Royal Papworth Hospital
NHS Foundation Trust

Pandemic Surge Plan – COVID 19
Collaborative working across the Trust

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Key Messages

Purpose
In response to the COVID19 pandemic surge, Royal Papworth Hospital (RPH) received an increased number of patients requiring high level care both from within the region and outside. It is anticipated as part of the regional response that RPH will provide additional critical care (including national ECMO capacity) and step down facilities. This document provides information on the staged opening of facilities within our CCA and other areas to care for these people. It also identifies resource gaps. The document describes the planned use of the remaining areas to serve the emergency / urgent case load of the business as usual work at RPH.

Aim
RPH aims to provide up to 167 CCA beds, providing segregation for infective / non – infective patients as well as 20 step down beds. It aims to continue with emergency and urgent cardiology and surgical pathways, as well as maintaining the cancer pathway and urgent service to the patients with respiratory long term conditions.

Working Assumption
RPH will continue with some BAU activity, focusing on urgent and emergency work
RPH will utilise all their possible staff
Staff will be deployed from the region to help with the surge
Registered bedside practitioners will probably be mostly nurses, but this role can be provided by junior medics and AHP staff
HCSW / unregistered role, is a combination of the Essential Care Team and runners and can therefore be filled with any clinical staff.
Task teams will support the bedside care teams.
A surge staffing model will be delivered – this is a reduction of usual clinician to patient ratio and it would be expected that this was adopted across the region in all care settings.
Staff from across the region will be deployed to ensure familiarisation and training prior to entering into zone 2 of the surge model in preparation for opening Zone 3. Learning from the 1st surge in April 2020 demonstrated a quick progression from zone through to zone 3.

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Model for CCA resurgence:

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Delivering surge capacity while maintaining some elective activity.

CCA Surge plan –

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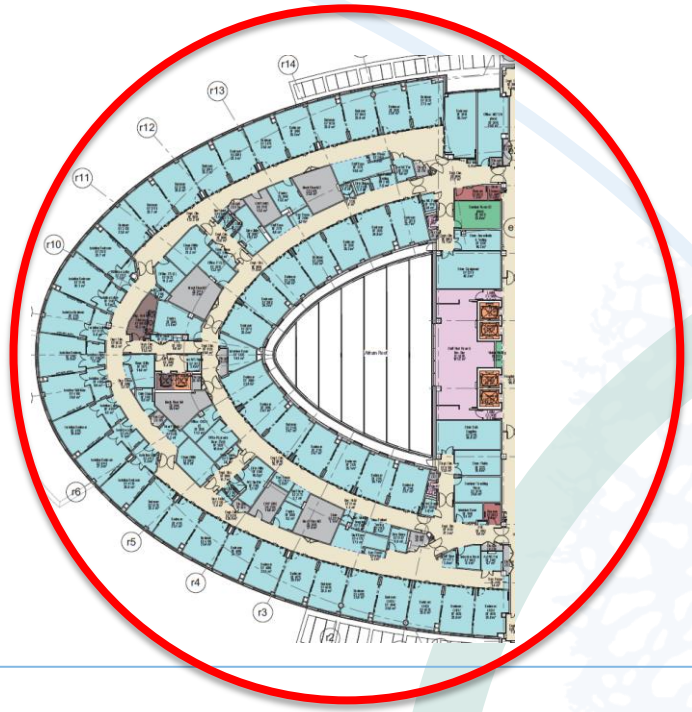
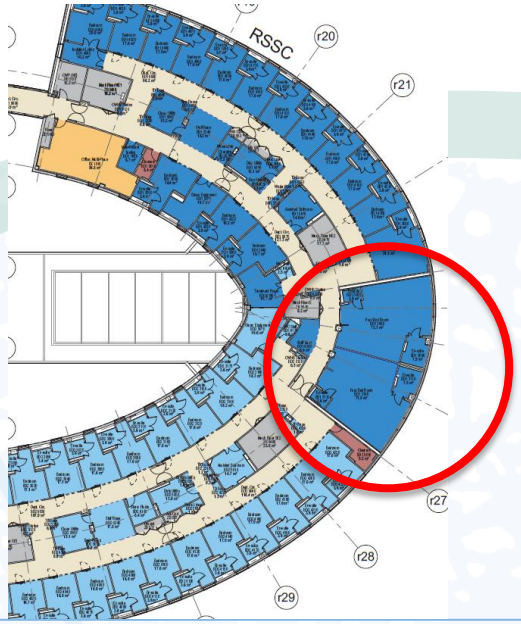
Zone 1

Move from 30 CCA beds to 46 beds in CCA



Zone 2
8 beds in 2 bays on 3 North



Total 54

Staffing resource requirements
Zone 1 and 2

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- Assumptions:
  - National Surge modelling applied to CCA and ward areas
  - ECMO numbers increased to 8 (from 4)
  - Hospital activity reduced and therefore internal resources used for surge zone 1 and external resources being deployed for familiarisation / training

	Zone 1 + 13 beds Daily	Extra staff (13 beds)	Zone 2 + 8 beds Daily	Extra Staff
Cat B 1:1 care	46	57	6	34.2
Cat A 1:4 care	Of which 11 are cat A	17.1	2	11.4
CCA Nurse 1:6	7	11.4	1	5.7
Senior cca 1:16	0	0	1	5.7
ECMO specialists	1	5.7*		
Lead CCA Covid Nurse	0	0	1	1
Medical support	1 junior 1 senior	11.4	1 junior 1 senior 1 senior clinician	17.1
HCSW / unregistered staff	3	17.1	1	5.7
AHP	1 Physio 1AP 1 Dietician 0.5 SALT 1 Pharmacist	5.7 1.9 0.5 1		
Total extra		91.2 Registered staff 11.4 medics 17.1 HCSW 9.1 AHP		57 registered staff 17.1 medics 5.7 HCSW

CCA Surge plan -

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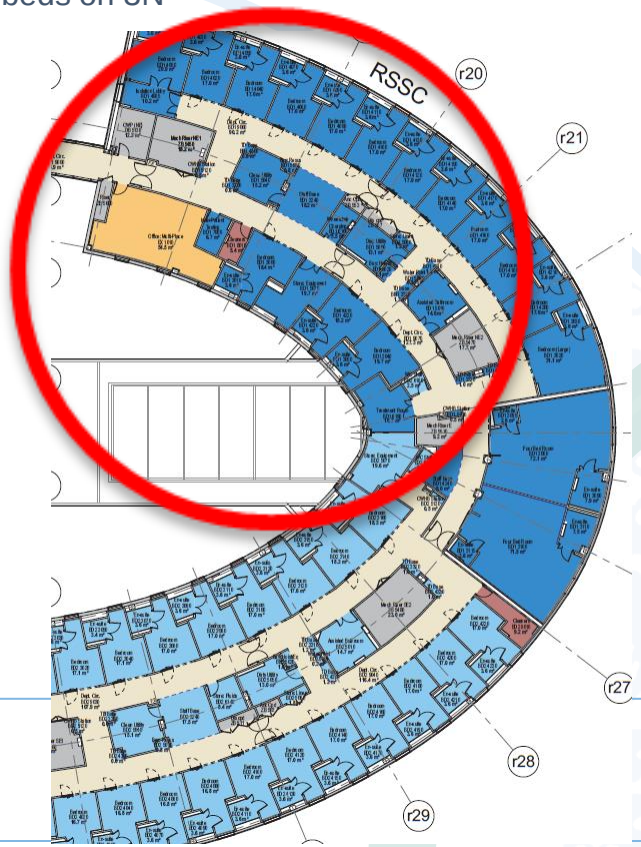
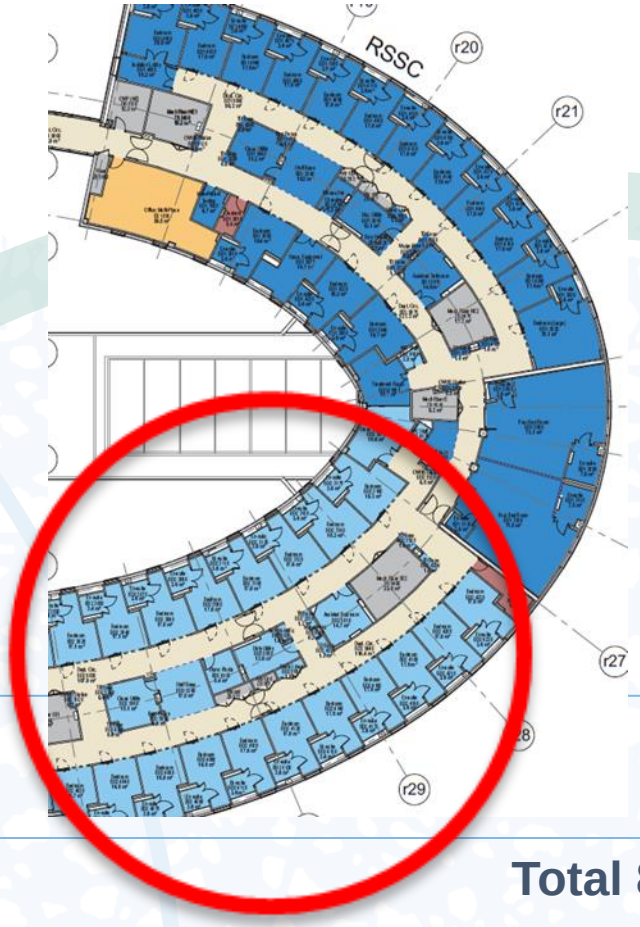
Zone 3

13 beds on 3N



Zone 4
20 beds on 3S



Total 87

Staffing resource requirements Zone 3 and 4

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- Assumptions:
  - National Surge modelling applied to CCA and ward areas
  - ECMO numbers increased to 12
  - Hospital activity reduced and therefore internal resources used for surge zone 1 and external resources being deployed for familiarisation / training. Zone 2 open.
  - *external staff required if not receiving critical care nurses or category A registered staff
  - ** Total number of bedside practitioners required if not receiving external cca staff, and therefore release of existing team from zones 1 and 2 to staff this area.

	Zone 3 + 13 beds	Extra staff	Zone 4 + 20 beds	Extra Staff
Cat B 1:1 care	10	57 (74.1*/ 91.2**)	15	85.5 (114* / 142.5**)
Cat A 1:4 care	3	17.1	5	28.5
CCA Nurse 1:6	2	11.4	3	17.1
Senior cca 1:16	1	5.7	1	5.7
ECMO specialist			1	5.7
Lead CCA Covid Nurse	0	0	1	5.7
Medical support	1 junior 1 senior 1 ECMO retrieval consultant	17.1	1 junior 1 senior 1 senior clinican 1 supervising consultant	22.8
HCSW / unregistered	4	22.8	7	39.9
AHP (7 day service, and 24 /7 for physio)	1 Physio 1AP 1 Dietician 0.5 SALT 1 Pharmacist	5.7 1.9 0.5 1	1+1 1 0.5	5.7 1.9 0.5
Total extra		91.2 registered staff 17.1 medics 22.8 HCSW 9.1 AHP		148.2 registered staff 22.8 medics 39.9 HCSW 8.1 AHP

CCA Surge plan –

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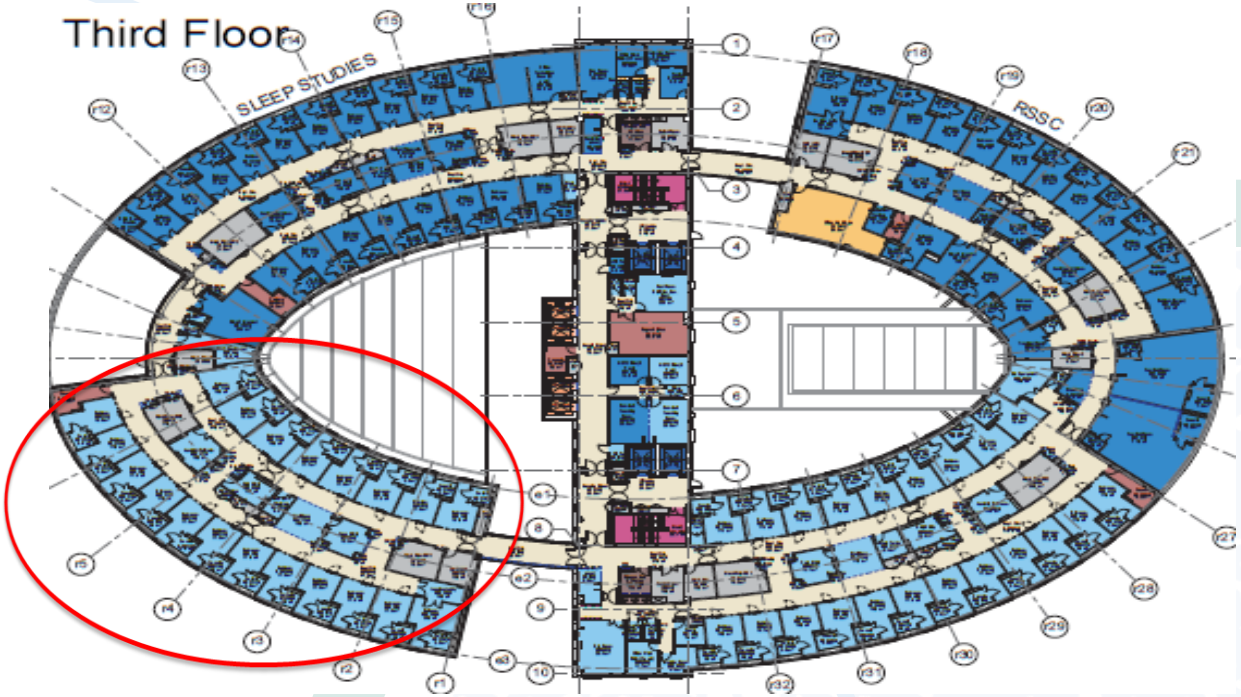
Zone 5

3 South(west) ward 20 beds



Total 107

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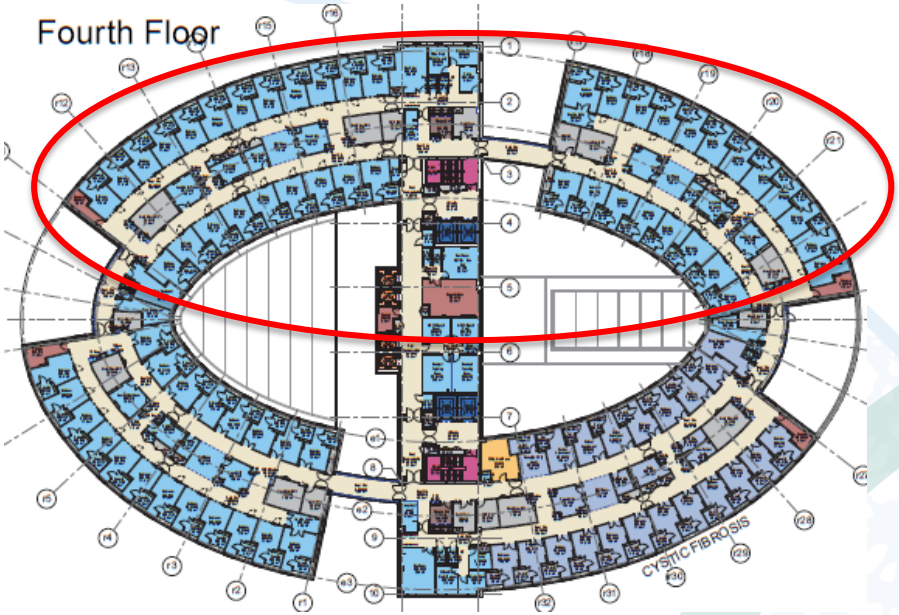
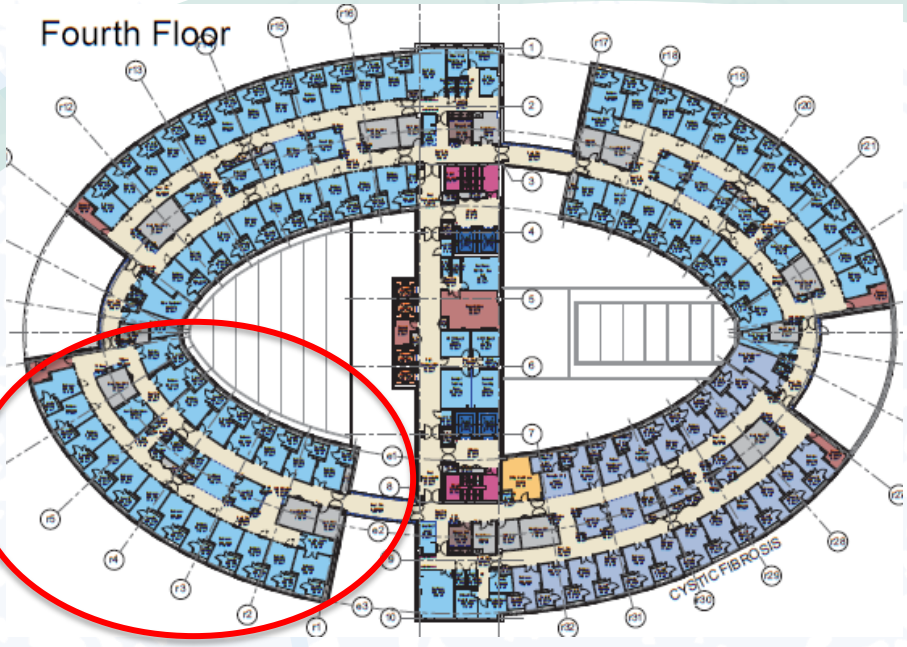
Zone 6

4 North ward 40 beds



Zone 7

4 South WEST east ward 20 beds



Total 167

Staffing resource requirements
Zone 5, 6 and 7

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- Assumptions:
  - National Surge modelling applied to CCA and ward areas
  - ECMO numbers increased to 20
  - *external staff required if not receiving critical care nurses or category A registered staff
  - ** Total number of bedside practitioners required if not receiving external cca staff, and therefore release of existing team from zones 1 and 2 to staff this area.

	Zone 5 + 20 beds	Extra staff	Zone 6 + 40 beds	Extra Staff	Zone 7 + 20 beds	Extra Staff
Cat B 1:1 care	15	85.5 (114* / 142.5**)	30	171 (228* / 279.3**)	15	85.5 (114* / 142.5**)
Cat A 1:4 care	5	28.5	10	57	5	28.5
CCA Nurse 1:6	3	17.1	6	34.2	3	17.1
Senior cca 1:16	1	5.7	2	11.4	1	5.7
ECMO specialist	1	5.7	1	5.7	0	0
Lead CCA Covid Nurse	0	0	1	5.7	0	0
Medical support	1 junior 1 senior 1 senior Clinician	17.1	2 junior 2 senior 1 senior Clinician 1 supervising consultant	34.2	1 junior 1 senior 1 senior Clinician	17.1
HCSW / unregistered	4	22.8	7	39.9	4	22.8
AHP	1Physio and AP 1 Dietician 0.5 SALT	5.7 1.9 0.5	2+2 2 1 1 Pharmacist	11.4 3.8 1 1	1+1 1 0.5	5.7 1.9 0.5
Total extra		148.2 registered staff 17.1 Medics 22.8 HCSW 8.1 AHP		285 registered staff 34.2 medics 39.9 HCSW 17.2 AHP		142.5 registered staff 17.1 Medics 22.8 HCSW 8.1 AHP

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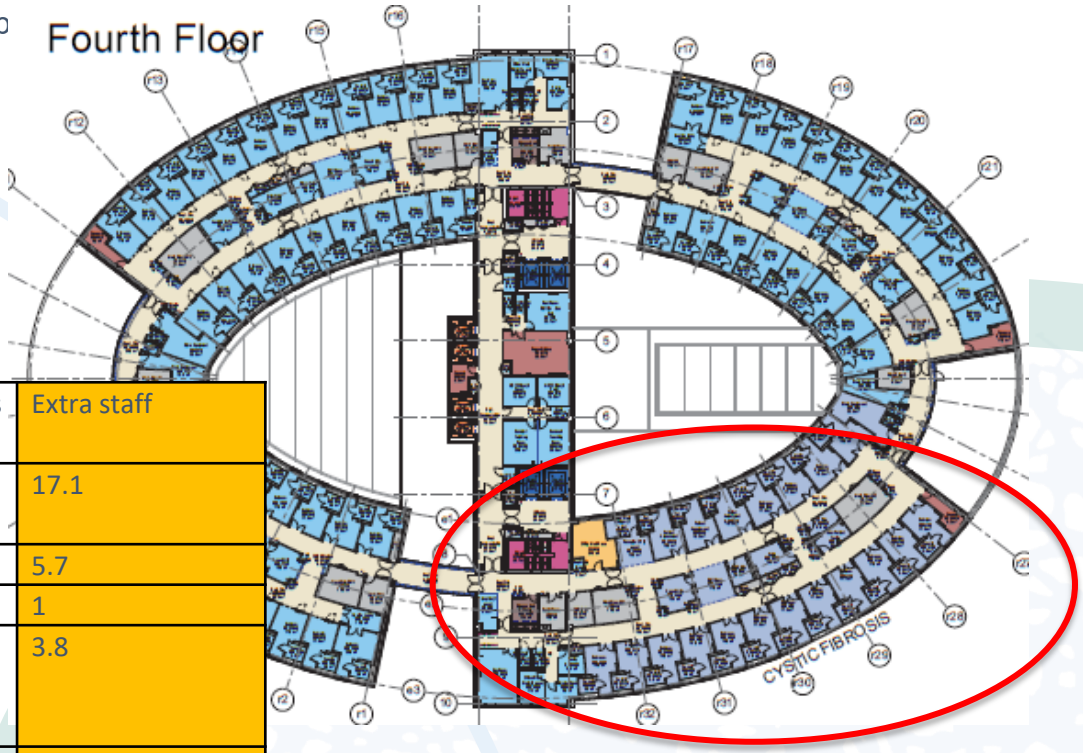
Zone 9

4 SE Additional 20 level 2 beds as Camp



	Step down + 20 beds Daily	Extra staff
Registered Nurses 1:8 ratio	3	17.1
Band 6 coordinator	1	5.7
Band 7	1	1
Medical support	1 junior / 1 ACP 1 senior Clinician	3.8
HCSW / unregistered	2	11.4
AHP	1 Physio + 1 AP 0.5 Dietician 0.5 OT	5.7
Total extra		44.7 WTE

Total 187

Task teams

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- Task teams add additional support to the direct care team. Learning from the 1st surge of the pandemic we would introduce the following

	Function	Resource
Essential care team	Support the bed side practitioner to provide personal cares, reposition or prone the patient.	Included in the HCSW teams, team leaders required (4 x 24/7)
Transfer team	A team that supports the movement of the patients around the critical care area and to and from ward areas / diagnostics	Staff redeployed from with RPH (external help appreciated)
Airway team	A rapid response team that is in addition to the normal arrest / emergency team with specialist skills in airway management	1 airway trained practitioner (usually medic) 24/7 1 ODP / anaesthetic practitioner / nurse 24/7
Vascular access team	A rapid response team that assists the normal team to gain or replace vascular access devices	1 scientist / reg practitioner24/7
Staff support and wellbeing team	A team that ensures staff have access to refreshment. Keeping the staff rest areas well stocked and tidy, providing a listening ear for staff (and escalation if required)	Any staff that are used to a hospital environment.

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Remaining urgent and emergency care / hospital usage

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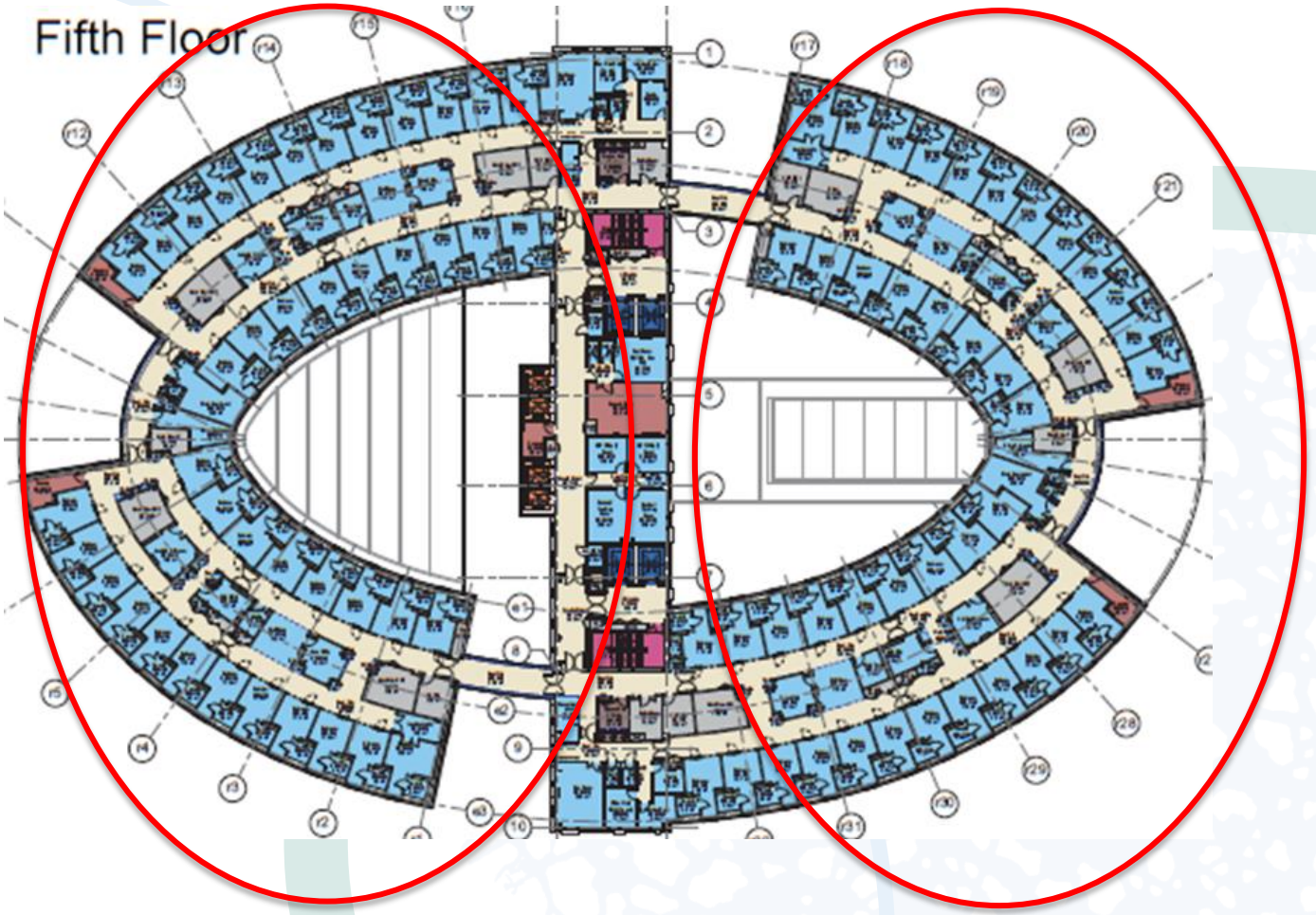
Zone 10 Elective capacity

5th Floor: 40 Surgical beds on East side, 40 Medical beds on the West side (circa 20 Cardiology, 20 Respiratory Medicine) with the North being non covid and south being covid pathway



Staffing resource requirements
5th Floor multifaceted care

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- Assumptions:
  - The top floor will be preserved for urgent and emergency cases and as much BAU as possible
  - Staffing will be based on current CHPPD for each speciality
  - This may be amended during a super surge but will not go below a ratio of 1RN : 8 Patient ratio
  - AHP and Pharmacy requirements for BAU and super surge are also considered.
  - There will be the ability to run a Covid and a non covid pathway

	CHPPD	Staff WTE	Staff break down to role
40 surgical beds	9	83	1 Sister, 11.4 Deputy Sister 51.3 staff nurse 5.7 NA / AP 13.6 HCSW
20 Cardiology Beds	7.6 + 12 hours for CRU	41.3	1 Sister, 5.7 deputy Sisters 26.05 staff nurse 8.55 HCSW
20 Thoracic medicine beds	7.4	34.7	1 Sister, 5.7 deputy sister 22.3 staff Nurse 2.85 NA / AP, 2.85 HCSW
Additional support	Patient Environment Assistants Runners for covid areas	6 12	6 PEA 12 HCSW / support role
AHP and Pharmacy needs		27.3 WTE AHP 6 WTE pharmacy staff	Physio: B7 x 2 B 6 x 5 B 5 x 2 B 4 x 4 B3 x 3 SALT: B7 x 0.5 B6 x 1 OT: B 7 x 1 B 6 x 2B5 x 2 Dietitians: B7 x 0.5 B 6 x 1.5 B 5 x 1SW 1.8 Pharmacy: B7 x3 B5 x3
Total		176 WTE nursing staff 33.3 WTE AHP and Pharmacy	

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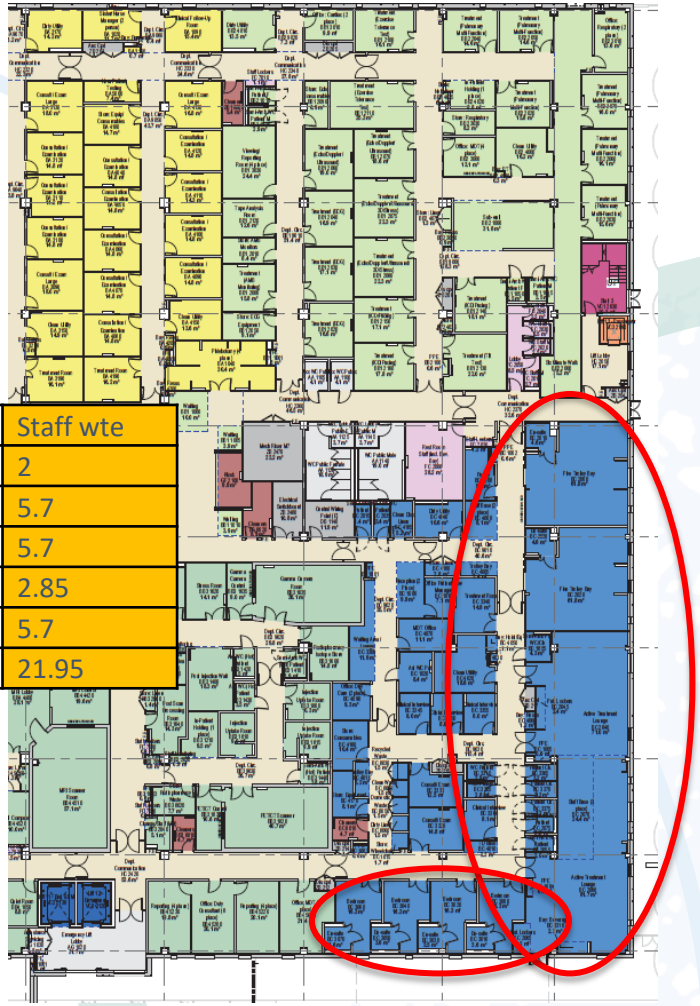
Zone 11 Elective capacity

Day ward – 15 beds staff 24 hours Monday to Saturday morning

	Day staffing	Staff wte
Sister / ANP	2	2
Deputy Sister	2	5.7
Staff Nurse	2	5.7
AP / NA	1	2.85
HCSW / unregistered	2	5.7
Total		21.95



Outpatient staffing:

Cath lab and theatre holding bays remain as is to support flow.

The **fifth floor** is the current surgical floor and it will be re-purposed as the elective floor.

5SE and 5NE will provide 40 surgical beds, one quadrant as a green zone and one as purple. 5SW and 5NW will be a mixed medical ward with one quadrant allocated as a green zone and one as purple.

Day ward will continue as a day ward but be staffed overnight for 15 beds Monday to Saturday. It will accommodate Cardiology elective day and short stay patients on a green pathway.

Outpatients will run a reduced service / telephone service to support avoiding hospital admission.

The staff that are released from the areas will be trained to work alongside Critical care staff in the expanded Critical care areas.

Critical Care would maintain 19 non covid 19 beds to enable BAU activity.

It is anticipated that this capacity will allow us to maintain:

- 50% of elective surgery,
- 60-80% of elective Cardiology
- 25-30% of elective Respiratory Medicine,
- All emergency and transplant pathways.

Discussions will be had with the Independent Sector to secure further elective capacity for Respiratory patients, most of whom will be shielding and reluctant to attend a surge response site.

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RPH capability for capacity expansion with existing nurse resources

- 697.31 ward staff (budget) ? In post
- +specialist ANP
- + out patient
- Zone 1, Zone 2 (54 CCA beds – 19 BAU and 35 covid beds), Day ward, out patient, BAU on top floor (40 beds), and step down (20 beds) = 656.19 WTE

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Resources

- Staff
- Additional Revenue
- Equipment

Possible staffing solution

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- Option 1
  - RPH staff used to open extra capacity:
    - Zone 1 and Zone 2 of Critical care surge (19 BAU and 35 Covid Surge Capacity)
    - 5th Floor BAU
    - Day ward and Out Patients
    - Step down ward
      - Circa 700 WTE ward staff and specialist nurses, total required 676.19WTE
- Option 2
  - RPH staff used to open extra capacity (focus on Critical care capacity)
    - Zone 1 and Zone 2 and 6 beds of Zone 3 (19 BAU and 41 Covid Surge Capacity)
    - 5th Floor BAU
    - Day ward and Out Patients
    - Step down ward opened when staff deployed from external providers

Total required staff resource
For additional Surge (Zone 3 onwards)

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Staff	Total additional staff CCA (step down)	Possible banding	WTE	Cost per WTE	Indicative monthly cost	Indicative full year cost
Cat B 1:1 care	484.5 (17.1)	Band 5	484.5	41,229	1,664,605	19,975,254
Cat A 1:4 care	159.6	Band 5	159.6	41,229	548,340	6,580,084
CCA Nurse 1:6	96.9 (5.7)	Band 6	96.9	51,921	419,265	5,031,184
Senior cca 1:16	34.2 (1)	Band 7	34.2	60,076	171,215	2,054,584
ECMO specialist	17.1	Band 7	17.1	60,076	85,608	1,027,292
Lead CCA Covid Nurse	11.7	Band 8a	11.7	67,370	65,686	788,230
Medical support	6 junior (2.8)	Various	6	52,536	26,268	315,216
	6 senior (1)		6	81,528	40,764	489,168
	4 senior clinicians		4	81,528	27,176	326,112
	3 consultants		3	120,000	30,000	360,000
HCSW / unregistered	148.2 (11.4)	Band 3 (50% split w below)	74.1	30,359	187,466	2,249,594
		Band 3 (50% split w above)	74.1	32,056	197,944	2,375,324
AHP	50.6 (5.7)	Band 6	50.6	42,144	177,707	2,132,486
Total extra	**940.7 (44.7)**	**Total Cost**	**1021.8**		**3,642,044**	**43,704,529**
Task teams	5.7 Medics	Consultant	2.85	107,532	25,539	306,466
		Registrar	2.85	81,528	19,363	232,355
	34.2 AHP / Nurse / Others	Band 6	34.2	51,921	147,975	1,775,698
Grand Total			**1061.7**		**3,834,921**	**46,019,048**

Summary

Grade	WTE	Monthly cost	FY Cost
Consultant	13.00	97,940	1,175,280
Jr Dr	6.00	26,268	315,216
Band 8a Nurse	11.70	65,686	788,230
Band 7 Nurse	51.30	256,823	3,081,876
Band 6 Nurse	96.90	419,265	5,031,184
Band 5 Nurse	644.10	2,212,945	26,555,338
Band 3 HCSW	74.10	197,944	2,375,324
Band 2 HCSW	74.10	187,466	2,249,594
Band 6 AHP	50.60	177,707	2,132,486
Total Cost	**1021.80**	**3,642,044**	**43,704,529**
Task Team:			
Consultant	2.85	25,539	306,466
Registrar	2.85	19,363	232,355
Band 6	34.20	147,975	1,775,698
Grand Total	**1061.70**	**3,834,921**	**46,019,048**

Surge AHP / Pharmacy staff requirements

- Additional surge staff

AHP / Pharmacy	WTE	Cost per WTE	Indicative monthly cost	Indicative full year cost
Band 4	19.95	30,480	50,673	608,076
Band 5	8.55	41,229	29,375	352,504
Band 6	27.65	51,921	119,636	1,435,627
Band 7	4	60,076	20,025	240,302
	60.15		**219709**	**2636509**

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Additional Revenue costs

- FM services:
  - Additional cleaners (enhanced cleaning, increased exit / deep cleans) = £75k/month
  - Additional housekeepers = £15k/month
  - Additional portering (waste removal / sample collection) = £15k /month
  - Additional security = £15k per month
  - Management costs – including Trust Estates and Facilities team, Clinical Engingeering and service providers) = £25k/month
  - Additional Linen costs = £15k/month
  - Additional staff changing facilities =£15k/month
  - Total FM costs £175k/month

- IT services:
  - Metavision licences are required for Critical care bed spaces
  - We have 94 licences until December, and would require an addition 73 to service the 167 critical care beds.
  - 73 x £750 +vat = £54,750

Equipment

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To achieve the described model the trust will need to be provided with

- We have 124 ventilators currently + consumables , we would require additional **43** ventilators for 167 Level 3 beds.= Total 167 (We currently have 154 available but would also need the associated consumables)
- PPE to deal with increased patients and Drugs (sedation etc). Pre-prepared syringes of frequently used continually infused drugs. PPE stocks are strong and becoming more self sufficient with the exception of anti-fog masks
- We would require additional **121*** bed mattresses. (As all beds in the hospital function as ICU Grade)
- hemofiltration aquarious and consumable's (1 to every 2 bed spaces) includes 20 step down beds = 187 in total required. (we currently have 29) therefore require **65** Hemofiltration machines.
- volumetric pumps – we need 2 per every level 3 bed space and 1 for every level 2 space. = 354 (minus 100 pre covid) = requirement **254**
- fresunus injectamats ,(Syringe drivers) require 5 pumps per bed space (level 3) and 2 per very level 2 patient , plus 5 on ECMO retrieval trolley plus 5 on transfer trolley = 885 in total (minus 218 already pre surge) =**667**** requirement
- Flocare NG feed pumps and access to feed 1 per bed space (we have 25* at beginning of SURGE) Therefore **162** Pumps required to meet 187 beds**
- **Additional IT** Server capacity TBC

*only accounts for CCA equipment

** Unlikely to be able to purchase, support in sourcing required

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Appendices

- Stepping up of CDC and C+C
- Enacting surge plan (CDC)
- Redeployment of staff
- IPC team input
- Workforce triggers
- Deployment of equipment (including PPE)