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**Digital Switchover (DSO) Programme**

**Radio DSO Block 11B Bournemouth**

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## Document Details

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## 1 Bournemouth DSO narrative

The current allocation on 11B for Bournemouth has been implemented with three transmitters. It is proposed to extend the existing area to the west to encompass Shaftesbury, Sherbourne, Dorchester and Weymouth.

The proposed block 11B allocations are shown below figure 1.1 below and include Perth & Dundee, Cumbria, Teesside, Bradford & Huddersfield, Wolverhampton, Leicestershire, Norfolk, Bristol & Bath, Cornwall and Sussex.

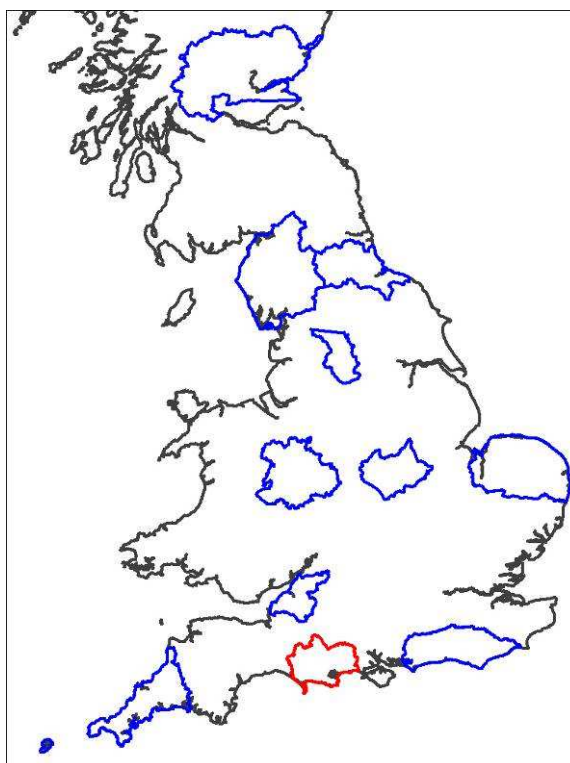


Figure 1.1: Proposed Block 11B allocations

In planning for each multiplex Ofcom have required coverage assessments:

- For each area four maps should be produced as follows:
  1. **Current Situation** - Map showing current actual coverage (or launch plans where a multiplex has not yet launched), including any transmitters which are required as part of the current licence, but which are not yet operational.
  2. **Modified Network 1** - Map showing the above, plus any improvements to existing infrastructure.
  3. **Modified Network 2** - Map of the above, plus additional smaller infill transmitters focused on areas where FM coverage is robust.
  4. **Modified Network 3** - Map of the above, plus additional transmitters to provide near universal coverage.

For case 1: Current situation

The current allocated transmission characteristics are:

Site name	ERP	Site height m a.o.d.	Antenna height a.g.l	Antenna type
Nine Barrow Down	1kW	201m	12.5m	Yagis
St Catherine's Hill	0.5kW	42m	38m	Cardioids
Winterborne Stickland	0.25kW	157m	48m	Cardioids

The coverage for the launch situation is shown in figure 2.1.

For case 2: Modified Network 1

It is proposed to increase the ERP at all three sites. The coverage of the Modified Network 1 is shown in figure 2.4. It will be noted that moving to case 2 causes a significant decrease in both population and road coverage. This is due to Case 1 being considered with only current interferers but case 2 being considered with future interferers. If Case 2 was considered with only current interferers it would give an improvement over Case 1 of 8% population and 6% road coverage.

For case 3: Modified Network 2

In this it was required to cover those areas currently served robustly by local FM services (BBC Local and Independent Heart – South Coast). To achieve this two additional sites are required. The coverage of the Modified Network 2 is shown in figure 2.7.

For case 4: Modified Network 3

For this case it was required to 'fill' the multiplex to achieve near universal coverage (within practical planning limits). Two additional sites have been proposed to cover this. The coverage of the Modified Network 3 is shown in figure 2.10

## 1.1 Outgoing interference and sensitivity to other co-block multiplexes

There is a significant impact on the Bristol & Bath multiplex from the DSO proposal contained within this document. There is some impact on Sussex, Cornwall and Leicestershire.

Bournemouth is severely affected by co-block interference from the Sussex multiplex. There is also some interference from Cornwall and Bristol & Bath.

The general 'Benchmark' for indoor and outdoor co-block interference protection is for 99% time; however, as mentioned above, outdoor coverage is affected more than is desirable from 1% time interference. Hence, coverage has also been assessed at 95% time for outdoor coverage only, gaining 16% in terms of road km.

## 2 Coverage of the Multiplex

### 2.1 Coverage Maps

Coverage maps for the DAB are presented with three colours:

Blue = Mobile coverage (99% locations at 99% time)

Dark Green = Indoor coverage (80-95% locations at 99% time)

Light Green = Robust indoor coverage (>95% locations at 99% time)

Figure 2-1	Case 1: Current Situation
Figure 2-2	Case 1: Current Situation mobile 99% time
Figure 2-3	Case 1: Current Situation mobile 95% time
Figure 2-4	Case 2: Modified Network 1
Figure 2-5	Case 2: Modified Network 1 mobile 99% time
Figure 2-6	Case 2: Modified Network 1 mobile 95% time
Figure 2-7	Case 3: Modified Network 2
Figure 2-8	Case 3: Modified Network 2 mobile 99% time
Figure 2-9	Case 3: Modified Network 2 mobile 95% time
Figure 2-10	Case 4: Modified Network 3
Figure 2-11	Case 4: Modified Network 3 mobile 99% time
Figure 2-12	Case 4: Modified Network 3 mobile 95% time

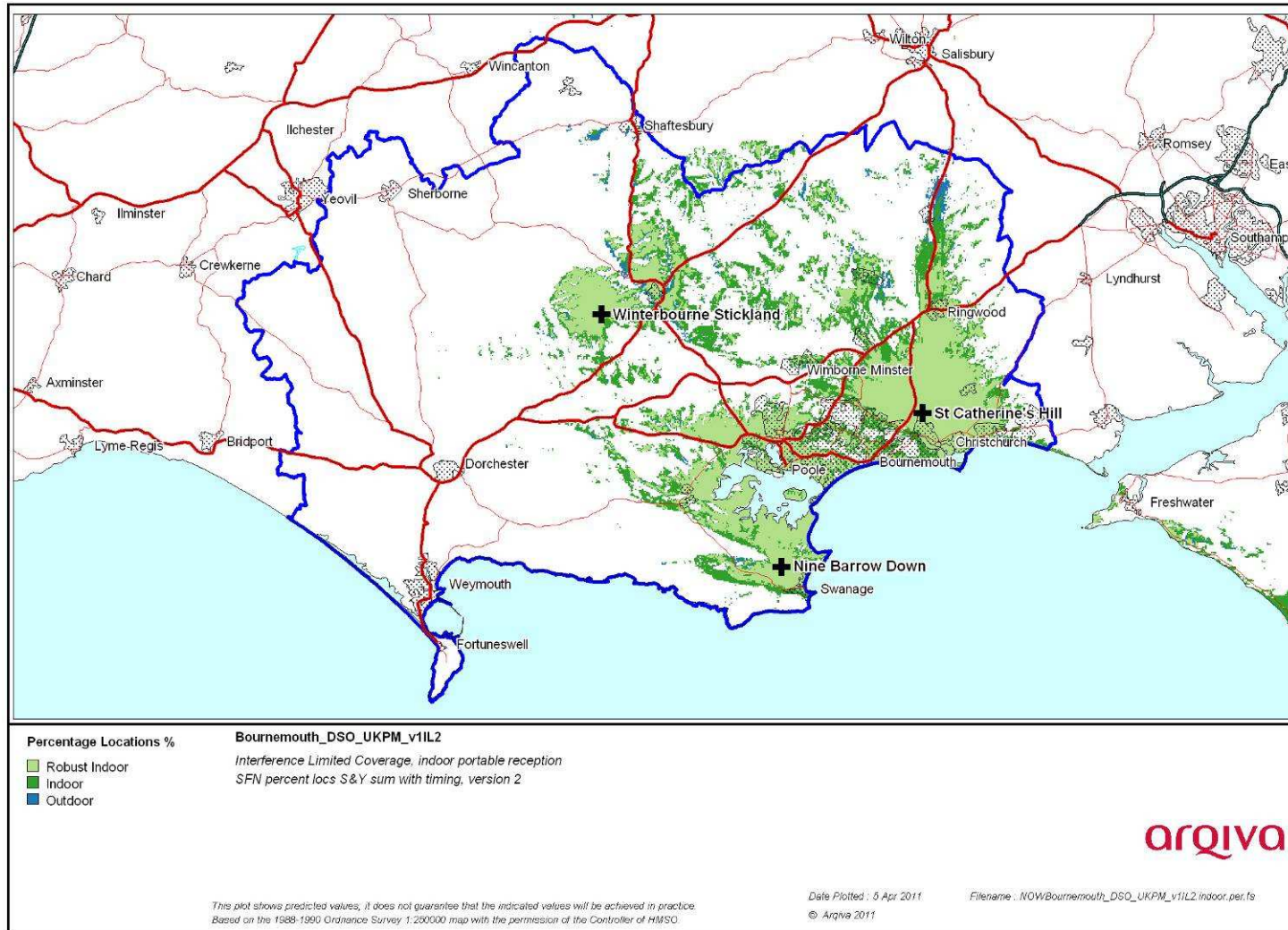


Figure 2-1. Current Situation

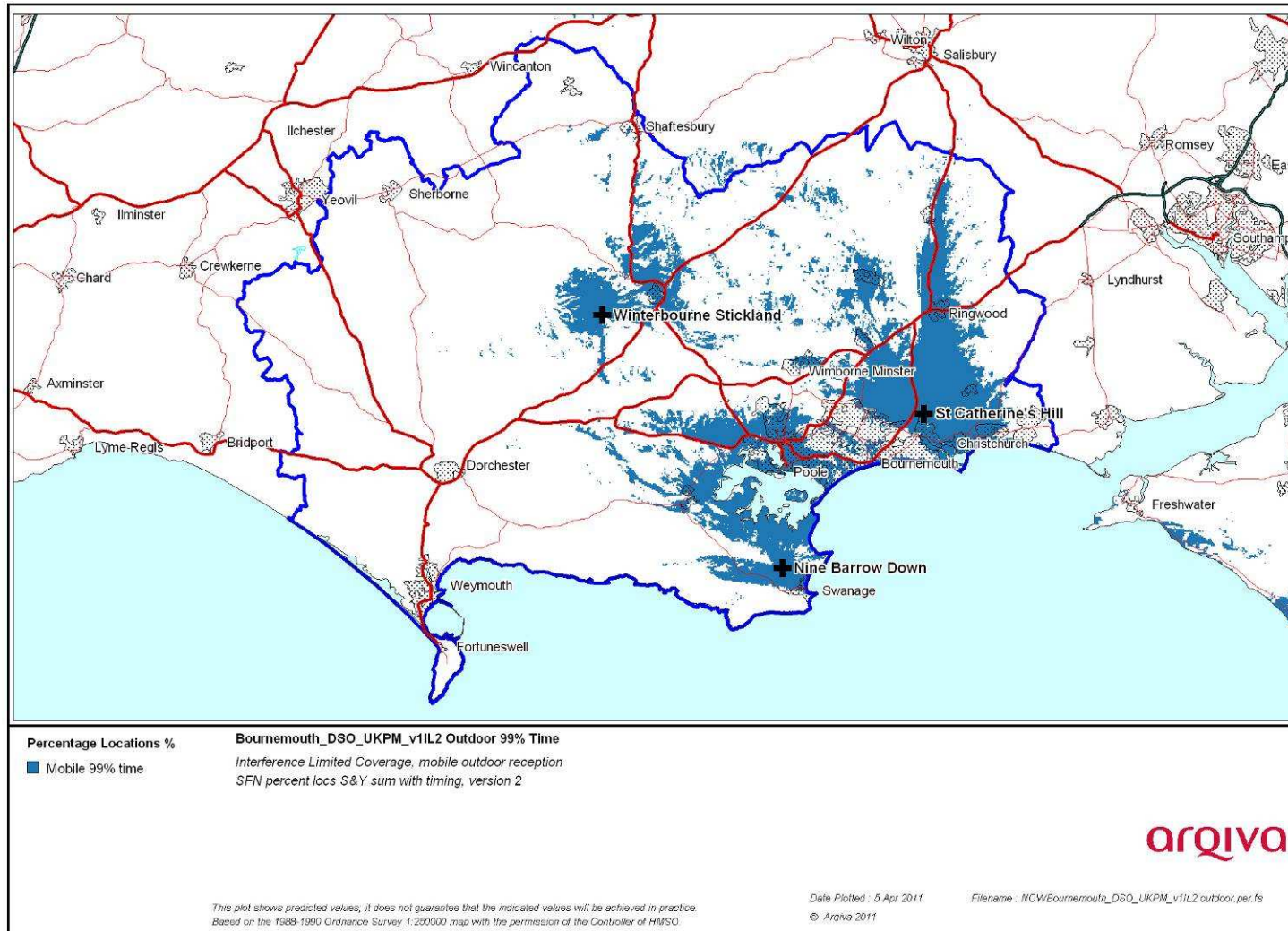


Figure 2-3 Current Situation mobile 99% time



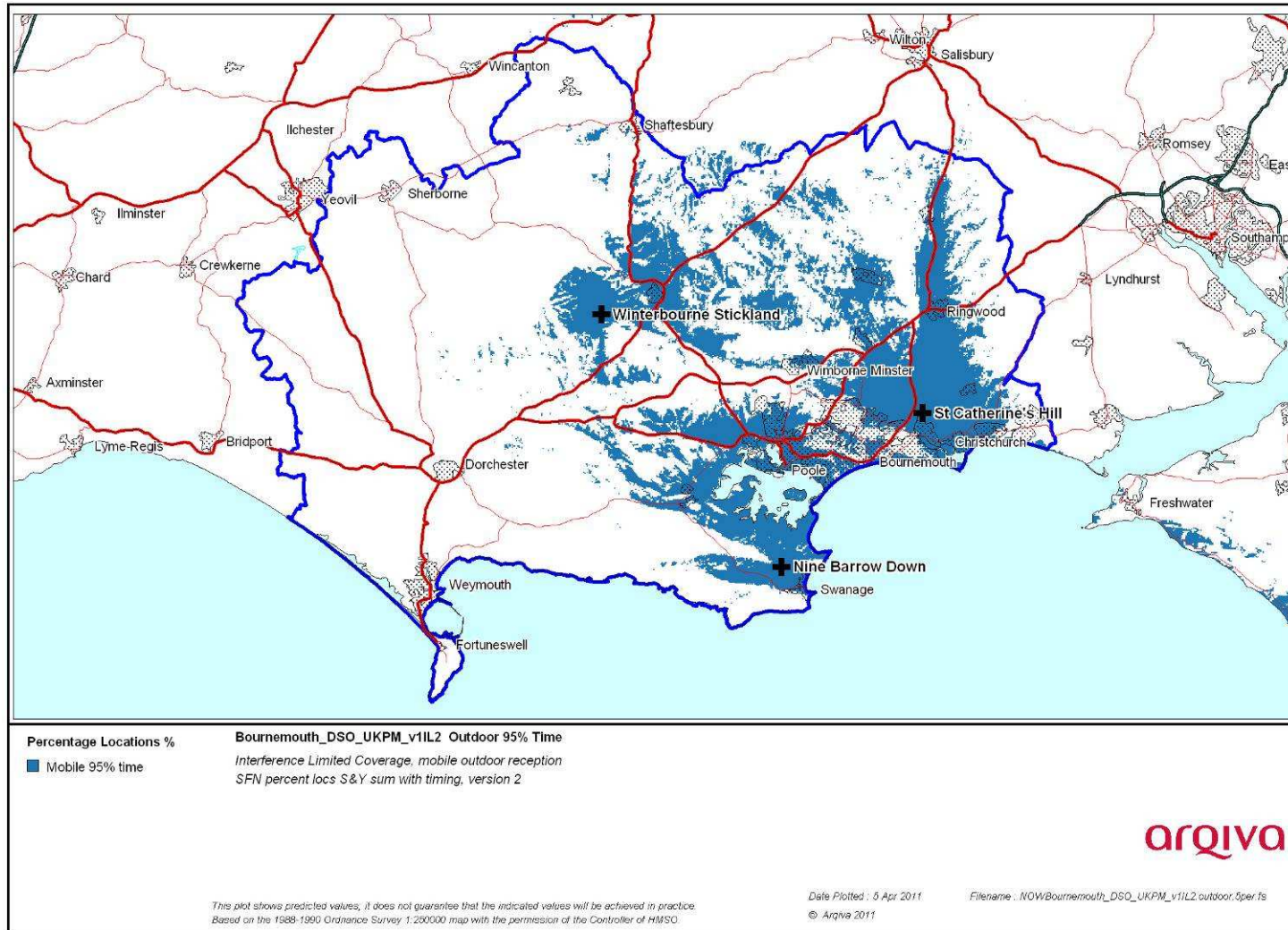


Figure 2-3 Current Situation mobile 95% time

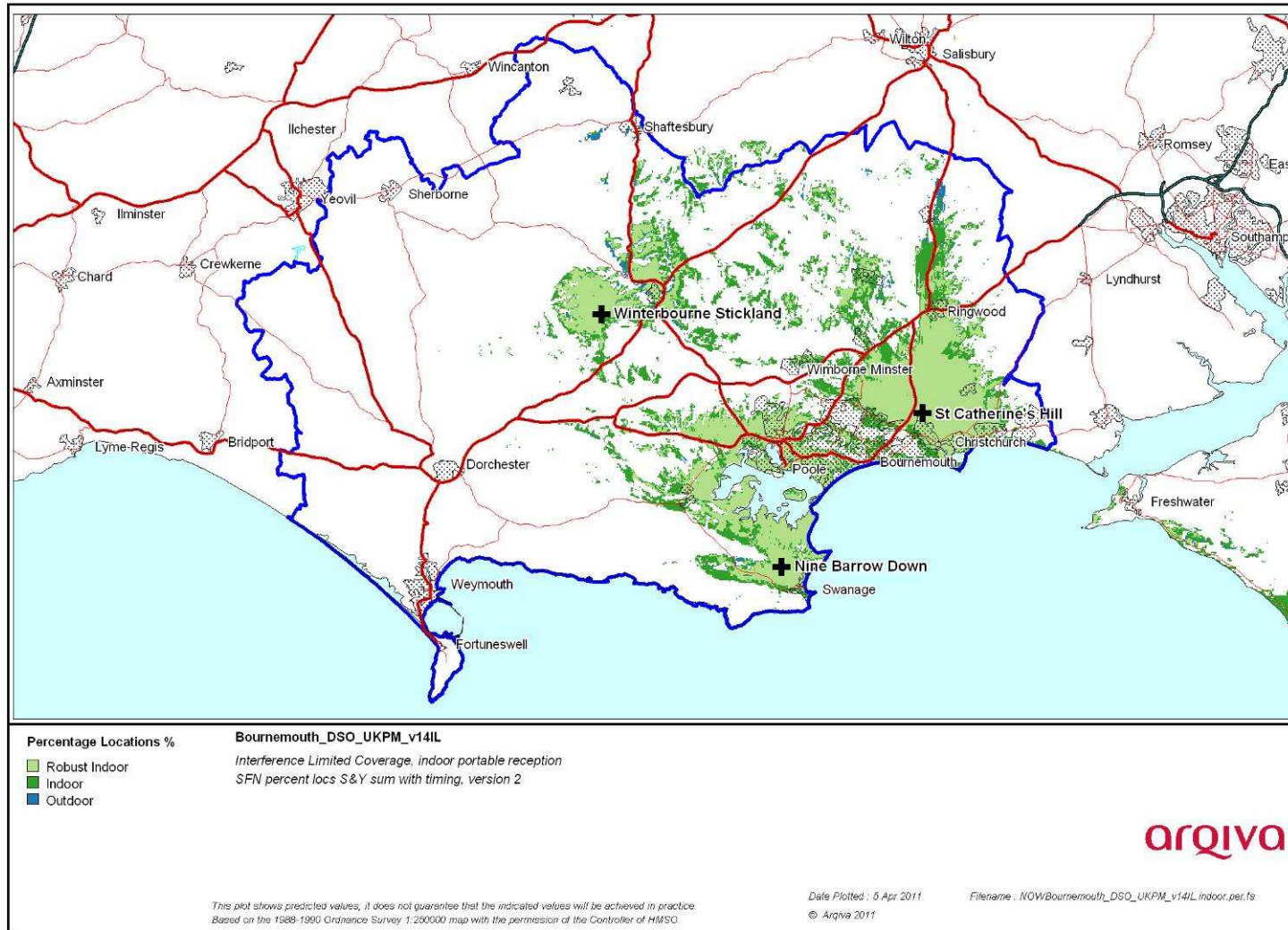


Figure 2-4 Modified Network 1

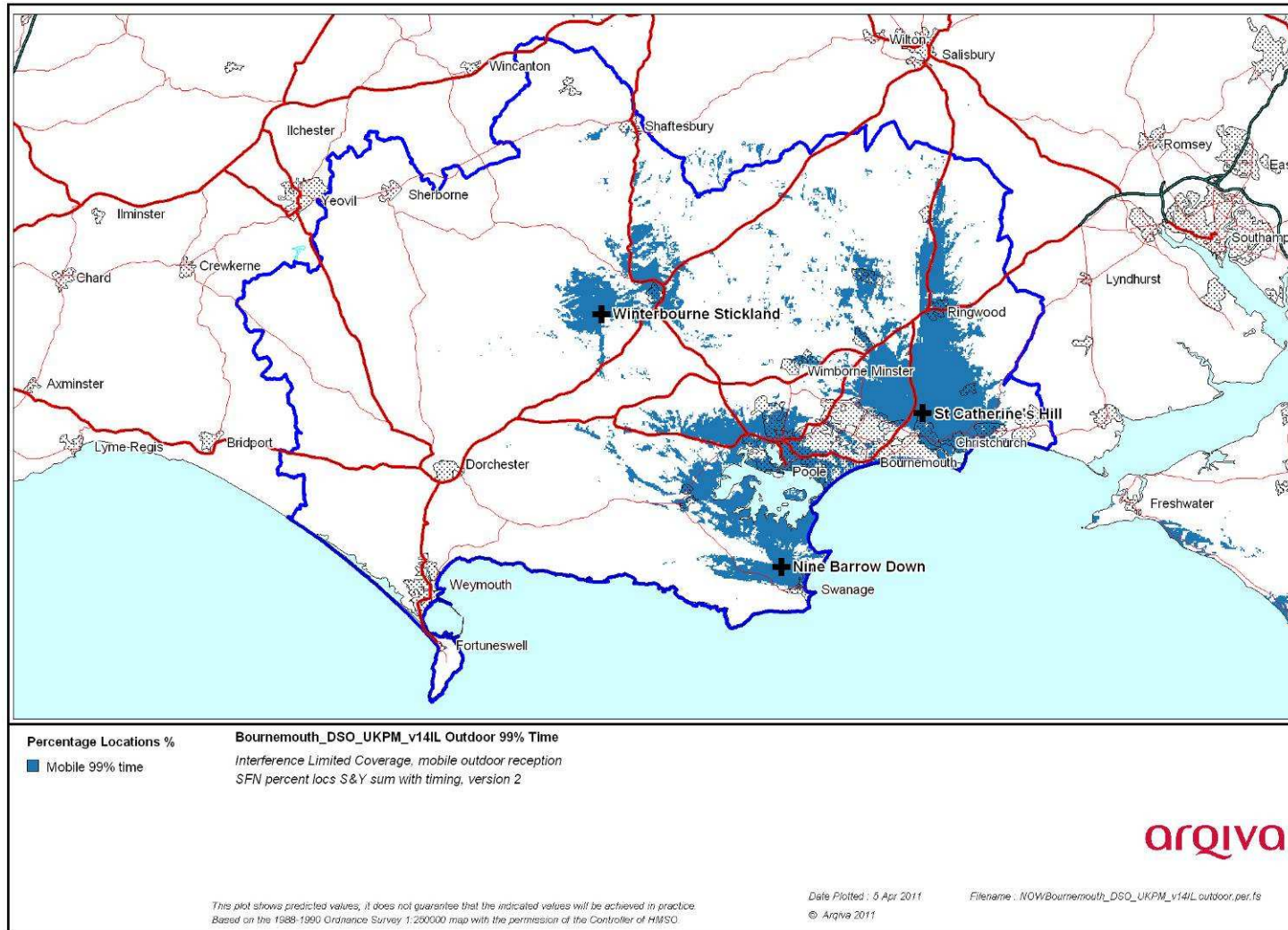


Figure 2-5 Modified Network 1 mobile 99% time



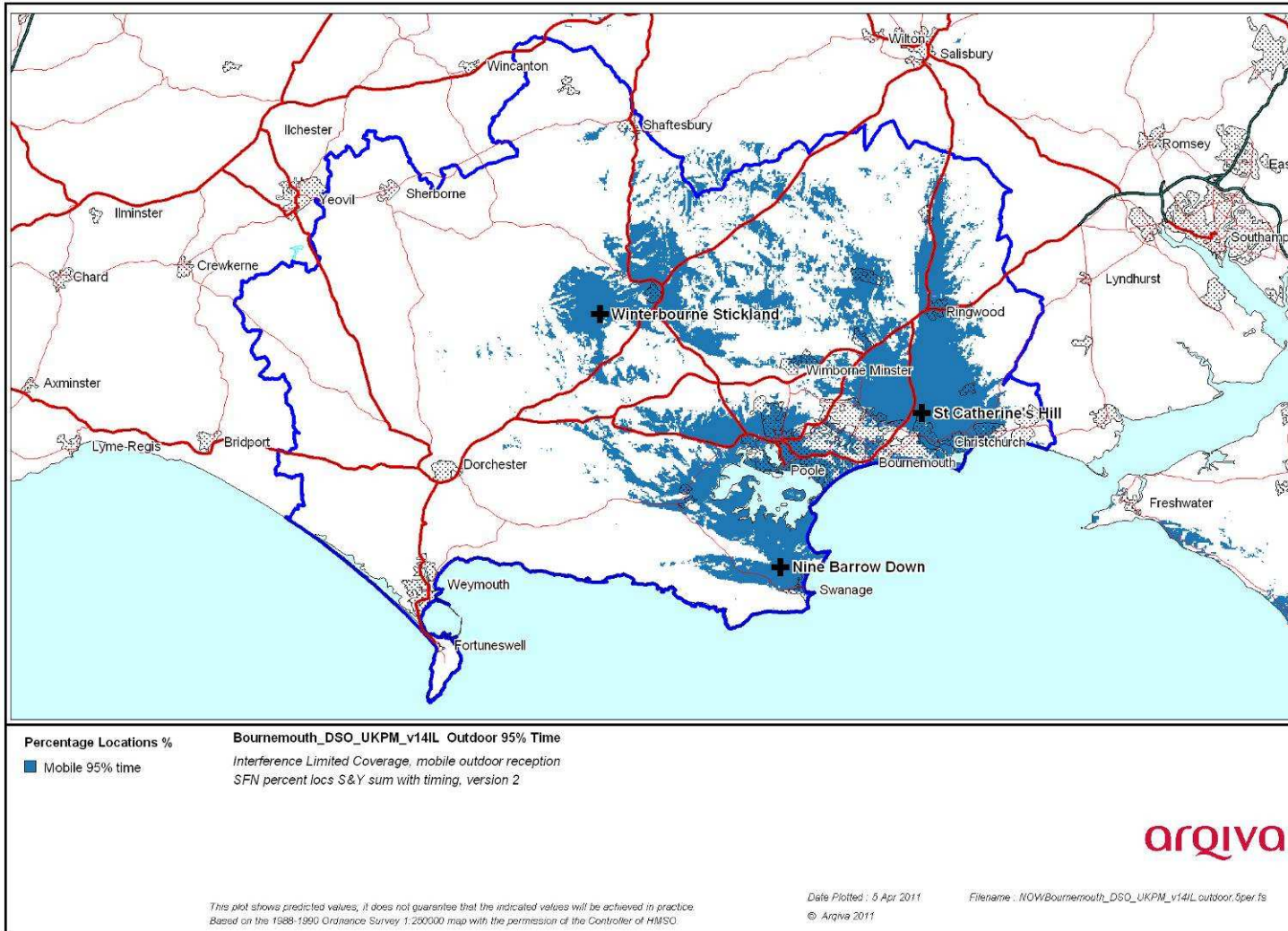


Figure 2-6 Modified Network 1 mobile 95% time

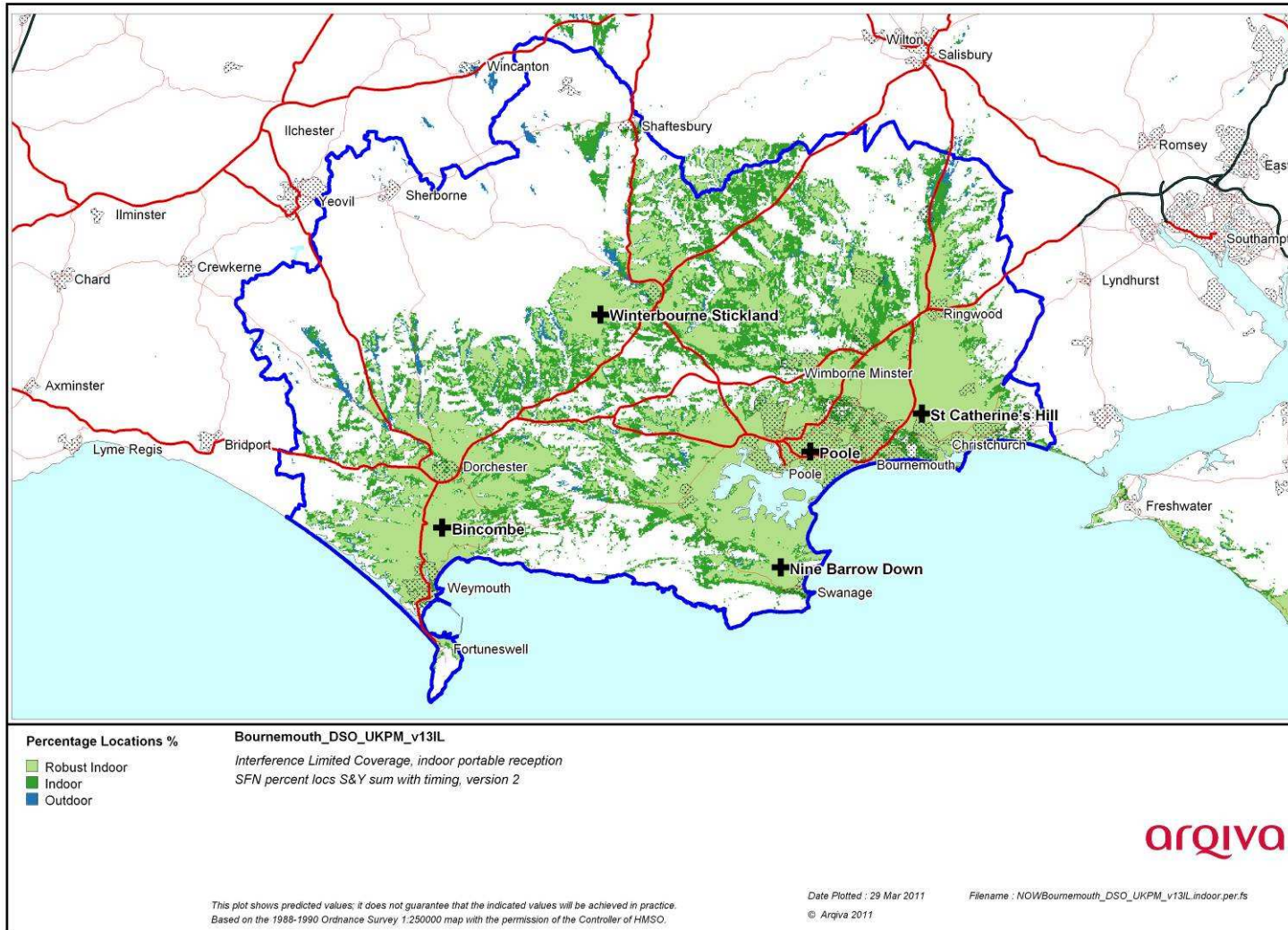


Figure 2-7 Modified Network 2



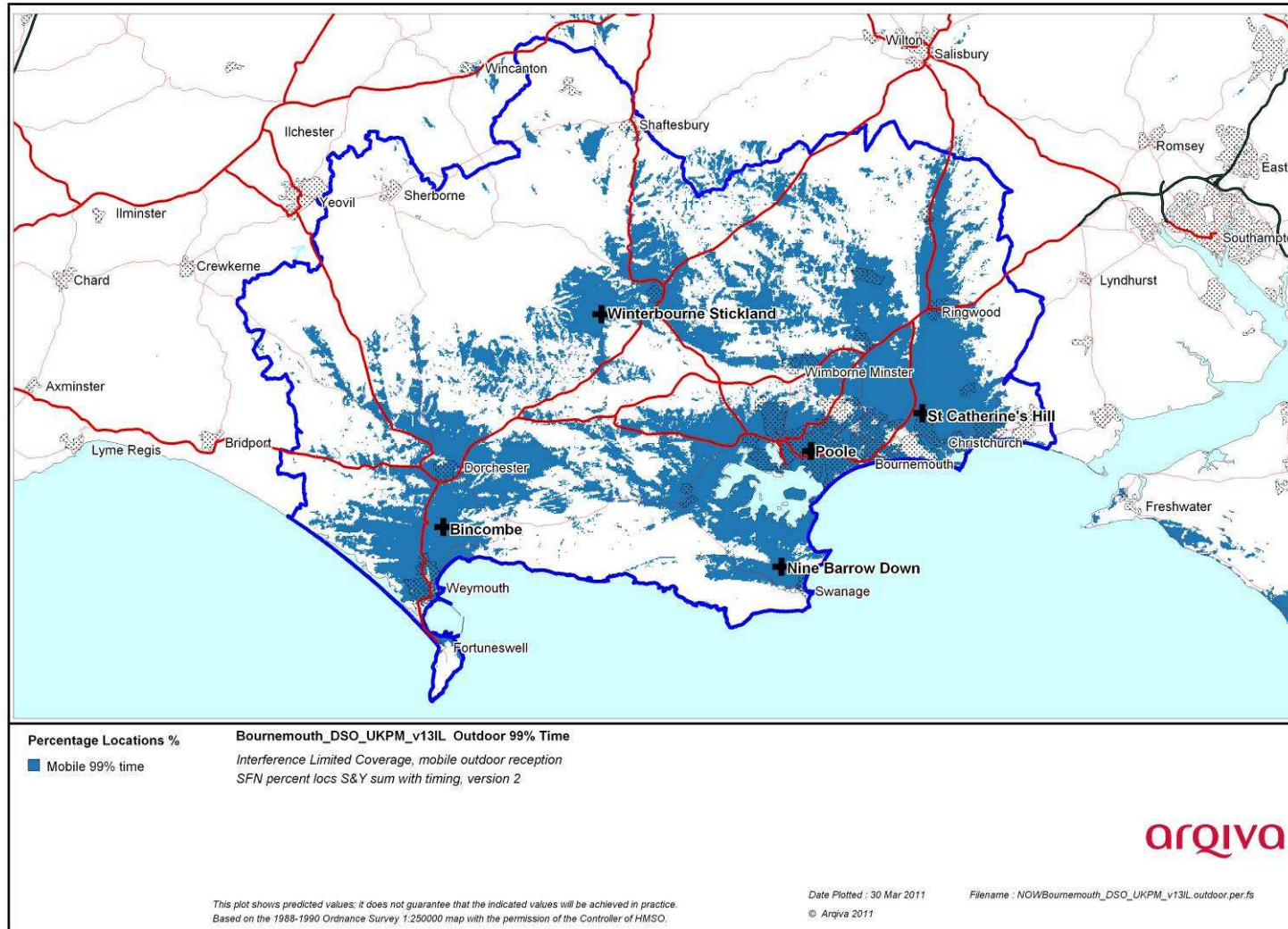


Figure 2-8 Modified Network 2 mobile 99% time

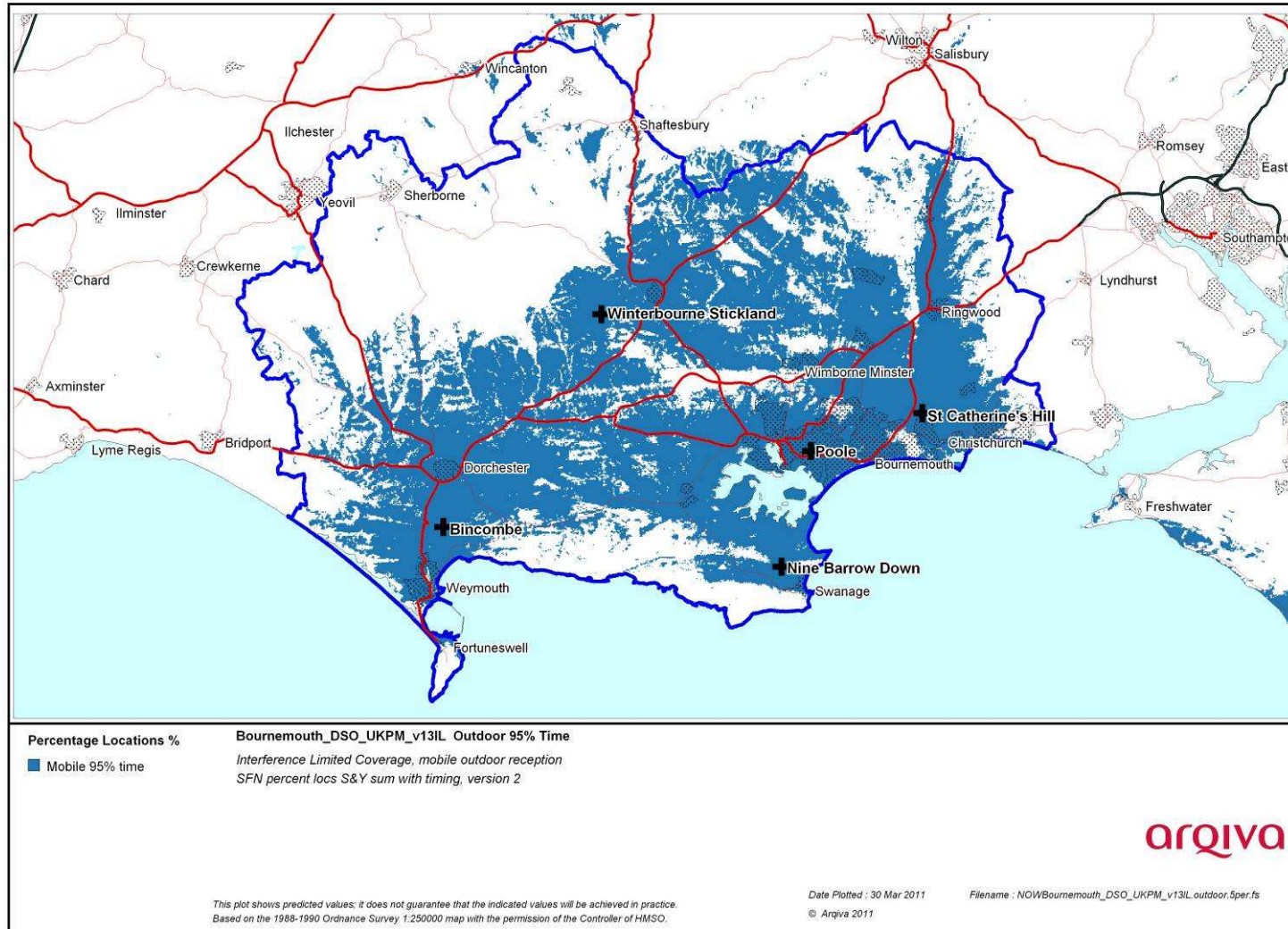


Figure 2-9 Modified Network 2 mobile 95% time



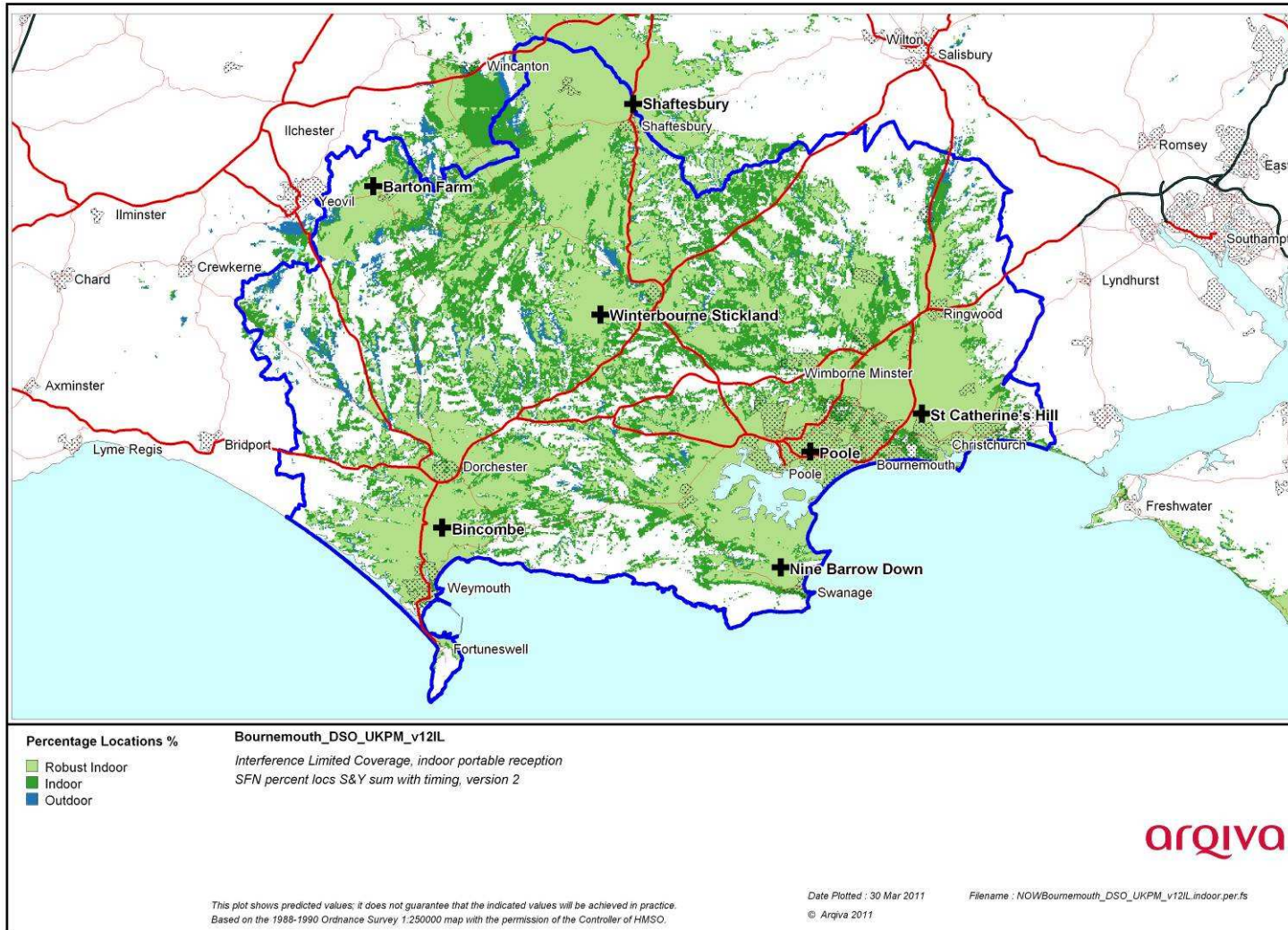


Figure 2-10 Modified Network 3



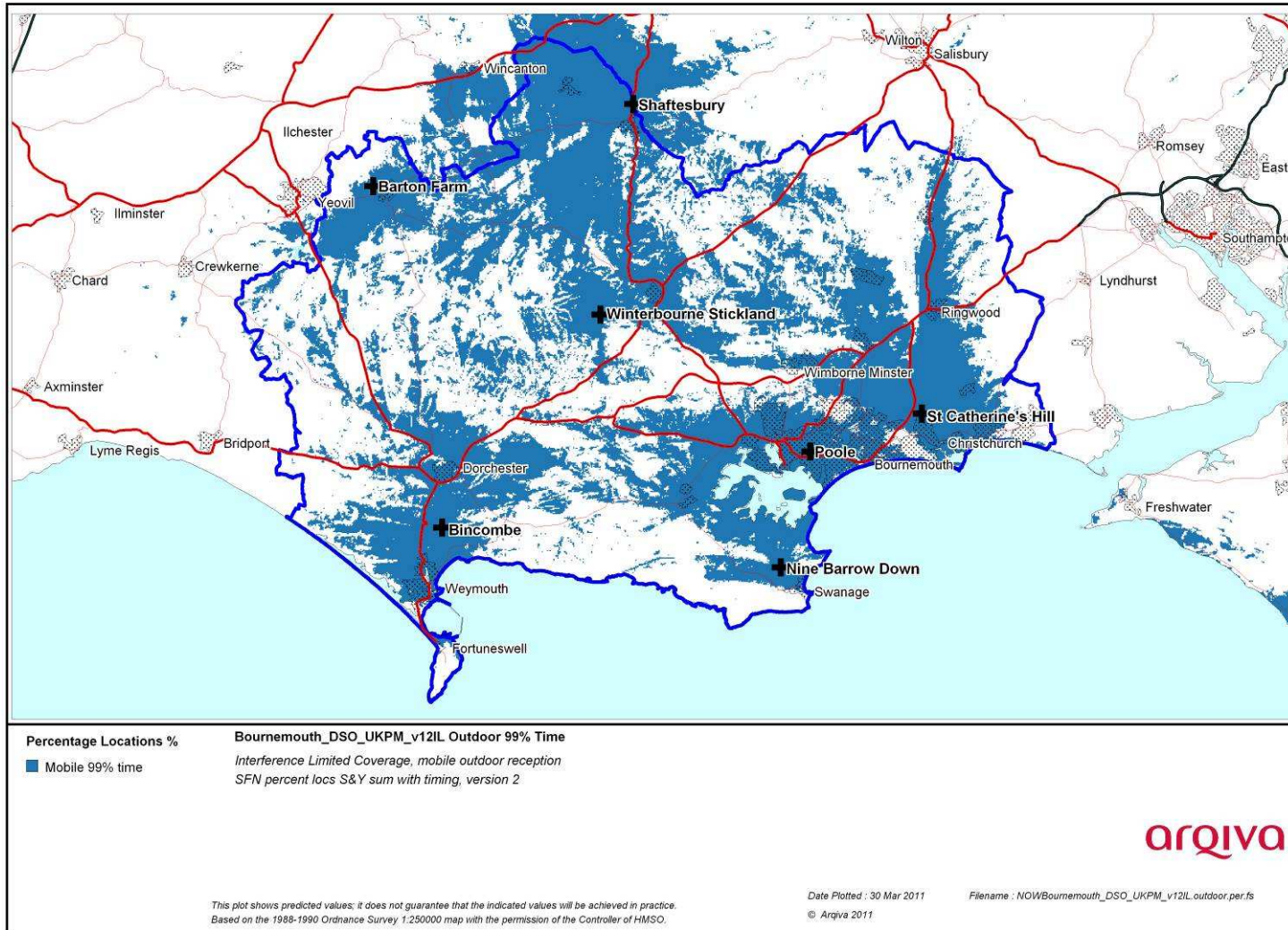


Figure 2-11 Modified Network 3 mobile 99% time

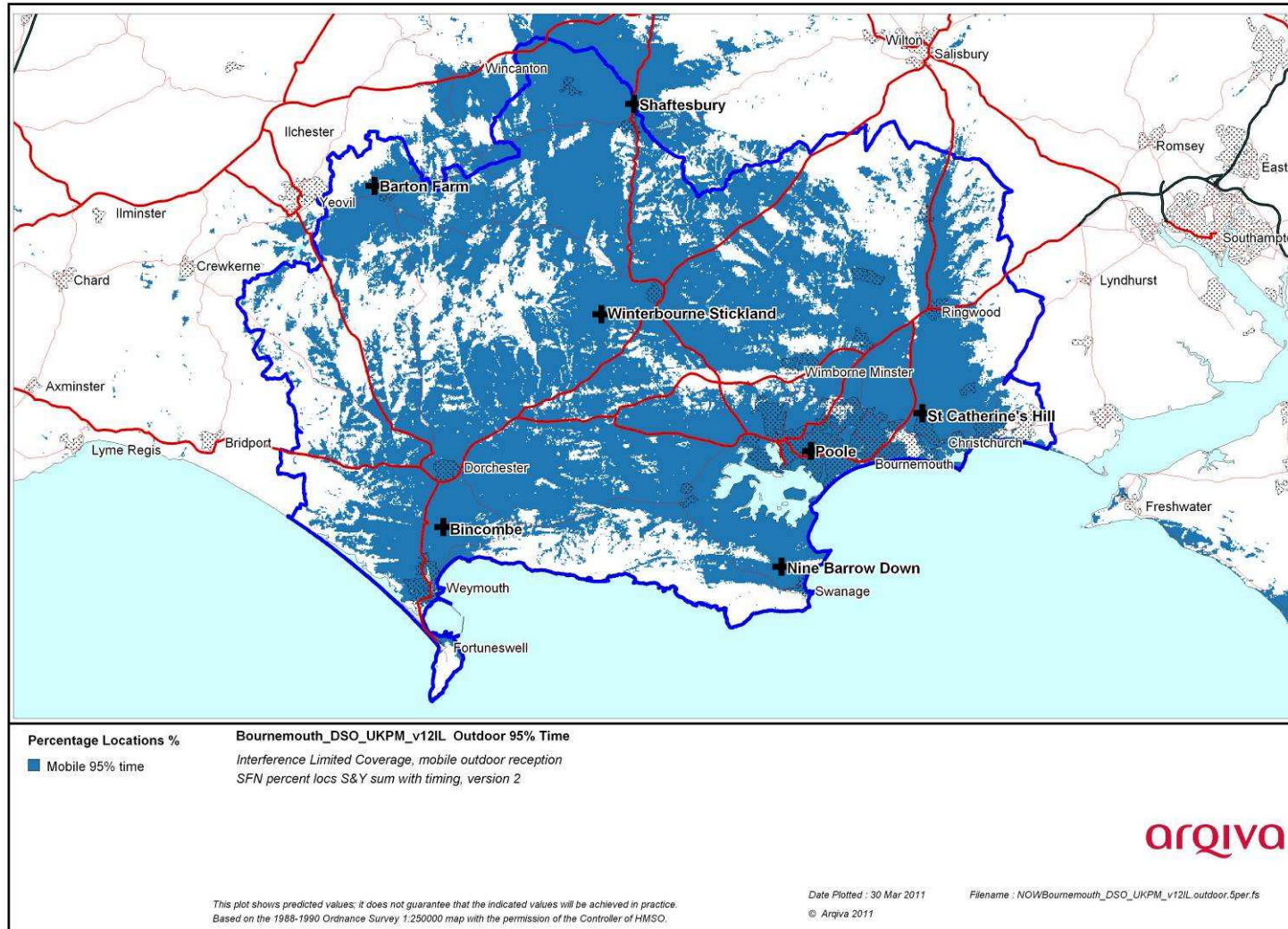


Figure 2-12 Modified Network 3 mobile 95% time

## 2.2 Population Coverage tables within Editorial Area

Table 2-1. Population coverage proportional indoor 1% time interference

: Total 356,346

Site scenario and incremental additional sites	Site type	Individual gross interference limited coverage within editorial area	Total number of households within editorial area	Incremental increase in number of households	Incremental percentage increase of population	Percentage of editorial area
Current (3 tx)	Shared Existing Infrastructure	-	165,609	-	-	46.5%
Nine Barrow Down	Upgraded Infrastructure	114,731 (32.2%)				
St Catherine's Hill	Upgraded Infrastructure	59,672 (16.7%)				
Winterborne Stickland	Upgraded Infrastructure	7,346 (2.1%)	148,110	-17,499	-4.9%	41.6%
Bincombe	Shared Existing Infrastructure	38,922 (10.9%)	216,791	68,681	19.2%	60.8%
Shaftesbury	Shared Existing Infrastructure	17,595 (4.9%)	238,509	21,718	6.1%	66.9%
Poole	Shared Existing Infrastructure	114,940 (32.3%)	292,507	53,998	15.2%	82.1%
Barton Farm	New Site	5,906 (1.7%)	299,235	6,728	1.9%	84.0%

Case 1	-	Yellow =	Current coverage
Case 2	-	Yellow + Purple	Modified Network 1
Case 3	-	Yellow + Purple + Orange=	Modified Network 2
Case 4	-	Yellow + Purple + Orange + Green=	Modified network 3

Table 2-2. Road coverage 99% location 99%T: Total roads 531 km

Site scenario and incremental additional sites	Site Type	Total road length In km	Increase in road length in km	Incremental percentage of road length	Percentage of roads within editorial area
Current (3 tx)	Shared Existing Infrastructure	123	-	-	23.2%
Case 2	Upgraded Infrastructure	103	-20	-3.8%	19.4%
Bincombe	Shared Existing Infrastructure	194	91	17.2%	36.6%
Shaftesbury	Shared Existing Infrastructure	245	51	9.6%	46.1%
Poole	Shared Existing Infrastructure	299	55	10.3%	56.4%
Barton Farm	New Site	317	18	3.4%	59.8%

Table 2-3. Road coverage 99% location 95%T: Total roads 531 km

Site scenario and incremental additional sites	Site Type	Total road length In km	Increase in road length in km	Incremental percentage of road length	Percentage of roads within editorial area
Current (2 tx)	Shared Existing Infrastructure	155	-		29.2%
Case 2	Upgraded Infrastructure	142	-13	-2.3%	26.8%
Bincombe	Shared Existing Infrastructure	256	114	21.4%	48.3%
Shaftesbury	Shared Existing Infrastructure	316	60	11.3%	59.6%
Poole	Shared Existing Infrastructure	384	68	12.8%	72.4%
Barton Farm	New Site	403	19	3.6%	75.9%

Case 1 - Yellow = Current coverage  
Case 2 - Yellow + Purple Modified Network 1  
Case 3 - Yellow + Purple + Orange= Modified Network 2  
Case 4 - Yellow + Purple + Orange + Green= Modified network 3

Table 2-4. Summary of Coverage within Editorial Area for each case

Case	Indoor Households & (percentage coverage) <i>proportional 99% Time Interference Protection</i>	Mobile Coverage km & percentage coverage <i>99% Locations &amp; 99% Time Interference Protection</i>	Mobile Coverage km & percentage coverage <i>99% Locations &amp; 95% Time Interference Protection</i>
1	165,609 (46.5%)	123 (23.2%)	155 (29.2%)
2	148,110 (41.6%)	155 (29.2%)	142 (26.8%)
3	271,577 (76.2%)	247 (46.6%)	322 (60.7%)
4	299,235 (84.0%)	317 (59.8%)	403 (75.9%)

Case 1	-	Yellow =	Current coverage
Case 2	-	Yellow + Purple	Modified Network 1
Case 3	-	Yellow + Purple + Orange=	Modified Network 2
Case 4	-	Yellow + Purple + Orange + Green=	Modified network 3