEWARK Appl 2	6.599	14.198	18.698
6	Eastwood Hall	EASTWOOD Appl 1	ILKESTON Appl 1	HEANOR Appl 1	7.131	11.986	12.1
7	Fairfield Primary School	STAPLEFORD Appl 1	LONG EATON Appl 1	ILKESTON Appl 1	6.092	10.135	10.286
8	Newcastle St, Tuxford	TUXFORD Appl 1	RETFORD Appl 1	EDWINSTOWE Appl 1	5.905	13.806	16.724
9	Premier Forest Sawmill	HARWORTH Appl 1	WORKSOP Appl 1	MALTBY Appl 1	7.83	15.145	16.183
10	Rolls Royce	HUCKNALL Appl 1	STOCKHILL Appl 1	STOCKHILL Appl 2	9.836	11.121	11.12101
11	Roundabout A46/A52	BINGHAM Appl 1	NEWARK Appl 1	LONDON ROAD Appl 1	8.521	14.45	16.905
12	Southwell Minster	SOUTHWELL Appl 1	NEWARK Appl 1	CARLTON Appl 1	9.353	19.079	20.222
13	Warsop Primary Care Centre	WARSOP Appl 1	EDWINSTOWE Appl 1	SHIREBROOK Appl 1	7.16	9.291	11.426



Variations

- Locality based Order of Turnout
  - Place names
- Different times of day
  - TrafficMaster Data
- With and without Over Border appliances

Used in conjunction with Cadcorp Workload Modeller