

Future Fit Integrated Impact Assessment

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Future Fit Integrated Impact Assessment

A report submitted by ICF Consulting Services *and* the Strategy Unit, Midlands and Lancashire Commissioning Support Unit

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Glossary of Terms

A&E	Accident and Emergency
BAME	Black and Asian Minority Ethnic Groups
BLA	Blue Light Ambulance
CCG	Clinical Commissioning Group
CO2	Carbon Dioxide
DCLG	Department for Communities and Local Government
DECC	Department for Energy and Climate Change
DfT	Department for Transport
DTC	Diagnostic and Treatment Centre
EC	Emergency Centre
FTE	Full-time Equivalent
GVA	Gross Value Added
IIA	Integrated Impact Assessment
IMD	Index of Multiple Deprivation
LSOA	Lower Layer Super Output Area
MSOA	Middle Layer Super Output Area
NPV	Net Present Value
NO2	Nitrogen Dioxide
ONS	Office of National Statistics
PM	Particulate Matter
PRH	Princess Royal Hospital
RSH	Royal Shrewsbury Hospital
SaTH	Shropshire and Telford Hospital NHS Trust
WTE	Whole-time Equivalent

Executive Summary

Future Fit is a clinician-led programme to transform acute hospital services in Telford & Wrekin, Shropshire and parts of Powys. The overarching aim is to reconfigure acute hospital services at Princess Royal Hospital (PRH) in Telford and the Royal Shrewsbury Hospital (RSH) so that they are clinically and financially sustainable and continue to deliver safe, high quality care to patients.

This report presents the findings of an Integrated Impact Assessment (IIA) of the Future Fit programme options for reconfiguration. The report has been produced jointly by ICF and the Strategy Unit, Midlands and Lancashire Commissioning Support Unit.

The aim of the IIA has been to assess all potentially significant health, access, economic, social and environmental impacts and equality effects of the Future Fit options; and provide recommendations for how any negative impacts and effects could be mitigated and positive impacts and effects maximised.

The aim of an impact assessment is to explore the potential positive and negative consequences of the proposals to transform acute care and produce a set of practical recommendations. It is important to note that the purpose of impact assessments is not to determine the decision about which option would be selected; rather they act to assist decision-makers by giving them better information on how best they can promote and protect the well-being of the local communities that they serve.

The IIA is a live resource intended to provide the basis for further assessment as the programme progresses. The focus of the IIA was on impacts arising from the proposed changes to acute hospital services under the preferred options. Potential changes to Woman & Children care were not directly in scope of the IIA and would merit consideration in further assessment.

The IIA has been undertaken as a separate exercise to the Future Fit Options Appraisal, although some analysis from the Options Appraisal is reproduced in this report. The IIA has also been undertaken at a point in time when some aspects of the Future Fit options have not been fully finalised. It is a live resource that is intended to provide the basis for further assessment as the programme progresses. This includes the mitigation strategies provided in the final chapter, which will continue to be refined during subsequent consultation. As clinical models and implementation plans are further developed they will need to be considered with reference to the conclusions of this IIA.

The IIA considers both the whole of the affected area and the different localities within it. There are limitations to the analysis where data is not available at a localised level. An important limitation is that certain aspects of the preferred options had not be finalised at the time the IIA was undertaken. Another limitation is that the scope of the IIA was restricted to assessing the impacts of the changes to acute hospital care. There are elements of the Future Fit programme that have implications for other types of care, and some stakeholders felt that the potential impacts of these also needed to be assessed – if not through this IIA then through additional work undertaken before the selection of a final preferred option. It should also be recognised that the IIA is limited in its ability to account for future scenarios that could arise after a final preferred option is selected and implemented. The work completed has demonstrated that the economic impact of the options is likely to be highly marginal.

Introduction: Future Fit and the IIA

The rationale for Future Fit reflects some of key issues facing NHS provision nationally: significant workforce challenges in critical specialities and a stark economic climate, combined with a growing and ageing population, and an imperative to maintain and increase quality standards. There are four options, including ‘do minimum’ which is the current baseline scenario.

Future Fit options

	Princess Royal Hospital (Telford)	Royal Shrewsbury Hospital
Option A “do minimum”	■ Emergency Care ■ Complex Planned Care ■ Non-Complex Planned Care ■ Women & Children Care	■ Emergency Care ■ Complex Planned Care ■ Non-Complex Planned Care

Option B	■ Emergency Care ■ Urgent Care (24hrs/day) ■ Complex Planned Care ■ Women & Children Care	■ Urgent Care (24hrs/day) ■ Non-Complex Planned Care (new Diagnostic & Treatment Centre)
Option C1	■ Urgent Care (24hrs/day) ■ Non-Complex Planned Care (new Diagnostic & Treatment Centre)	■ Emergency Care ■ Urgent Care (24hrs/day) ■ Complex Planned Care ■ Women & Children Care
Option C2	■ Urgent Care (24hrs/day) ■ Non-Complex Planned Care (new Diagnostic & Treatment Centre) ■ Women & Children Care	■ Emergency Care ■ Urgent Care (24hrs/day) ■ Complex Planned Care

Under all of the three preferred options, Emergency Care would be provided at one hospital site rather than at both. New 24 hour Urgent Care Centres would be created at both sites. A new Diagnostic & Treatment Centre (DTC) would also be created at one of the sites to provide the majority of Planned Care provision.

Key considerations are: the scope for patients who present at Emergency Care to receive Urgent Care instead; the desire to retain a balance of services at both hospital sites; and, the expected advantages of consolidating Planned Care provision in a single centre.

The aim of this IIA was to conduct a robust, independent assessment of the potential impacts and equality effects of the preferred options. An IIA includes economic, environmental, health and equalities impact assessments..

There have been previous pieces of work completed around the IIA baseline, including an initial equality review and these have been used to contextualise this report. Previous reports are available in the programme library as they were reported to the Future Fit programme board.

The IIA methodology drew on impact assessment best practice but was also tailored to reflect: the characteristics of the Future Fit programme (by taking account of the different geographies affected); and the other streams of work that were already being undertaken as part of the options appraisal process (by the Strategy Unit and Future Fit).

A three stage process was undertaken to: scope potential impacts; assess key impacts; and, assess equality effects including those identified as having protected characteristics under The Equality Act (2010). A strength of the IIA was that it drew on a range of local and national, and quantitative and qualitative, evidence sources. Another was that the IIA assessed potential impacts for different localities in addition to for the area as a whole and for specific equality groups. As noted above, limitations include: the scope being restricted to assessing the impacts of the changes to acute hospital care; and, that certain aspects of the preferred options had not be finalised at the time the IIA was undertaken. The IIA adopted a 25 year forward view, assessing the impact of the changes over a 25 year timescale, to reflect the time period adopted in the Strategic Outline Case.

Subsequent phases of the IIA process will refine the Mitigation Action Plan to be developed during the consultation phase. During the consultation phase, experts and local people will be offered the opportunity to provide any further information that can inform the action plan.

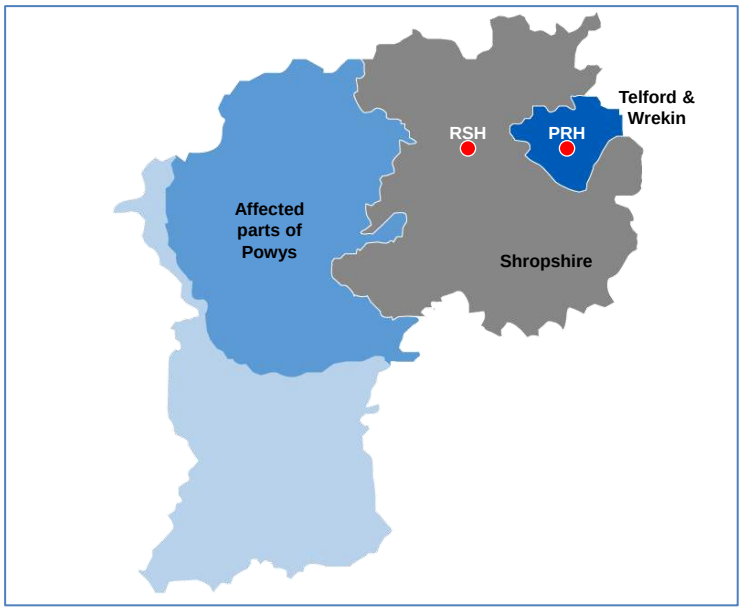
The Affected Population

The second chapter of the report describes the characteristics of the population potentially affected by the changes to acute care being considered under the Future Fit programme, including the equality effects and projected changes to these characteristics over the next 25 years.

The acute services at PRH and RSH currently serve Telford and Wrekin, Shropshire, and parts of the neighbouring Welsh county of Powys. The total population of the area is over half a million people; nearly half live in dispersed rural areas. Household income is slightly below average, although this is

partly skewed by the large proportion of the population that is retired. Minority populations are below national averages.

Future Fit catchment area



Telford and Wrekin has a significantly more urban population than the other two localities. Its age profile is also notably younger and it is has the largest BAME population. The Shropshire population largely matches that of the combined catchment area. Powys is the most rural of the three localities and also the oldest. There are some differences within these areas and the IIA takes account of these where possible.

Over the next 25 years the population across the catchment area is projected to grow in size and become increasingly weighted towards older age groups.

Three age groups are potentiality more sensitive to changes in local acute hospital services than others: pre-school age children; young adults; and older people. Data is not routinely reported on the proportion of A&E attendances that are made by people with a disability. However the wider evidence-base strongly suggests that disability is associated with higher levels of need for emergency services – particularly mental health and learning disabilities. Similarly data is not available for transsexual people but wider evidence suggest they are at greater risk of mental health problems than the general population.

No evidence was identified to indicate that pregnant women and mothers of newborn children have disproportionate or differential needs in relation to acute hospital services. However, under one of the preferred options (C1) Adult and Child care services would be relocated.

Studies of secondary care usage have found that ethnicity is a significant predictor of acute hospital admission, with BAME groups being more likely to access emergency services than white groups (although there are differences within this). In addition, cultural factors can mediate access.

No evidence was identified to indicate that religion or belief affects access to or use of hospital services. Although males account for more A&E attendance than females, the difference is small.

Research into gay, lesbian and bisexual people's experiences of accessing healthcare indicates that they have more negative experiences, on average, than heterosexual patients and may also face specific challenges associated with disclosing their sexuality and being visited by friends and same-sex partners in healthcare settings.

Deprived groups are not protected under the 2010 Equality Act but have been considered in this IIA because they account for a disproportionately high number of A&E attendances. Despite the low overall levels of deprivation in the catchment area, Telford and Wrekin and Shropshire contain certain areas that are amongst the 20% most deprived in England. There are also areas that are amongst the 40% most deprived nationally. The affected parts of Powys contain two areas that are amongst the 20%, and others amongst the 30%, most deprived in Wales.

Health and Access Impacts and Equality Effects

The third chapter presents detailed evidence on the projected health and access impacts and equality effects of the preferred options. It has been produced by the Strategy Unit, Midlands and Lancashire Commissioning Support Unit - drawing directly on analysis that has been undertaken as part of the Future Fit Options Appraisal process.

Clinical effectiveness: The main change options (B and C1) are expected to sustainably improve the effectiveness of clinical care provided to the affected population. The women's and children's variant option (C2) could lead to an adverse impact on clinical effectiveness due to the separation of women's and children's services from other critical services.

Patient safety: The main change options (B and C1) are expected to sustainably improve the safety of clinical care provided to the affected population. The women's and children's variant option (C2) potentially introduces some new risks due to the separation of women's and children's services from other critical services.

Patient experience: The main change options (B and C1) are expected to sustainably improve patient experience of clinical services for the affected population. The women's and children's variant option (C2) could lead to some adverse impact on experience where the separation of women's and children's services from other critical services leads to patients experiencing delays and/or being move to another site.

Workforce recruitment and retention: The main change options (B and C1) are expected to significantly improve the current workforce challenges faced by SaTH. The women's and children's variant option (C2) could lead to a number of adverse impacts, removing the benefits achieved through the consolidation of women's and children's services in 2014.

Travel times to access urgent and emergency care: The majority of urgent and emergency care patients (76% - 108,133) would be unaffected. Option B generally has an adverse impact on patients from South Shropshire, Shrewsbury and Atcham, Powys and Oswestry. Options C1/2 generally have an adverse impact on North Shropshire, Bridgnorth, Lakeside South, The Wrekin and Hadley Chase

Travel times to access non-complex planned care[1] : For non-complex planned operations and other procedures, some patients would face longer travel times by car or by public transport to the planned care site. Option B generally has an adverse impact on patients from North Shropshire, Bridgnorth, Lakeside South, The Wrekin and Hadley Castle. Options C1/2 generally have an adverse impact on South Shropshire, Shrewsbury and Atcham, Powys, Oswestry and (for patients travelling by public transport) North Shropshire.

Convenience of travel to access non-complex planned care by public transport: Option B would mean it would no longer be possible to access non-complex planned care provision directly by public transport from any area in Telford and Wrekin, and multiple changes would be required from over half to access the DTC at RSH. Shropshire and Powys would be largely unaffected. In Option C1 and C2, the impacts are largely reversed. The difference between C1 and C2 reflects the differing location of Women and Childrens services under the two options, and the resultant differences in staff numbers at each hospital.

[1] The analysis of public transport journey times and convenience reflects off-peak conditions (9a.m. to 4 p.m.) when the bulk of activity takes place. As such the results are not fully representative all times of the day and may present a more favourable impression of journey times and convenience than is the case at other times.

Economic Impacts and Equality Effects

The fourth chapter presents detailed evidence on the projected economic impacts and equality effects of the preferred options. However, we would urge caution with regards to economic quantification, as the impacts are highly marginal and likely to be overtaken by other factors.

Local employment

The level of employment at each hospital will have an effect on the overall employment in the local economy. As large employers they also influence the local economy: they buy goods and services; and employees spend their earnings in the local economy. These are known as 'multiplier effects'.

The preferred options would have an effect on employment both directly (through employment at each hospital site) and indirectly through the multiplier effect. The evidence for estimating impact is relatively broad and robust, although changes will occur gradually and be of a relatively small scale. Changes to the workforce under the preferred options would be managed through a five year Workforce Transformation Programme

Under Option B, the number of WTE staff at RSH and PRH would fall by around 150 at each. Under Option C1, there would be a more significant fall of nearly 600 at PRH but an increase of over 400 at RSH. Under Option C2, there would be a small increase of 30 at PRH and a decrease of just over 200 at RSH.

Translating these changes into direct impacts on employment levels (and subsequent multiplier effects on wider employment) in each area is problematic at this point in time, as expected parallel developments, for example within community services, are not yet described in the necessary detail.

Local business

The level of employment at each hospital could have an effect on the businesses in the local economy in the same way that wider local employment is affected, through multiplier effects.

Given that the level of employment is expected to change, the likelihood of the number of businesses and level of business turnover changing is high. The impact is not expected to be significant and is likely to follow a similar timescale as set out for the changes to employment.

Local education/training opportunities

The introduction of any of the policy options could have an impact on the number of people undertaking qualifications at local colleges and universities if the total number of jobs in the health sector is affected.

Due to the relatively small changes in the overall level of employment, and small number of FE colleges and universities operating in the area, it is likely that there will be no impact on the provision of education for health related courses in the area. However the recent strategic development of the Shropshire Campus, in partnership with the University of Chester, may offer scope in longer term for greater educational provision for healthcare within the area.

Local economy

The preferred options could have an impact on the overall performance of the local economy. Changes in employment and local business in a local area would impact on the level of output (or income) in a local area, measured through Gross Value Added (GVA).

The evidence of the effect of changing employment at hospital sites on local income is fairly well established and robust. Given the level of employment is expected to change in each area, the level of GVA is highly likely to be affected. The impact is likely to follow a similar timescale as set out for the changes to employment.

The analysis projects that regional GVA would increase by marginally less under the preferred options than under the baseline option, with option B having a more negative impact in this respect than option C1 and C2. However, the scale of these impacts are small. Under the baseline option and the three preferred options GVA is projected to increase to around £17.2 billion by 2036.

Local house prices

The options could have an impact on house prices in two ways. Firstly, through changed in employment; secondly, the distance from a hospital or specific hospital departments (for example Accident and Emergency or maternity services) could have an influence. A literature found no evidence for this second effect. The evidence linking changes in employment to house prices is not statistically significant.

Social Impacts and Equality Effects

The fifth chapter presents detailed evidence on the projected social impacts and equality effects of the preferred options.

Community cohesion

Hospitals can play an important role in supporting community cohesion because they provide a public physical space where different members of the community interact and provide opportunities for civic engagement, in the form of volunteering. If the preferred options affect the extent to which either of the hospitals could perform this role in the future, this could have a knock-on impact on wider community cohesion.

Any impacts on community cohesion will predominantly be experienced by the local communities within which the two hospital sites are located. With this in mind the available baseline evidence for Shropshire and Telford and Wrekin is considered here but not for Powys.

The likelihood of this impact is, at the time or writing, uncertain. No plans have currently been published for changing or relocating any of the existing volunteering activities at either hospital site following the selection of a preferred option.

The scale of volunteering opportunities could also either be increased or decreased as either site could create new opportunities; an overall increase or decrease in patient numbers could lead to increased or decreased demand for existing activities.

Under Option C2, Telford and Wrekin would experience a similar impact arising from the equivalent changes being made at PRH. Under Option C1 Telford and Wrekin would also lose volunteering opportunities associated with Women and Children Care at PRH which would be transferred to RSH, potentially creating additional volunteering opportunities in Shropshire.

Local well-being

Analysis by the Office for National Statistics has demonstrated that a person's well-being is partly influenced by their personal characteristics and partly determined by other variables, widely recognised as: anxiety, happiness, self-worth and life satisfaction.

Current levels of personal well-being in the catchment area are very similar to the national average, with small variations in the three localities. Under a do minimum baseline scenario, levels of well-being over the next 25 years would be likely to remain similar to what they are now.

The findings reported in Chapter 3 highlight that the projected health impacts of each preferred option are positive and moderate. Health as a strong determinate of well-being. Anxiety caused by the future fit programme is likely to have a short-medium term negative affect on well-being. Over a long-term 25 year horizon, the impact of the preferred options on well-being may be positive but minimal.

Local deprivation

Deprivation is complex and linked to income and employment as well as access to services and the physical environment. The preferred options could have impacts in several of these domains. Some local stakeholders thought the preferred options would lead to higher travel costs for patients and friends or family visiting hospital.

Quantitatively projecting the impact of the preferred options is problematic because of the number of domains because their scale is uncertain. Nonetheless, it is possible to qualitatively assess the potential impacts of the preferred options on different domains of deprivation.

There are projected to be negative impacts in more domains than there are positive, under each preferred option, but these are all minimal in scale. There are no major differences by area.

Local traffic levels and congestion

Overall the catchment area currently has relatively low levels of congestion, although there are some hotspots particularly in Telford and Wrekin.

This impact is highly likely to occur under preferred options because each is projected to result in some increase in the volume of road traffic vehicle miles undertaken to access hospital services in the catchment area. This would occur once the selected option had been implemented.

The overall scale of this impact on the catchment area would be minimal. Journeys to RSH and PRH currently account for around 0.5% of the total number of road vehicle miles driven in the catchment area. Other underlying factors such as population growth would have a much greater bearing on overall traffic and congestion levels over time.

The impact will be on the roads serving each hospital. Detailed projects for these are not available. Considering the wider road network, Option B would have a negative impact predominantly on residents in Telford and Wrekin, and that Option C1 and C2 would have a negative impact predominantly on residents in Shropshire.

Environmental Impacts and Equality Effects

This chapter presents detailed evidence on the projected environmental impacts and equality effects of the preferred options.

Greenhouse gas emissions

There are two principle ways in which the options will potentially bring impact: physical alterations which lead to changes in energy consumption and emissions; changes in the volume of road traffic to the two sites.

It is not possible to project changes to the baseline caused by new build or alterations but the current trend is towards lower emissions. Nationally, CO2 emissions from road traffic are expected to fall.

This impact is very likely to occur. It can be concluded that there would be some overall decrease in emissions arising from the new build. CO2 emissions are expected to be around 5% higher under each of the preferred options, and highest under Option C1. These are largely a consequence of additional travel to access A&E services under each of the preferred options, although other service changes (e.g. the movement of Women and Children care from PRH to RSH proposed under Option C1) also have a contributory effect.

Air pollution

The projected increase in the volume of road travel to access hospital services under the preferred options would potentially increase emissions and impact on local levels of air pollution.

Each of the preferred options can be expected to have a negative but very small scale impact on air pollution across the catchment area as a whole. It is only a smaller localised scale that such impacts could be more significant. Specifically, the areas immediately surrounding the roads that serve the two hospitals would see the greatest impact on traffic volumes.

Noise pollution

The preferred options would potentially impact on local noise levels by increasing the number of ambulance journeys made to whichever of the hospitals hosts the Emergency Centre. The focus here is on ambulance journeys because of the higher noise levels they produce.

Each of the preferred options is highly likely to have some impact on local noise pollution arising from ambulance journeys, and this would occur from the point at which the service changes intended under the selected option had been implemented. For the catchment area as a whole, this impact would be neutral.

Biodiversity

New building work would be undertaken at both hospital sites under each of the preferred options and this may have an impact on local biodiversity in or around the sites. This impact could potentially be negative or positive. However it is uncertain because detailed architectural plans for the two hospital sites under each preferred option have not been completed.

Cultural heritage

The preferred options could have an impact on cultural heritage if the new building work planned at the hospitals under each option affected any nearby physical features deemed to be heritage assets. At the time of writing, the likelihood and timescale of this impact is uncertain. Detailed architectural plans for the two hospital sites under each preferred option have not been published.

Conclusions and Recommendations

The final chapter provides our conclusions, strategies for mitigation and enhancement, and priorities for further investigation.

Key impacts

A summative assessment of all the projected impacts is provided for the area as a whole. This illustrates that the projected positive health impacts under Option B and C1 are the most significant of all the impacts assessed, although these are partly offset under Option B by projected negative impacts on access to urgent and emergency care of a similar scale.

The projected economic impacts are small, with some limited variation between the preferred options which largely reflect the number of staff SaTH estimate there will be under each.

The projected social and environmental impacts are also small, neutral or uncertain at the time of writing, although it is important to note that this is at the scale of the whole catchment area.

Impacts on localities within the catchment area

A summative assessment of the impacts of the preferred options on the population in Shropshire, Telford and Wrekin, and the affected parts of Powys is provided. Overall this illustrates that the projected positive health impacts are consistent across the three areas and under each option.

In contrast, the projected access impacts vary quite widely, reflecting the location of EC and non-complex planned care provision at one or other of the hospitals under each option.

There are not differences in the projected social impacts by area but some differences in the projected environmental impacts, reflecting changes to travel patterns.

Key findings on equality effects

The potential equality effects arising out of each impact have been assessed for all the protected characteristic groups defined under the 2010 Equality Act and for deprived groups in the catchment area.

In practice there was little variation in the projected equality effects between the three preferred options. The projected positive health impacts would have a positive equality effect on several groups. Equally, these groups would potentially experience a negative equality effect arising out of the project impact on access to urgent and emergency care.

The one key point of difference between the preferred options concerns young children, women, and the pregnancy/maternity group, some of whom may experience a negative equality effect under Option C1 arising from the relocation of Women and Children care from PRH to RSH.

There are far fewer equality effects across the projected economic, social and environmental impacts. No single group emerges from the assessment as being significantly more disadvantaged than another.

Priorities for further investigation

This assessment was not exhaustive. Some impacts could not be fully assessed and some were not assessed in detail because (in consultation with the Future Fit Impact Assessment Group) they were not deemed to as high a priority as other impacts or because they were outside the immediate scope of the assessment.

However, it is reasonable to conclude that the economic impacts of all the options are marginal.

Health and access: a cross-cutting constraint in this assessment was the extent to which potential "secondary" health impacts, arising as a consequence of other impacts, could be assessed. The impacts of the programme non hospital-based care provision was also not fully considered and would merit further assessment.

Economic: the potential impact of the preferred options on local tourism was considered in the initial scoping phase of this assessment but not prioritised for more detailed assessment.

Social: the impacts of the preferred options on congestion could not be fully assessed because of a lack of data on current congestion levels on the roads that service each hospital and a lack of road-specific projections for increased travel under the preferred options.

Environmental: the assessment of some of the prioritised environmental impacts (air pollution and noise pollution) was constrained for similar reasons to the assessment of impacts on local road congestion above.

1 Introduction

This chapter details the key features of the Future Fit programme, why it has been initiated, and the options that have been developed. It also explains the aims, objectives and scope of the Integrated Impact Assessment (IIA), its methodology, and its strengths and limitations.

- Future Fit is a clinician-led programme to transform acute hospital services in Telford & Wrekin, Shropshire and parts of Powys. The overarching aim is to reconfigure acute hospital services at Princess Royal Hospital (PRH) in Telford and the Royal Shrewsbury Hospital (RSH) so that they are financially sustainable and continue to deliver safe, high quality care to patients.
- The need to change reflects some of key issues facing NHS provision nationally: significant workforce challenges in critical specialities and a stark economic climate, combined with a growing and ageing population, and an imperative to maintain and increase quality standards.
- There are four options, including 'do minimum'. They are set out in table 1.1 in the text. Under all the three preferred options, Emergency Care would be provided at one hospital site rather than at both. New 24 hour Urgent Care Centres would be created at both sites in place of the existing 8am-8pm Walk-in Centres. A new Diagnostic & Treatment Centre (DTC) would also be created at one of the sites to provide the majority of Planned Care provision.
- Key considerations are: the scope for patients who present at Emergency Care to receive Urgent Care instead; the desire to retain a balance of services at both hospital sites; and, the expected advantages of consolidating Planned Care provision in a single centre.
- The aim of this IIA was to conduct a robust assessment of the potential impacts and equality effects of the preferred options. An IIA includes economic, environmental, health and equalities impact assessments.
- The IIA methodology drew on impact assessment best practice but was also tailored to reflect: the characteristics of the Future Fit programme (by taking account of the different geographies affected); and the other streams of work that were already being undertaken as part of the options appraisal process (by the Strategy Unit and Future Fit).
- A three stage process was undertaken to: scope potential impacts; assess key impacts; and, assess equality effects.
- A strength of the IIA was that it drew on a range of local and national, and quantitative and qualitative, evidence sources. Another strength was that the IIA assessed potential impacts for different localities in addition to for the catchment area as a whole and for specific equality groups. A recognised limitation of the IIA from the outset was that its scope was restricted to assessing the impacts of the changes to acute hospital care. Another limitation was that certain aspects of the preferred options had not be finalised at the time the IIA was undertaken.

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Integrated Impact Assessment (IIA) of the NHS Future Fit programme. The report has been produced jointly by ICF and the Strategy Unit, Midlands and Lancashire Commissioning Support Unit.

The purpose of this IIA was to conduct a robust assessment of the potential impacts and equality effects of the Future Fit options and recommend strategies for mitigation and enhancement, in order to inform the conduct of the public consultation and the identification and implementation of the final selected option. The IIA is a live resource intended to provide the basis for further assessment as the programme progresses.

The IIA has been undertaken as a separate exercise to the Future Fit Options Appraisal, although some analysis from the Options Appraisal is reproduced in this report. The intention of the IIA is to add to the outcomes from the Options Appraisal by providing additional evidence on a wider range of potential impacts.

This report has been written at a point in time when some aspects of the Future Fit programme have not been fully finalised. It is a live resource that is intended to provide the

basis for further assessment as the programme progresses. The recommended strategies for mitigation and enhancement will continue to be refined throughout the consultation process. As the clinical models and implementation plans are further developed, these will need to be covered by the IIA and recommendations from this document will need to feed into those plans.

This first chapter details the key features of the Future Fit programme, why it has been initiated, and the options that have been developed. It also explains the aims, objectives and scope of the IIA, its methodology, and its strengths and limitations.

1.1 The Future Fit programme

Future Fit is a clinician-led programme to transform acute hospital services for patients in Telford and Wrekin, Shropshire and parts of Powys. These areas have a combined population of just over half a million, served primarily by the Princess Royal Hospital (PRH) in Telford and the Royal Shrewsbury Hospital (RSH). Both hospitals are provided by the Shropshire and Telford Hospital NHS Trust (SaTH). The overarching aim of the programme is to reconfigure acute hospital services so that they are clinically and financially sustainable and continue to deliver safe, high quality care to patients.

1.1.1 The need for change

The need to change the current configuration of acute services at the two hospital sites reflects some of key issues facing NHS provision nationally: significant workforce challenges in critical specialities and a stark economic climate, combined with a growing and ageing population, and an imperative to maintain and increase quality standards.

> **NHS Future Fit Programme Strategic Outline Case (22nd March 2016):**
>
> "Acute hospital services provided by SaTH are of a good standard, recognised in the Care Quality Commission report published in 2015. Most services have developed over many years, with clinicians, managers and staff trying to keep pace with changes in demand, improvements in medicine and technology and increased expectations of the populations served. Nevertheless, it is recognised the current hospital configuration is not sustainable due to the healthcare and workforce issues including:
>
> - Changing healthcare needs of the population now and into the future
> - Quality standards that are required and that individuals and organisations aspire to deliver
> - A need for improved productivity and a reduction in inefficiencies (in line with the Carter Review and the Trust's work with the Virginia Mason Institute)
> - On-going developments in medicine and technology
> - Workforce changes in terms of skills, availability and training
>
> In addition, there are a number of estates issues, including:
>
> - Level of backlog maintenance
> - Poor quality existing facilities
>
> All of this is underpinned by the economic climate in which the NHS must operate. Current trends in funding and demand will create a gap which projections suggest could grow to £30 billion a year by 2021 if nothing is done to address it."

Further details about the need for change are provided in the Strategic Outline Case and at: http://nhsfuturefit.org/why-change/no-change-is-not-an-option

1.1.2 The Future Fit options

The Future Fit programme began in late 2013 and, following an intensive process of review, consultation and appraisal, published the details of four options for acute hospital provision

in the March 2016 Strategic Outline Case. In line with HM Treasury Green Book guidance[2], this includes one "do minimum" Option (A), plus three preferred Options (B, C1 and C2).

Key considerations in the development of the preferred options (in addition to addressing the healthcare and workforce issues already mentioned) have been:

- **The scope for patients who present at Emergency Care to receive Urgent Care instead**. The Strategic Outline Case states that *"Nearly 65% of the patients that currently attend the Trust's A&E departments do not have life or limb threatening illness or injury and could therefore potentially be seen and treated in an Urgent Care Centre"*.
- **The desire to retain a balance of services at both hospital sites**. Both hospitals currently provide a range of services, and there were concerns that earlier iterations of the options could result in having one very large and busy site and one much smaller site with lots of redundant space.
- **The desire to collocate critical services to improve clinical adjacencies through focused redesign**. This includes a single purpose built emergency centre that would result in better clinical outcomes with reduced morbidity and mortality; bring specialists together treating a higher volume of critical cases to maintain and grow skills; ensure greater degree of consultant delivered decision making and care.
- **The expected advantages of consolidating Planned Care provision in a single centre**. Planned Care is currently provided across both sites and at other local healthcare sites. It has been reported that patients find this *"complex, fragmented and difficult to navigate"* and that a single centre would *"help us to keep specialist services in our area and could bring some services back to the county from other parts of the region"*[3].

The proposed provision of services at each hospital under each option is illustrated below.

Table 1.1 Future Fit options

	Princess Royal Hospital (Telford)	Royal Shrewsbury Hospital
Option A "do minimum"	■ Emergency Care ■ Complex Planned Care ■ Non-Complex Planned Care ■ Women & Children Care	■ Emergency Care ■ Complex Planned Care ■ Non-Complex Planned Care
Option B	■ Emergency Care ■ Urgent Care (24hrs/day) ■ Complex Planned Care ■ Women & Children Care	■ Urgent Care (24hrs/day) ■ Non-Complex Planned Care (new Diagnostic & Treatment Centre)
Option C1	■ Urgent Care (24hrs/day) ■ Non-Complex Planned Care (new Diagnostic & Treatment Centre)	■ Emergency Care ■ Urgent Care (24hrs/day) ■ Complex Planned Care ■ Women & Children Care
Option C2	■ Urgent Care (24hrs/day) ■ Non-Complex Planned Care (new Diagnostic & Treatment Centre) ■ Women & Children Care	■ Emergency Care ■ Urgent Care (24hrs/day) ■ Complex Planned Care

Under Option A, the current mix of services would be retained at both hospital sites and no substantive changes would be made other than essential work to address the current maintenance backlog.

Under all the three preferred options, Emergency Care would be provided at one hospital site rather than at both. New 24 hour Urgent Care Centres would be created at both sites. A

[2] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/220541/green_book_complete.pdf

[3] Retrieved 14.07.2016: http://nhsfuturefit.org/why-change/planned-care

new Diagnostic & Treatment Centre (DTC) would also be created at one of the sites to provide the majority of Planned Care provision.

In terms of the differences between the preferred options: under Option B, Emergency Care would continue to be provided at PRH and the DTC would be located at RSH. Under Option C1, Emergency Care would continue to be provided at RSH, the DTC would be located at PRH, and Women & Children Care would be also relocated from PRH to RSH. Under Option C2, Emergency Care would continue to be provided at RSH, the DTC would be located at PRH, but Women & Children Care would be retained at PRH.

One preferred option is due to be identified in November 2016 prior to a formal public consultation starting in December 2016.

1.2 The integrated impact assessment

Impact assessments are a key tool for local and national policy development. They are intended to help decision-makers to think through the consequences of proposals by building on the key clinical and economic arguments for proposed service changes, with a focus on better understanding the impact these potentially have on the local community. Their purpose is not to determine the decision, but rather to assist decision makers by providing evidence-based findings and recommendations.

Traditionally, the potential impacts of new policies and programmes have been considered through different types of assessment, including economic, environmental, and health impact assessments. In practice these different assessments overlap and share similar aims and methodologies. An IIA combines one or more of these types of assessment to allow a more holistic assessment to be made.

An important element of every IIA should be the assessment of potential equality effects on specific groups in the local population – particularly those groups protected under equalities legislation. The Equality Act (2010) consolidated previous legislation designed to prohibit discrimination on the grounds of an individual's characteristics and identified nine protected characteristics:

- **Age**. This refers to persons defined by either a particular age or a range of ages.
- **Disability**. A disabled person is defined as someone who has a physical or mental impairment that has a substantial and long-term adverse effect on his or her ability to carry out normal day-to-day activities.
- **Gender reassignment**. This refers to people who are proposing to undergo, are undergoing, or have undergone a process of reassigning their gender identity.
- **Marriage and Civil Partnership**. Marriage is no longer restricted to a union between a man and a woman but now includes a marriage between a same-sex couple. Same-sex couples can also have their relationships legally recognised as civil partnerships.
- **Pregnancy and maternity**. Pregnancy is the condition of being pregnant or expecting a baby and maternity refers to the period after the birth.
- **Race**. The Equality Act defines race as encompassing colour, nationality (including citizenship) and ethnic or national origins.
- **Religion or belief**. Religion means any religion a person follows and belief means any religious or philosophical belief, and includes those who have no formal religion or belief.
- **Sex**. This refers to a man or to a woman or a group of people of the same sex.
- **Sexual orientation**. A person's sexual orientation relates to their emotional, physical and/or sexual attraction and the expression of that attraction.

Under Section 149 of the Act, all public bodies must have 'due regard' to the need to: eliminate discrimination, harassment and victimisation of people with a protected characteristic; advance equality of opportunity between people who share a protected characteristic and people who do not share it; and foster good relations between people who share a protected characteristic and those who do not share it.

In Wales there is a Specific Equality Duty placed on public bodies to undertake an Equality Impact Assessment (EIA) on changes to services. Therefore a summary of the EIA relating to Powys residents and the Teaching Health Board has been included at Annexe 2 to this

document. Further work to develop and deliver on this requirement will follow as part of the pre-consultation and consultation work.

Equality effects are defined as being either disproportionate or differential effects on groups of people on the grounds of their protected characteristics:

- A **disproportionate effect** arises when an impact has a proportionately greater effect on protected characteristic groups than on other members of the general population. This can be because protected characteristic groups make up a greater proportion of the affected population or because an impact affects a service predominantly or heavily used by protected characteristic groups.
- A **differential effect** is one which affects members of a protected characteristic group differently from the rest of the general population, because of specific needs, or a recognised sensitivity or vulnerability associated with their protected characteristic.

Protected characteristic groups can be subject to both disproportionate and differential equality effects.

1.2.1 Aims, objectives and scope

The overall aim of this IIA was to conduct a robust assessment of the potential impacts and equality effects of the preferred options in order to inform the conduct of the public consultation and the identification and implementation of the final selected option.

Within this the specific objectives of the IIA were to:

- Assess all potentially significant health, access, economic, social and environmental impacts.
- Assess the potential equality effects of these impacts for all protected characteristic groups and any other groups at risk of being disproportionately or differentially affected.
- Provide conclusions and recommendations for how any negative impacts and effects could be mitigated and any positive impacts and effects maximised.

In terms of its scope, the focus of the IIA was on impacts arising from the proposed changes to Acute Hospital Services[4] under the preferred options. Proposals to deliver more care in the community as part of the wider Future Fit programme, although referenced as part of the IIA, is not explored in great detail as these models are still under development. The potential impacts of the preferred options on other primary and social care, nursing homes and residential care homes in the catchment area have not been assessed in this IIA.

1.2.2 Methodology

The IIA methodology drew on impact assessment best practice but was also tailored to reflect: the characteristics of the Future Fit programme; and the other streams of work that were already being undertaken as part of the options appraisal process. One notable characteristic of the programme is its geographical dimension. Two hospital sites, serving three localities (Telford and Wrekin, Shropshire and parts of Powys), are involved. For this reason, the IIA was designed to assess potential impacts on the catchment area as a whole and on each area. As far as the available evidence allowed, potential impacts on different localities within each area were also assessed.

Other streams of work have already been undertaken as part of the appraisal process included detailed analysis of projected health, workforce and access impacts – all impacts that an IIA itself might ordinarily assess. For this reason, and in the interest of minimising duplication, the key findings from the appraisal work have been incorporated into this report. The IIA also benefitted from being able to draw on previous work by the CSU Strategy Unit and the Future Fit programme. A baseline assessment for the IIA was previously completed and reported to the programme board in October 2015. This report builds on that work and

[4] Here and throughout the remainder of the report, except where otherwise stated, Acute Hospital Services refer to Emergency and Urgent Care.

associated analysis and engagement activity to collect baseline impact data and start to explore potential equality effects.

The three substantive methodological stages of the IIA were as follows:

Stage 1 Scoping of potential impacts

The purpose of this stage was to map out all potential impacts of the preferred options; make a provisional assessment of the potential scale of each impact; and then identify which would be subject to more detailed assessment in the subsequent stages of the IIA.

An initial rapid evidence review was undertaken of the available programme documentation and evidence from a sample of other healthcare transformation programmes. Programme stakeholders were also interviewed, including representatives of SaTH, Shropshire CCG, Telford and Wrekin CCG, Powys County Council, and groups representing patients in Shropshire, Telford and Wrekin and Powys.

A database of potential impacts was then created and populated with data about the nature of each impact and a provisional assessment of its potential scale. The database was shared with representatives of the Future Fit Impact Assessment group and used as the basis for agreeing a shortlist of key impacts that merited more detailed assessment.

Table 1.2 Potential impacts of the preferred options considered in IIA

All potential impacts identified in scoping	Shortlist of key impacts
Health & Access	**Health & Access**
clinical effectiveness	clinical effectiveness
patient safety	patient safety
patient experience	patient experience
workforce recruitment and retention	workforce recruitment and retention
services delivered in local community	services delivered in local community
demands on local ambulance service	travel times to access acute and emergency care
travel times to access acute and emergency care	travel times to access non-complex planned care
travel times to access non-complex planned care	convenience of access to non-complex planned care by public transport
convenience of access to non-complex planned care by public transport	
local levels of physical activity	
local levels of drug/alcohol/tobacco use	
local levels of accidents	
Economic	**Economic**
local businesses	local businesses
local employment	local employment
local education/training opportunities	local education/training opportunities
local economy	local economy
local house prices	local house prices
local tourism	
Social	**Social**
local well-being	local well-being
local community cohesion	local community cohesion
local deprivation	local deprivation
local traffic/congestion levels	local traffic/congestion levels
local crime levels	

All potential impacts identified in scoping	Shortlist of key impacts
accessibility and quality of local green spaces	
Environmental	**Environmental**
greenhouse gas emissions	greenhouse gas emissions
air pollution	air pollution
noise pollution	noise pollution
biodiversity	biodiversity
cultural heritage	cultural heritage
water pollution	
waste generation and disposal	
flood risk	
landscape and visual impact	

Stage 2 Assessment of key impacts

The purpose of this stage was to assess in detail the shortlisted impacts of the preferred options, both on the catchment area as a whole and on different localities and areas within it.

Data from a range of local and national sources was then identified, reviewed and used to assess the timescale, duration, and geographical distribution of each impact under each preferred option. This included data specific to each impact and additional data on the characteristics of the catchment area to enable their geographical distribution to be assessed. Technical experts involved in the programme and from other local organisations were also consulted to assist with the identification and interpretation of the data.

Stage 3 Assessment of equality effects

The purpose of this stage was to assess how the key impacts of the proposed options would potentially affect specific groups in the catchment area – including but not limited to those groups protected under the 2010 Equality Act.

Desk research was undertaken to identify and review evidence on how much different groups currently use acute hospital services, whether they experience particular issues in accessing and using these services, and the relative size and location of these groups within the catchment area. Findings from earlier equalities engagement activities carried out for the Future Fit programme were also reviewed.

Interviews were conducted with local organisations that represent different population groups to collect additional qualitative evidence on potential equality effects arising from the key impacts of the proposed options.

1.2.3 Strengths and limitations

A strength of the IIA was that it drew on a range of local and national, and quantitative and qualitative, evidence sources. This enabled individual pieces of evidence to be triangulated, thereby reducing the risk of bias and providing a reasonable degree of confidence in the overall veracity of the findings. For example, the potential equality effects that local respondents highlighted in the qualitative interviews strongly reinforced the equality effects identified through the earlier desk-based review of, primarily, national evidence.

Another strength was that the IIA assessed potential impacts for different localities in addition to for the catchment area as a whole and for specific equality groups. Although this added an additional layer of analysis/complexity to the assessment process, it has allowed a more balanced assessment to be made than would have been possible otherwise and reflects what local stakeholders said they wanted the IIA to provide.

A recognised limitation of the IIA from the outset was that its scope was restricted to assessing the impacts of the changes to acute hospital care. There are elements of the Future Fit programme that have implications for other types of care, and some stakeholders

felt that the potential impacts of these also needed to be assessed – if not through this IIA then through additional work undertaken before the selection of a final preferred option. The final chapter of this report includes recommendations for what impacts any such additional work should assess.

Another limitation was that certain aspects of the preferred options had not be finalised at the time the IIA was undertaken. For example, the architectural plans for physical modifications to the two hospital sites under each option had not been fully developed. These physical modifications will have a bearing on the potential environmental impacts of each option. This meant that certain impacts could only be partially assessed, or not assessed at all, in the IIA. Such impacts are highlighted in relevant sections of the report. The final chapter of this report also includes recommendations for what further work should be undertaken to assess these impacts once the details of the preferred options have been finalised.

A final limitation concerned the ability of the IIA to account for future scenarios that could arise after a final preferred option is selected and implemented. For example, several stakeholders made the valid point that acute hospital provision at PRH and RSH does not exist in bubble and is in reality interlinked with a range of other hospital, ambulance and community-based services in the catchment area and in neighbouring areas. Changes implemented under Future Fit could trigger wider changes to these other services, which could in turn mediate the impacts of the programme. Other stakeholders suggested future scenarios, such as a local natural disaster or terrorist attack, that the IIA should also take account of in assessing potential impacts. These scenarios were ultimately too numerous and too uncertain to be considered in the IIA.

1.3 Report structure

The report is structured as followed:

- **Chapter 2** describes the key characteristics of the population in the Future Fit catchment area and presents evidence on specific equality groups within it.
- **Chapter 3** presents detailed evidence on the projected health and access impacts and equality effects of the preferred options.
- **Chapter 4** presents detailed evidence on the projected economic impacts and equality effects of the preferred options.
- **Chapter 5** presents detailed evidence on the projected social impacts and equality effects of the preferred options.
- **Chapter 6** presents detailed evidence on the projected environmental impacts and equality effects of the preferred options.
- **Chapter 7** contains our conclusions, options for mitigation and enhancement, and recommendations for further investigation.

2 The Affected Population

This chapter describes the characteristics of the population potentially affected by the changes to acute care being considered under the Future Fit programme, including the equality effects and projected changes to these characteristics over the next 25 years.

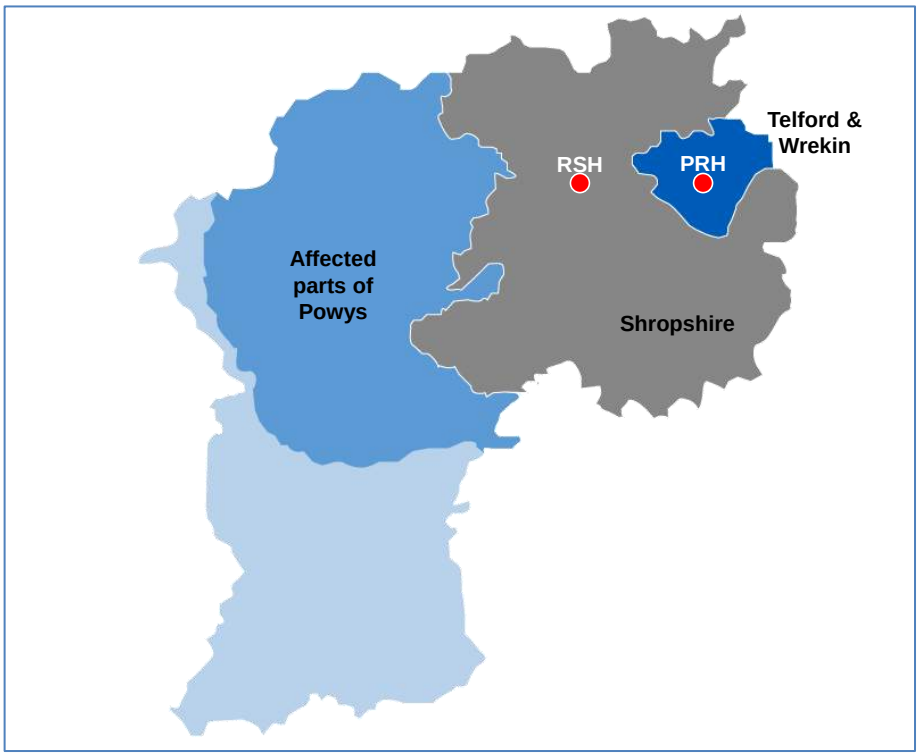
- The acute services at PRH and RSH currently serve Telford & Wrekin, Shropshire, and parts of the neighbouring Welsh county of Powys. The total population of the area is over half a million people; nearly half live in dispersed rural areas. Household income is slightly below average, although this is partly skewed by the large proportion of the population that is retired. Minority populations are below national averages.
- Telford & Wrekin has a significantly more urban population than the other two localities. Its age profile is also notably younger and it is has the largest BAME population. The Shropshire population largely matches that of the combined catchment area. Powys is the most rural of the three localities and also the oldest. There are some differences within these areas and the IIA takes account of these where possible.
- Over the next 25 years the population across the catchment area is projected to grow in size and become increasingly weighted towards older age groups.
- Three age groups are potentiality more sensitive to changes in local acute hospital services than others: pre-school age children; young adults; and older people.
- Data is not routinely reported on the proportion of A&E attendances that are made by people with a disability. However the wider evidence-base strongly suggests that disability is associated with higher levels of need for emergency services – particularly mental health and learning disabilities. Similarly data is not available for transsexual people but wider evidence suggest they are at greater risk of mental health problems than the general population.
- No evidence was identified to indicate that pregnant women and mothers of newborn children have disproportionate or differential needs in relation to acute hospital services. However, under one of the preferred options (C1) Adult and Child care services would be relocated
- Studies of secondary care usage have found that ethnicity is a significant predictor of acute hospital admission, with BAME groups being more likely to access emergency services than white groups (although there are differences within this). In addition, cultural factors can mediate access.
- No evidence was identified to indicate that religion or belief affects access to or use of hospital services. Although males account for more A&E attendance than females the difference is small.
- Research into gay, lesbian and bisexual people's experiences of accessing healthcare indicates that they have more negative experiences, on average, than heterosexual patients and may also face specific challenges associated with disclosing their sexuality and being visited by friends and same-sex partners in healthcare settings.
- Deprived groups are not protected under the 2010 Equality Act but have been considered in this IIA because they account for a disproportionately high number of A&E attendances. Despite the low overall levels of deprivation in the catchment area, Telford & Wrekin and Shropshire contain certain areas that are amongst the 20% most deprived in England. There are also areas that are amongst the 40% most deprived nationally. The affected parts of Powys contain two areas that are amongst the 20%, and others amongst the 30%, most deprived in Wales.

This chapter describes the characteristics of the population potentially affected by the changes to acute care being considered under the Future Fit programme, and projected changes to these characteristics over the next 25 years. It also presents evidence on the characteristics of specific groups within this population – including but not limited to those protected under the 2010 Equality Act.

2.1 Population characteristics

The acute services at PRH and RSH currently serve Telford and Wrekin, Shropshire, and parts of the neighbouring Welsh county of Powys.

Figure 2.1 Future Fit catchment area



The catchment area is home to a population of over half a million people. Nearly half of this population live in dispersed rural areas – a significantly higher proportion than the national average[5]. It also has an older age profile and a smaller BAME population than average. Household income is slightly below average, although this is partly skewed by the large proportion of the population that is retired. Levels of deprivation are relatively low. The population is also healthier than average, more likely to live longer and less likely to have a disability. More than 8 in 10 residents have access to a car in their household.

Table 2.1 illustrates the demographic characteristics of the population of the combined catchment area, and of each area within it, compared to national averages.

[5] Unless otherwise stated, "national average" refers to the average for England and Wales combined throughout this report.

Table 2.1 Population characteristics[6]

		Telford & Wrekin	Shropshire	Affected parts of Powys	Combined catchment area	National average
Population size		161,641	306,129	69,452	542,222	-
Population living in rural area (%)		6.2	57.0	86.5	49.5	18.4
Age (%)	0-14	19.2	16.5	17.1	16.9	17.6
	15-29	20.0	15.6	17.6	17.4	19.9
	30-44	20.6	16.9	18.7	18.5	20.5
	45-59	19.8	21.4	20.8	20.8	19.4
	60-74	14.4	19.8	17.4	17.7	14.7
	75+	6.1	9.9	8.5	8.7	7.8
Gender (%)	Male	49.5	49.7	49.6	49.5	49.2
	Female	50.5	50.3	50.4	50.5	50.8
BAME population (%)	All	7.3	1.1	3.6	3.4	14.0
	Black	1.1	0.1	0.4	0.4	3.3
	Asian	4.2	0.4	1.9	1.9	7.5
	Mixed	1.8	0.5	1.0	1.0	2.2
	Other	0.3	0.1	0.2	0.2	1.0
Net weekly income (£)[7]		505	506	496	504	547
Health	Life expectancy at birth	80.26	82.17	82.17	81.64	81.40
	Life expectancy at 65	19.27	20.51	20.76	20.22	20.10
Disabled (%)		19.0	15.7	17.7	17.1	17.6
Car availability (%)[8]		79.4	84.2	85.3	82.9	74.4

These figures illustrate some notable demographic differences between the three areas:

- **Telford and Wrekin** has a significantly more urban population than the other two areas, with only a minority living in rural areas. Its age profile is also notably younger and it is has the largest BAME population. Income levels are broadly in line with the other two areas, as are levels of deprivation. However life expectancies are lower and a higher proportion of its population have a disability. Car access is lower than in the other two localities (although still above the national average).
- The profile of the **Shropshire** population largely matches that of the combined catchment area. It is older and more rural than Telford and Wrekin, with a smaller BAME population, and lower levels of deprivation. Life expectancies are also higher, a smaller proportion of the population have a disability, and there are high levels of car access.

[6] The figures presented in this table for Shropshire, Telford & Wrekin and the affected parts of Powys are based on 2011 UK Census data. This is because of the absence of more recent data for the specific area of Powys that falls within the Future Fit catchment area. Whilst it has been possible to combine 2011 Census data for the LSOAs in Powys that make up this area, other more recent sources of socio-demographic data are not reported at this small geographical scale, meaning this is not possible. Presenting 2016 data for Shropshire and Telford & Wrekin alongside 2011 data for the affected parts of Powys would also be potentially misleading, hence the approach adopted here. Nonetheless, with respect to population size, it is possible to estimate this with a reasonable degree of confidence for the affected parts of Powys for 2016. The Welsh Government publish population projections for every Welsh local authority and, if it assumed that the population of the affected areas of Powys has increased at the same projected rate as for Powys as a whole since 2011, its population size in 2016 will be 70,216. This compares to the projected 2016 population size of 312,400 in Shropshire and 171,000 in Telford & Wrekin, based on ONS projections for English local authorities. This suggests an overall catchment area population of 553,616 in 2016 *(sources: ONS, 2011 UK Census; Welsh Government, 2011-based household projections for local authorities in Wales; ONS, 2014-based subnational population projections for local authorities in England).*

[7] GBP, before housing costs.

[8] Households with access to one or more car(s) and/or van(s).

- **Powys** is the most rural of the three areas and also the oldest. Similar to Shropshire it has a small BAME population, above average life expectancies and high rates of car ownership. However, in terms of deprivation it is more in line with Telford and Wrekin, while the proportion of its population that is disabled is close to the average for the catchment area combined.

In addition, there are further differences at a sub-area scale (i.e. between localities within each area). These are highlighted where relevant in subsequent sections in this chapter.

2.2 Future population trends

Over the next 25 years the population across the catchment area is projected to grow in size and become increasingly weighted towards older age groups. ONS projections for the three localities that make up the catchment areas are only currently available up to 2036 but even within this slightly shorter timeframe, these changes are significant.

Table 2.2 Population size

	2016	2036
Telford & Wrekin	171,000	183,200
Shropshire	312,400	336,500
Affected parts of Powys	70,216	70,314
Combined catchment area	553,616	590,014

ONS (2015) 2014-based subnational population projections for local authorities in England; Welsh Government (2012) 2011-based household projections for local authorities in Wales.

The projected increases in population size are largest in Telford and Wrekin and Shropshire (7.1% and 7.7% respectively).

Table 2.3 Proportion of the population aged 70 and over

	2016	2036
Telford & Wrekin	11.35%	18.07%
Shropshire	16.58%	25.41%
Affected parts of Powys	18.27%	28.82%
Combined catchment area	15.12%	23.54%

ONS (2015) 2014-based subnational population projections for local authorities in England; Welsh Government (2012) 2011-based household projections for local authorities in Wales.

To illustrate the implications of these changes, this will mean that in 2036 there will be over 54,000 more people aged 70 and over in the combined catchment area than there are in 2016.

Projecting other socio-demographic trends over the next 25 years is challenging, and prey to a high degree of uncertainty. For example, the proportion of the population in the catchment area that it is from a BAME group has increased over time partly as a consequence of in-migration. However it cannot be predicted to continue to do so at a similar or accelerated rate with certainty, particularly in light of the June 2016 referendum result. Another example is future levels of car access, which will be mediated by several factors (including future household incomes, car prices, petrol prices, local road, parking and public transport provision, and the location of local job opportunities) that are themselves uncertain.

Nonetheless in instances where there the broad direct of travel over the next 25 years can be predicted with a reasonable degree of confidence, and this is likely to mediate the direction or scale of an impact, this is highlighted in the discussion of specific impacts in the subsequent chapters of the report.

2.3 Specific groups within population

Groups can experience disproportionate equality effects if they rely on and use services that are impacted on by a new policy or programme more than others in the population. Groups can also experience differential equality effects if their experiences of using these services are affected differently to others in the population.

In order to provide the basis for assessing the equality effects arising out of the Future Fit options, this section details existing evidence for different groups on their current levels of usage of acute hospital services and any issues they already may experience in using these services. Given the socio-demographic variations across the catchment area and the geographical dimension to the options, evidence is also included on the geographical distribution of each group within the catchment area.

The nine protected characteristic groups defined under the 2010 Equality Act are considered in this section, as is one additional group: people living in areas of high deprivation. Although this group represent a minority in the catchment area, previous research has highlighted that more deprived people have generally poorer levels of health than average[9] and are over-represented amongst attendances at A&E[10]. Local stakeholders also expressed the view that potential equality effects on this group should be assessed as part of this IIA.

This is not exhaustive and there may be further sub-groups in the population that could experience equality effects. Further work will be developed through the public consultation process and the mitigation action plan to address this.

2.3.1 Age

Three age groups are potentiality more sensitive to changes in local acute hospital services than others: pre-school age children; young adults; and older people.

Pre-school age children

Children aged 0-4 have amongst the highest rates of A&E attendance of any age group. In 2014/15 this was 310.2 per 1,000 head of population in Shropshire and 353.4 Telford[11]. Although this is below the national average of 540.5 it is still higher than for any other age group in the catchment area. The most common factors that precipitate attendance at A&E amongst this age group are head injuries, lacerations, respiratory conditions and infections[12]. Overall Telford and Wrekin has a higher proportion of 0-4 year olds than Shropshire and Powys, with the highest concentrations in Lakeside South and The Wrekin. Within Shropshire, the proportion in this age group is highest in Shrewsbury & Atcham and parts of North Shropshire.

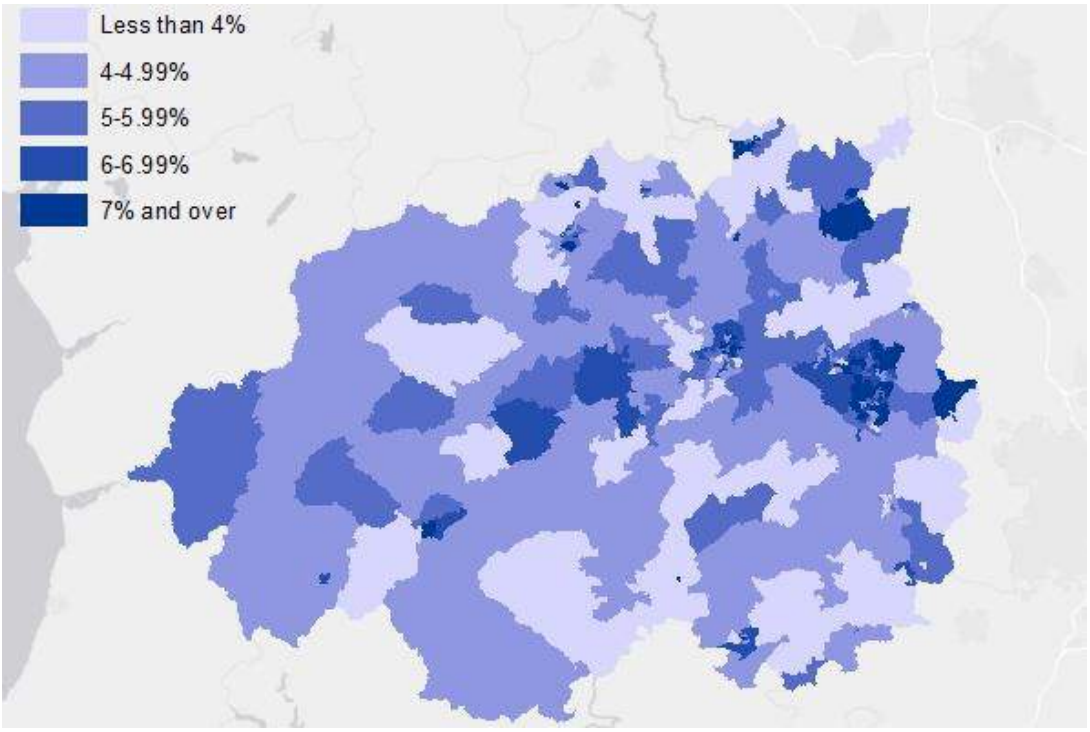
[9] See: The King's Fund (2015) Inequalities in life expectancy: Changes over time and implications for policy.

[10] HSCIC (2013) Focus on Accident and Emergency.

[11] Public Health England (2016) A&E attendance rate for children (0-4 years) 2014/15.

[12] Downing A, Rudge G (2006) A study of childhood attendance at emergency departments in the West Midlands. Emergency Medicine Journal 23 5: 391–393.

Figure 2.2 Pre-school age children as a proportion of the population in catchment area



ONS 2011 National Census data; © OpenStreetMap contributors, licenced under the Open Data Commons Open Database Licence

Young adults

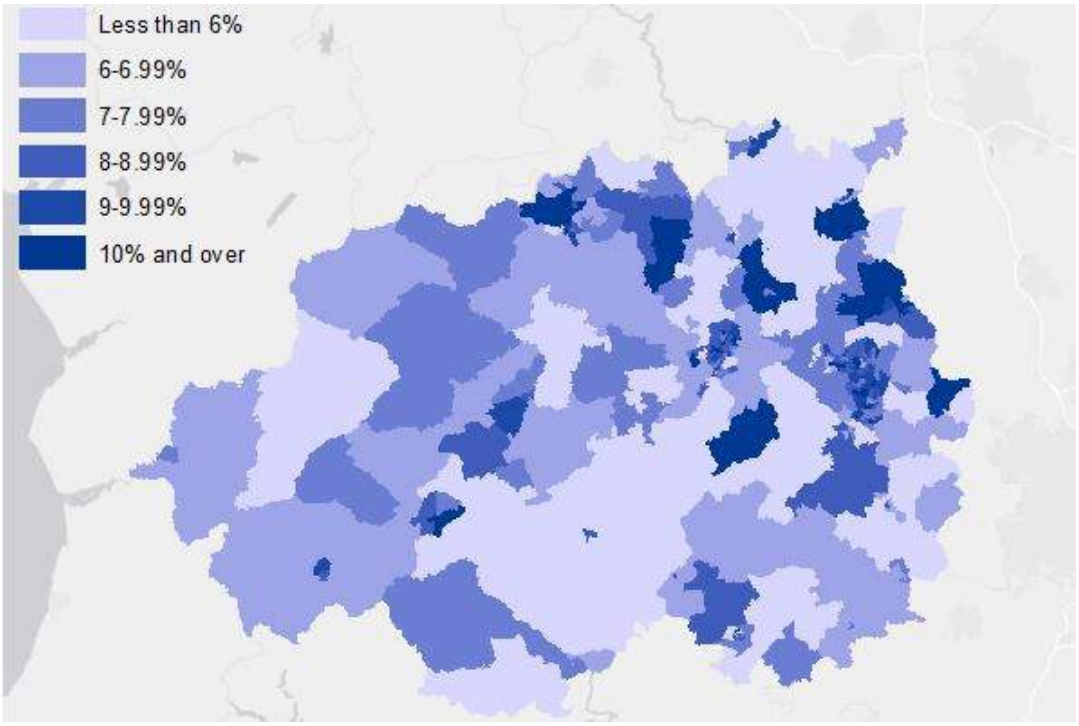
Per head of population, young adults are disproportionately more likely to use emergencies services than any other pre-retirement adult age groups. In 2014/15 the 20-29 age group represented 14.6% of all A&E attendances at RSH and PRH combined[13] despite representing less than 11% of the total population in the catchment area. Young adult males in particular are more likely than other sections of the population to be in road traffic accidents, accidents at work, and accidents while practicing sports[14]. Recent research also suggests that male and female young adults (aged 18-24) are more likely to access acute care services (including walk-in centres and A&E) when they can't see a GP than other age groups[15]. The geographical distribution of young adults is similar to that of young children. The highest concentrations are in Telford and Wrekin, and within this in Lakeside South and Hadley Castle. There are also relatively high concentrations in parts of Shrewsbury and Atcham and Oswestry.

[13] HSCIC (2016) Provider level analysis for HES Accident and Emergency Attendances 2013-14 and 2014-15.

[14] Thomas J, Kavanagh J, Tucker H, Burchett H, Tripney J, Oakley A (2007) Accidental injury, risk-taking behaviour and the social circumstances in which young people (aged 12-24) live: a systematic review. London: EPPI-Centre, Social Science Research Unit, Institute of Education, University of London.

[15] Citizens Advice Bureau (2014) Evolving expectations of GP services: Gaining insight from the perspectives of younger adults.

Figure 2.3 Young adults as a proportion of the population in catchment area



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Older people

People aged 60 and over account for more than a quarter (27.5%) of all A&E attendances in the catchment area[16], and those over 75 are the most likely of any adult age group to attend A&E[17]. Older people who attend A&E are also more likely to have an underlying long-term health condition, experience a longer stay in A&E, and be referred on to further care provision rather than return home, in comparison to other age groups[18]. On average, older people report higher levels of satisfaction with A&E and other health services than other age groups[19]. However, a notable potential issue for this age group identified by local stakeholders interviewed for the IIA is their ability to access to hospital provision. The potential impacts of the preferred options on access for older people (and some other groups) are assessed in Chapter 3.

The geographical distribution of older people is largely the inverse of that of young children and young adults. The represent the highest proportion of the population in the most rural parts of the catchment area, namely Powys, South Shropshire and Bridgnorth.

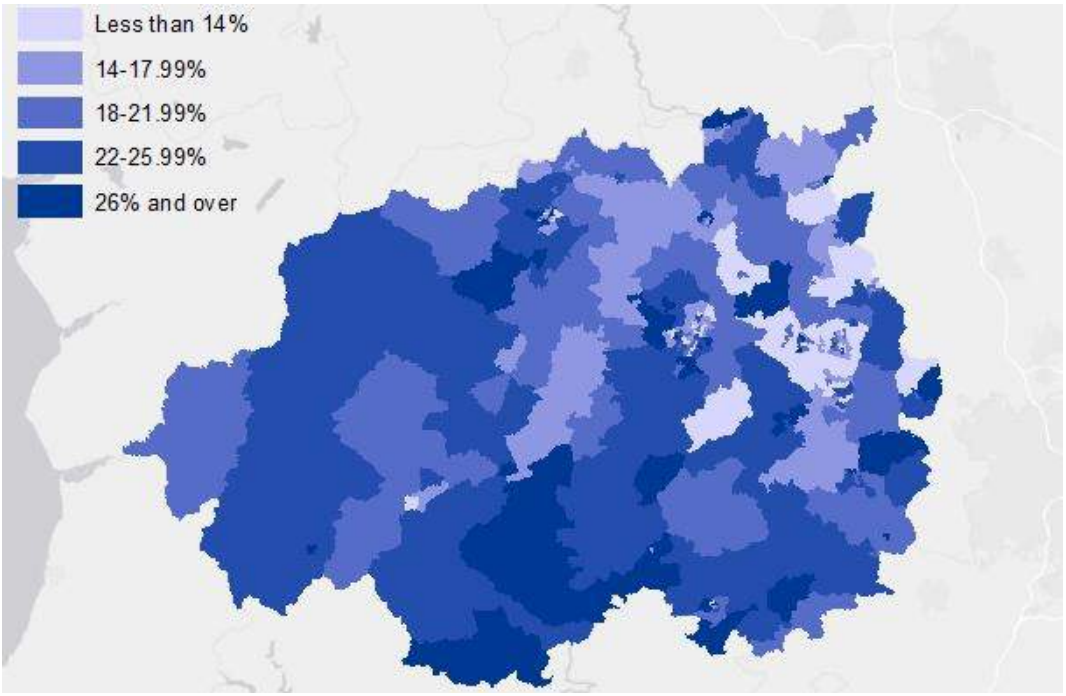
[16] HSCIC (2016) Provider level analysis for HES Accident and Emergency Attendances 2013-14 and 2014-15

[17] ibid

[18] Baker C (2015) Accident and Emergency Statistics. House of Commons Briefing Paper Number 6964.

[19] Care Quality Commission (2014) Key findings from the National Accident and Emergency Patient Survey.

Figure 2.4 Older people as a proportion of the population in catchment area



ONS 2011 National Census data; © OpenStreetMap contributors, licenced under the Open Data Commons Open Database Licence

2.3.2 Disability

Data is not routinely reported on the proportion of A&E attendances that are made by people with a disability. However the wider evidence-base strongly suggests that disability is associated with higher levels of need for emergency services – particularly mental health and learning disabilities. People with these disabilities are at risk of developing secondary conditions that may precipitate the need for emergency care. For example, the prevalence of diabetes in people with schizophrenia is around 15% compared to a rate of 2-3% for the general population[20]. Those with learning disabilities are at an increased risk of respiratory tract infections[21]. Those with mental health disabilities are more likely than the general population to suffer from coronary heart disease before the age of 55[22]. These conditions can, in the short or long term, precipitate the need for emergency care.

In 2011/2012, the percentage of adults over 18 years living with dementia in Shropshire was 0.68%, significantly worse than the national average of 0.53%; it is important to note that for the same period, Shropshire has a significantly higher percentage of adults over the age of 18 with a learning disability (0.58%) than the national average (0.21%); people with learning disabilities are at greater risk of developing dementia. According to most recent figures from the Practice Level Dementia Prevalence Calculator 2012-2013, there are a total of 5026 people (Adjusted National Dementia Prevalence rate) living with dementia in Shropshire of which 3,254 are living in the community and approximately a third of the total number; 1,772 are living in a care home[23].

Various studies suggest that people with a disability are also more likely on average to have negative experiences of using acute hospital services due to a perceived lack of

[20] World Health Organisation (2015) Disability and health. Fact sheet N°352.

[21] Royal College of Nursing (2011) Learning from the past – setting out the future: developing learning disability nursing in the United Kingdom.

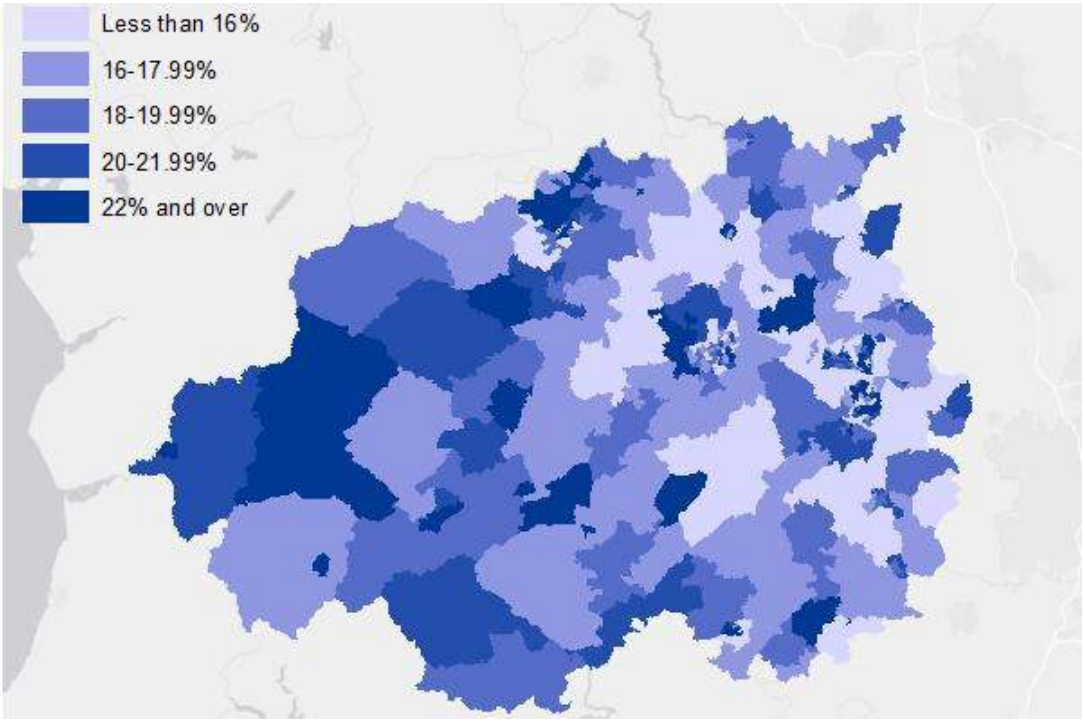
[22] De Hert M, Correll CU, Bobes J, Cetkovich-Bakmas M, Cohen D, Asai I, et al. (2011) Physical illness in patients with severe mental disorders. I. Prevalence, impact of medications and disparities in health care.

[23] https://shropshire.gov.uk/committee-services/documents/s3320/11%20Shropshires%20Dementia%20Strategy%20Version%203.pdf

understanding and sensitivity to their disability, and generally "being treated differently". For example, in a recent national survey, 33% of A&E patients with a mental health condition and 31% with a learning disability said they were not reassured by staff when distressed. This is compared with 21% of A&E patients without a disability[24]. Communication issues have also been highlighted particularly for people with a sensory disability. For example, in a survey of deaf people in Manchester, nearly half (46%) had considered complaining about their experience in A&E, with communication difficulties being the main reason[25].

The distribution of people with a disability or long-term condition similar to that of older people, with the highest concentrations being in Powys and South Shropshire, although there are also parts of Oswestry, North Shropshire and Shrewsbury and Atcham with high concentrations too.

Figure 2.5 People with a disability or long-term condition as a proportion of the population in catchment area



ONS 2011 National Census data; © OpenStreetMap contributors, licenced under the Open Data Commons Open Database Licence

2.3.3 Gender reassignment

Data is not available, either locally or nationally, on current levels of usage of acute hospital services by transsexual people. Wider evidence indicates they may be more likely to come into contact with these services than other groups in the population. On average they are at a greater risk of mental health problems and more than 1 in 3 have attempted suicide at some point in their lives[26]. Research on transsexual people's experiences of acute hospital services is extremely limited but studies of their experiences of health services in general have identified certain barriers, including a lack of access to knowledgeable, competent, and trans-friendly providers[27].

[24] Care Quality Commission (2014) Key findings from the National Accident and Emergency Patient Survey.

[25] National Primary Care Research and Development Centre (2003) Access to Health Services for Deaf People: Accident & Emergency.

[26] Department of Health (2011) Consultation on preventing suicide in England: a cross-government outcomes strategy to save lives.

[27] Taylor ET (2013) Transmen's health care experiences: Ethical social work practice beyond the binary. Journal of Gay and Lesbian Social Services, 25.

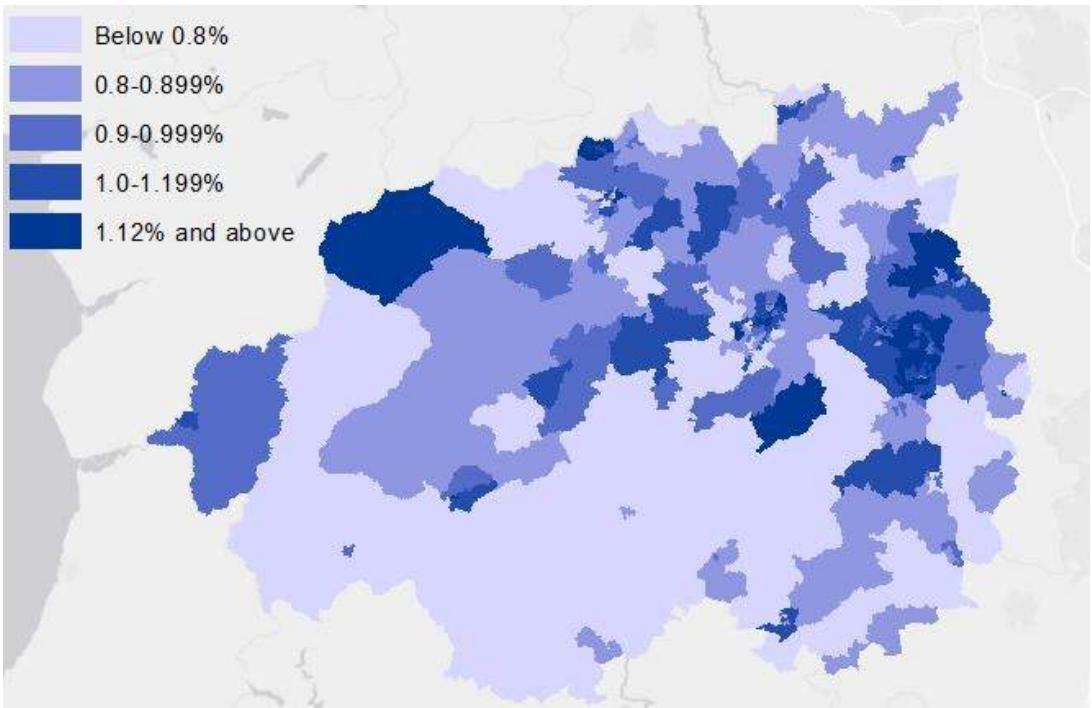
There is no data on the number or geographical distribution of transsexual people within the catchment area. Nationally, the transsexual population is estimated to be in the region of 300,000 – approximately 0.4% of the UK population[28]. This would equate to 247 transsexual people in the catchment area in total if they are assumed to represent a similar proportion of the local population.

2.3.4 Pregnancy and maternity

No evidence was identified to indicate that pregnant women and mothers of newborn children have disproportionate or differential needs in relation to acute hospital services. However, it is worth flagging here that under one of the preferred options (C1) Adult and Child care services would be relocated from their current location at PRH to RSH. It is feasible that this may have specific equality effects for this group. Non-acute services are out of scope of this IIA. There is a case for additional work to assess these, and potentially other, equality effects arising from changes to such services under the preferred options.

Data is not readily available on the geographical distribution of this specific group, although the distribution of women with newborn children can be estimated[29] – see figure 2.6.

Figure 2.6 Estimated women with newborn children as a proportion of the population in catchment area



ONS 2015 Population estimates for Census Output Areas by Age and Sex; ONS 2016 Birth summary tables, England and Wales; © OpenStreetMap contributors, licenced under the Open Data Commons Open Database Licence

This suggests the highest concentrations of this group are in Telford and Wrekin, although Shropshire and Powys also contain some areas of high concentration.

[28] Ellis SJ, Bailey L and McNeil J (2015) Trans people's experiences of mental health and gender identity services: A UK study. Journal of Gay & Lesbian Mental Health 19(1) 4-20.

[29] This estimate is based on population data for the number of women of child-bearing age (15-44 years) in each of the LSOAs that make up the catchment area. This has been combined with data on fertility rates for the local authority areas of Telford & Wrekin, Shropshire and Powys. This data is not recorded at the smaller LSOA scale, so in order to calculate this estimate it has been necessary to assume that the fertility rate in each LSOA is the same as the fertility rate of their local authority area as a whole.

2.3.5 Race (including ethnic and national origin, colour and nationality)

Studies of secondary care usage have found that ethnicity is a significant predictor of acute hospital admission[30], with BAME groups overall being more likely to access emergency services than white groups[31]. However there are variations between different BAME groups within this. The Department of Health reports that some conditions and diseases are also particularly prevalent among certain ethnic groups, for example coronary heart disease among South Asians, and diabetes among South Asians (prevalence five times higher than the general population) and people from African and Caribbean backgrounds (three times higher). Asthma admission rates for South Asian patients have been double those of white patients, and are also high for black patients[32].

Previous national surveys show higher levels of dissatisfaction with NHS services (including A&E) amongst some minority ethnic groups. Patients from Pakistani, Indian and Bangladeshi backgrounds report poorer experiences than patients from other white and BAME groups[33]. In addition, cultural factors can mediate access to acute hospital care. Nationally, it has been reported that minority ethnic communities may have poor access to health services for reasons including language barriers, lack of culturally sensitive services and negative attitudes about communities[34]. Conversely there is also evidence of how some members of BAME groups, particularly recent migrants, may be disproportionately more likely to access acute hospital services, owing to a lack of awareness of local primary care provision. For example, recent research by Dudley CCG highlighted that a disproportionately high proportion of BAME attendees at A&E were not registered with a local GP[35].

The BAME population in the catchment area predominantly live in Telford and Wrekin, and within it are most heavily concentrated within The Wrekin and Hadley Castle. The BAME population in Shropshire is more concentrated in Shrewsbury and Atcham, while other areas of Shropshire and Powys have similarly small proportions of BAME residents.

[30] Mathur R, Grundy E and Smeeth L (2013) Availability and use of UK based ethnicity data for health research. National Centre for Research Methods Working Paper 01/13.

[31] Bottle A, Aylin P, Majeed A (2006) Identifying patients at high risk of emergency hospital admissions: a logistic regression analysis. Journal of the Royal Society of Medicine 2006;99(8):406-14.

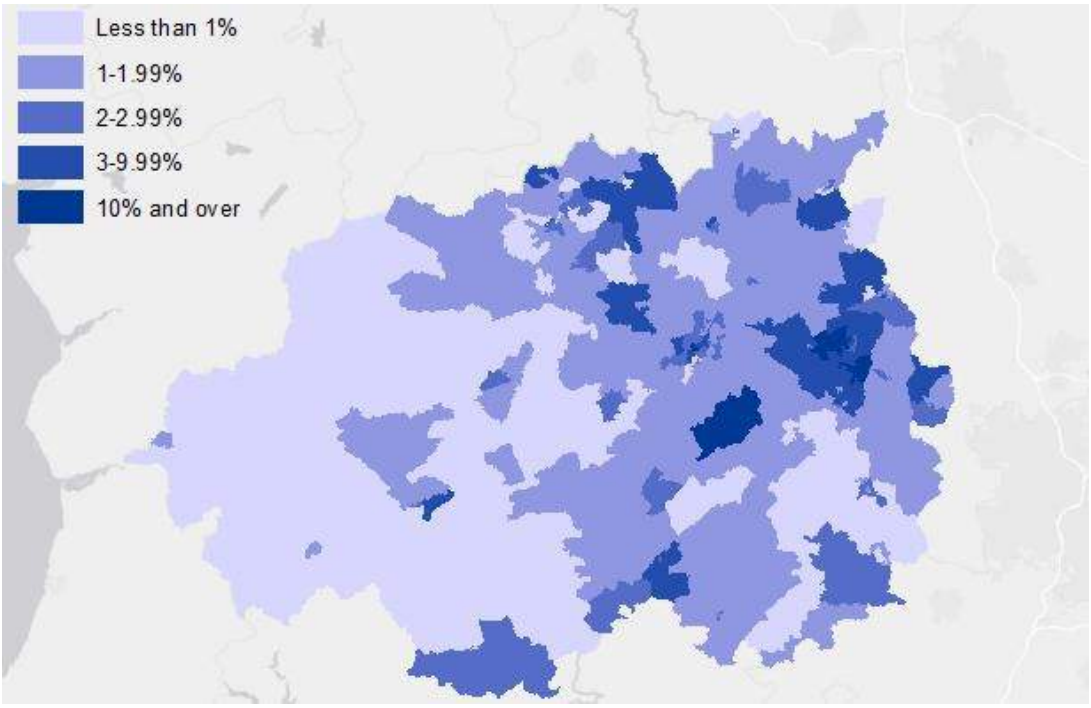
[32] Department of Health (2005) Promoting Equality and Human Rights in the NHS: A guide for non-executive directors of NHS Boards.

[33] Commission for Health Improvement (2004) Unpacking the patient's perspective: variations in NHS patient experience in England.

[34] Afiya Trust (2010) Achieving Equality in Health and Social Care.

[35] Newall D (2015) Dudley Migrant Health Needs Assessment: An initial qualitative health needs assessment of migrant communities in the borough of Dudley.

Figure 2.7 Distribution of BAME groups in catchment area



ONS 2011 National Census data; © OpenStreetMap contributors, licenced under the Open Data Commons Open Database Licence

2.3.6 Religion or belief (including lack of belief)

No evidence was identified to indicate that this group has significant disproportionate or differential needs in relation to acute hospital services. Data is also not readily available on the geographical distribution of people holding different regions or beliefs across the catchment area.

2.3.7 Sex

Males account for a higher proportion of all A&E attendances than females – both nationally and in the catchment area. However the scale of this difference is relatively small. In 2014/15, males accounted for 52.1% (56,944) of all A&E attendances at RSH and PRH combined, while 47.9% (52,425) were female[36]. There is also little evidence to suggest that access to, and experiences of, acute hospital care differs solely on account of an individuals' sex. In addition, the split of males and females is consistent across the catchment area with no notable geographical differences.

2.3.8 Sexual orientation

Use of acute hospital services by gay, lesbian and bi men and women is not monitored but there is evidence to suggest this usage is likely to be above average. For example, a major recent UK survey found that this group is two to three times more likely to report having a longstanding psychological or emotional problem than their heterosexual counterparts, while on average they also report poorer levels of general health.[37] Levels of self-harm are also above average for this group, particularly amongst lesbian and bi women[38].

[36] HSCIC (2016) Provider level analysis for HES Accident and Emergency Attendances 2013-14 and 2014-15.

[37] Elliot M N, et al (2015) Sexual Minorities in England Have Poorer Health and Worse Health Care Experiences: A National Survey, Journal of General Internal Medicine, January 2015, Volume 30, Issue 1, pp 9–16.

[38] LGBT Foundation (2013) The Lesbian, Gay, Bisexual and Trans Public Health Outcomes Framework.

Research into this group's experiences of accessing healthcare indicates that they have more negative experiences, on average, than heterosexual patients[39] and may also face specific challenges associated with disclosing their sexuality and being visited by friends and same-sex partners in healthcare settings[40]. One of the few studies to have included findings specifically on this group's experiences of acute hospital services highlighted instances of discrimination and reported that 70% of gay and bi men felt they were treated with respect and dignity in A&E compared to 78% of the general population[41].

No data is available on the size or geographical distribution of this group in the catchment area. Nationally, it has been estimated that there are 3.7 million LGB people in the UK, representing 5.85% of the population[42].

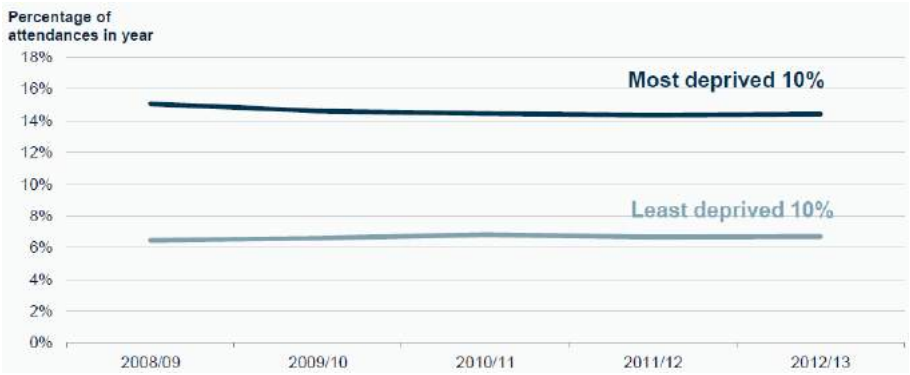
2.3.9 Marriage and civil partnership

No evidence was identified to indicate that this group has significant disproportionate or differential needs in relation to acute hospital services. The geographical distribution of people who are married is fairly even across the catchment area. The number of people in a civil partnership in the catchment area is small and their distribution is only known at a large-area scale. Between 2008 and 2014 a total of 189 civil partnerships were registered in Shropshire, 74 in Telford and Wrekin and 66 in Powys[43].

2.3.10 Deprivation

Deprived groups are not protected under the 2010 Equality Act but have been considered in this IIA because they account for a disproportionately high number of A&E attendances. Nationally the proportion of A&E attendances made by people living in the most deprived 10% of areas is double that made by people in the least deprived 10%[44].

Figure 2.8 A&E attendances by deprivation



HSCIC (2013) Focus on Accident and Emergency.

This disparity has been linked to the poorer housing, diet, lifestyle, and mental health that deprived groups may experience in comparison to more affluent ones[45].

Despite the low overall levels of deprivation in the catchment area, Telford and Wrekin and Shropshire contain certain areas that are amongst the 20% most deprived in England. This

[39] Elliot M N, et al (2015) Sexual Minorities in England Have Poorer Health and Worse Health Care Experiences: A National Survey, Journal of General Internal Medicine, January 2015, Volume 30, Issue 1, pp 9–16.

[40] SAND (2015) Researching the hopes, fears, experiences, expectations of health & social care by older – and old - lesbian, gay, bisexual and trans people in Shropshire.

[41] Stonewall (2013) Gay and Bisexual Men's Health Survey.

[42] Stomewall (2013) Gay in Britain: Lesbian, gay and bisexual people's experiences and expectations of discrimination.

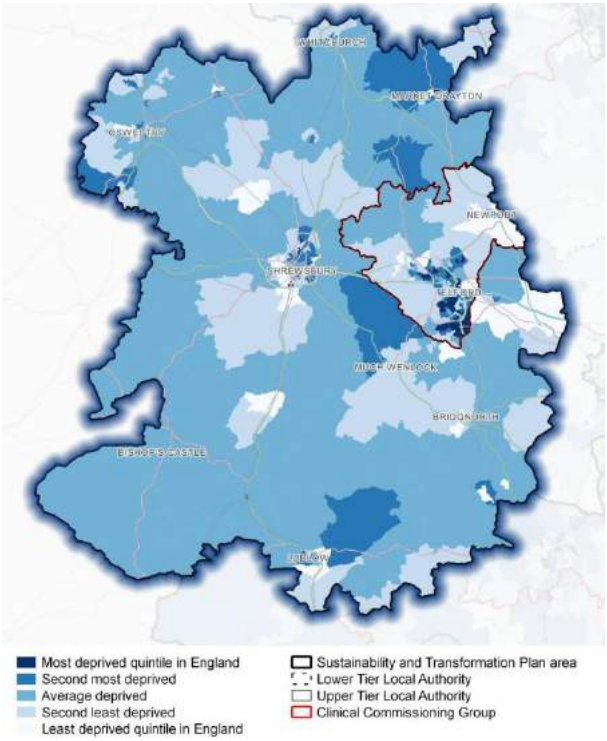
[43] Office for National Statistics (2015) Civil Partnerships in England and Wales Statistical bulletins.

[44] HSCIC (2013) Focus on Accident and Emergency.

[45] DCLG (2010) Improving health outcomes in deprived communities

includes wards within and immediately around Telford plus two wards within Shrewsbury. This equates to a total of 14,093 people in Shropshire, and 45,326 people in Telford and Wrekin, who live in areas that are amongst the 20% most deprived nationally. There are also areas that are amongst the 40% most deprived nationally in other parts of Telford; The Wrekin; Shrewsbury and Atcham; South Shropshire; Oswestry; and North Shropshire.

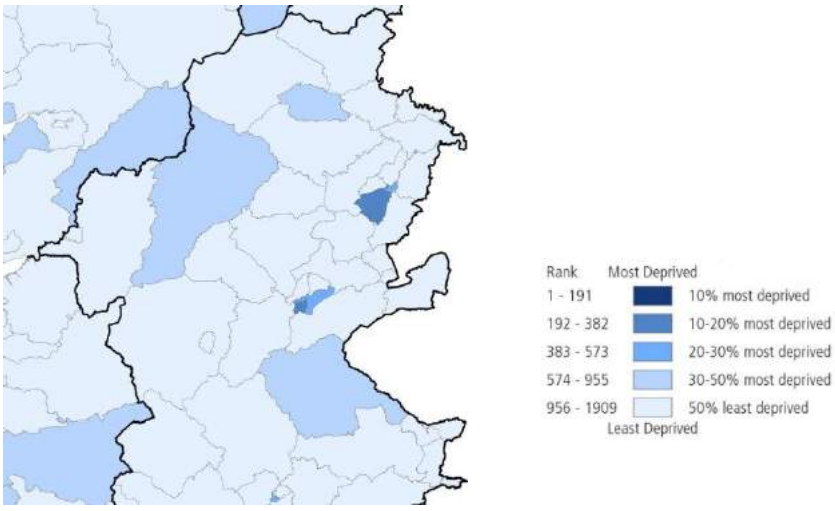
Figure 2.9 Deprivation in Telford and Wrekin and Shropshire



DCLG (2015) England Index of Multiple Deprivation

The affected parts of Powys contain two areas that are amongst the 20% most deprived in Wales (Welshpool Castle; and Newtown South), with a combined population of 3,448. There are other areas amongst the 30% most deprived (Newtown Central; Newtown East; Welshpool Gungrog; and Llandrindod).

Figure 2.10 Deprivation in Powys



Welsh Government (2014) Wales Index of Multiple Deprivation

3 Health & Access Impacts and Equality Effects

This chapter presents detailed evidence on the projected health and access impacts and equality effects of the preferred options. **It has been produced by the Strategy Unit, Midlands and Lancashire Commissioning Support Unit - drawing directly on analysis that has been undertaken as part of the Future Fit Options Appraisal process**.

Clinical effectiveness

- The main change options (B and C1) are expected to sustainably improve the effectiveness of clinical care provided to the affected population. The women's and children's variant option (C2) could lead to an adverse impact on clinical effectiveness due to the separation of women's and children's services from other critical services.

Patient safety

- The main change options (B and C1) are expected to sustainably improve the safety of clinical care provided to the affected population. The women's and children's variant option (C2) potentially introduces some new risks due to the separation of women's and children's services from other critical services.

Patient experience

- The main change options (B and C1) are expected to sustainably improve patient experience of clinical services for the affected population. The women's and children's variant option (C2) could lead to some adverse impact on experience where the separation of women's and children's services from other critical services leads to patients experiencing delays and/or being move to another site.

Workforce recruitment and retention

- The main change options (B and C1) are expected to significantly improve the current workforce challenges faced by SaTH. The women's and children's variant option (C2) could lead to a number of adverse impacts, removing the benefits achieved through the consolidation of women's and children's services in 2014.

Travel times to access urgent and community care

- The majority of urgent and emergency care patients (76% - 108,133) would be unaffected. Option B generally has an adverse impact on patients from South Shropshire, Shrewsbury & Atcham, Powys and Oswestry. Options C1/2 generally have an adverse impact on North Shropshire, Bridgnorth, Lakeside South, The Wrekin and Hadley Chase

Travel times to access non-complex planned care

- For non-complex planned operations and other procedures, some patients would face longer travel times by car or by public transport to the planned care site. Option B generally has an adverse impact on patients from North Shropshire, Bridgnorth, Lakeside South, The Wrekin and Hadley Castle. Options C1/2 generally have an adverse impact on South Shropshire, Shrewsbury & Atcham, Powys, Oswestry and (for patients travelling by public transport) North Shropshire.

Convenience of travel to access non-complex planned care by public transport

- Option B would mean it was no longer be possible to access non-complex planned care provision directly by public transport from any area in Telford & Wrekin, and multiple changes would be required from over half to access the DTC at RSH. Shropshire and Powys would be largely unaffected. In Option C1 and C2, the impacts are largely reversed

This chapter presents detailed evidence on the projected health and access impacts and equality effects of the preferred options. **It has been produced by the Strategy Unit, Midlands and Lancashire Commissioning Support Unit - drawing directly on analysis that has been undertaken as part of the Future Fit Options Appraisal process.** The

Options Appraisal is a separate exercise to this Integrated Impact Assessment but the analysis has been included in this report in order to enable a holistic view of all the potential impacts of the preferred options.

Health impacts are based on the analysis of local clinicians (from both provider and commissioner organisations) on the current health impact of the existing acute hospital configuration and the likely impact (favourable and adverse) of the proposed changes. The analysis reflects the three key quality domains: clinical effectiveness; patient safety and patient experience.

The access analysis (and associated access equality impact analysis) has been undertaken by the Strategy Unit, Midlands and Lancashire Commissioning Support Unit. It is based on actual SaTH activity data from 2015-16. By using actual data, we are able to

i. estimate access rates to hospital services by equality groups,

ii. assess the travel time and distance from each full postcode to each hospital site46

This models the impact of each option in terms of that historic activity, to show what the impact would have been were the configurations described in each option to have been in place. It is broken down into the following categories:

- Urgent Care
- Emergency Care
- Complex Planned Care
- Non-complex Planned Care
- Outpatients
- Women's and Children's Services.

For attendances at EC, road travel times only are presented since admission is expected to be by ambulance only; for DTC, road and public transport times are presented. Both reflect off-peak conditions (9a.m. to 4 p.m.) when the bulk of activity takes place. As such the public transport results are not fully representative of services at all times of the day and may present a more favourable impression of journey times and convenience than is the case at other times.

The focus of this analysis is on the differential impact of each option - that is, the marginal change that would result from implementing options B, C1 and C2 by comparison with Option A (the 'do minimum').

This impact is further broken down in terms of nine geographic localities and, so far as has been possible from the available data, of groups with protected.

Maps show the differential effects of assuming all activity continues to take place on a SaTH site. To reflect patient choice, data tables also show the impact of travelling to a nearer alternative provider. Shaded areas on the maps reflect the average travel time for each Lower Super Output Area (LSOA), each of which has a population of between 1,000 and 3,000.

[46] There are potential issues with using recent hospital activity data as a proxy for future utilisation of hospital services; this assumes that service utilisation will continue in the same manner, it is also recognised that activity data is not indicative of need. This should be explored further going forward.

3.1 Clinical effectiveness

3.1.1 Nature of potential impact

The effectiveness of clinical care services is expected to improve following the reconfiguration of services, as specialist workforce is consolidated into stable and sustainable clinical teams.

3.1.2 Baseline in a "do minimum" scenario

The effectiveness of current services is adversely impacted as a result of inadequate senior medical workforce capacity in Emergency Medicine. This reduces patient access to senior clinical decision makers in the Emergency Department, potentially resulting in sub-optimal care.

The current configuration of services also results in the frequent transfer of patients between sites, leading to increased length of stay that is associated with decompensation and adverse impact on recovery.

Following the consolidation of women's and children's services at PRH and of trauma services at RSH, there are challenges in coordinating paediatric trauma care which may adversely impact patients.

The duplication of services across two sites inhibits the reduction of variation in working practices, making it more difficult to ensure that patients across the affected area experience care of an equally high quality. The parallel duplication in workforce rotas also reduces access to senior clinical decision makers at speciality-level.

Given the extent of the workforce challenges currently faced by SaTH, there are risks to maintaining the effectiveness of care and the associated patient outcomes. This may lead to a need to implement short-term measures to address clinical sustainability. It is likely that the current model of emergency care, at least, could not be sustained for many more months and certainly not for 20 years given the extent to which current staffing falls short of national guidance and the associated difficulties in recruiting and retaining the critical staff.

SaTH's ability to deliver improvements in effectiveness and outcomes is constrained by the separation of the clinical teams across two sites and by the current reliance on agency staff (adversely impacting continuity and costs of care).

3.1.3 Likelihood and timescale of impact

On completion of reconfiguration, and all other things being equal, it is likely that the expected clinical effectiveness benefits of the proposals would begin to be realised immediately and that they would be enduring.

3.1.4 Direction and scale of impact - overall

The main change Options B and C1 are expected to sustainably improve the effectiveness of clinical care provided to the affected population. The women's and children's variant Option C2 could lead to an adverse impact on clinical effectiveness due to the separation of women's and children's services from other critical services.

The proposed separation of Planned Care and Emergency Care would enable the 'protection' of scheduled care activity at times of increased demand for unscheduled care resulting in an improved referral to treatment and fewer cancellations – fewer delays will contribute to improved outcomes for patients.

The majority of patients accessing urgent care should go to the same hospital as they do now, and seven day working would be deliverable on both sites resulting in increased presence of senior decision makers.

Consolidation of (and potential increases in) Planned Care activity gives potential to maintain and grow skills and specialties, enabling the provision of higher quality and more sustainable care to patients.

Conversely, patients requiring on-going inpatient care post 72 hours of admission may be transferred from the Emergency Site to the Planned Care site, and this may lead to disruption or extension of acute episodes. There will also remain a risk to the protection of scheduled care activity at times of increased unscheduled care demand.

In Option C2, however, the separation of women's and children's services from critical co-dependencies on the Emergency Care site may lead to delay in accessing multi-specialty senior decision-makers and appropriate treatment.

3.1.5 Direction and scale of impact - by area

No differential clinical effectiveness impact is expected by area given that, regardless of their point of origin, all patients will receive equally effective care.

3.1.6 Potential equality effects

The programme's expectation is that clinical effectiveness benefits would apply equally to all patients. It could be said, therefore, that the greater benefits will accrue to those types of patients who are higher users of hospital services than the general population. As highlighted in Chapter 2, the following groups have higher than average need for the health services affected by the preferred options: young children, young adults, older people, people with a disability, LGBT groups, BAME groups and people living in deprivation. Consequently, they are likely to be over-represented amongst patients and would benefit from a disproportionately positive effect from the projected improvements in clinical effectiveness. Any adverse impacts relating to Option C2 would necessarily apply to young children and women, including those who pregnant or who have recently given birth.

3.2 Patient safety

3.2.1 Nature of potential impact

The consolidation of services is expected to address a number of potential safety issues with the current configuration.

3.2.2 Baseline in a "do minimum" scenario

Key services – notably emergency care, critical care and acute medical care – are currently unsustainable due to significant workforce challenges. These services are exposed to a risk of critical failure if not addressed. Increasing short-term measures are required to address service safety and sustainability issues, and there is a risk that these have to be introduced in a reactive and uncoordinated manner with consequent adverse impact on safety. This may include the need for the emergency closure of certain services on one or both hospital sites, with potential knock on effects to out of county providers (and the populations they serve).

Specific safety issues in the do minimum scenario include the following:

- Paediatric surgery and surgical support to women's services are at PRH whilst the main surgical base is RSH creating risks particularly out of hours
- There is a lack of acute Gynaecology surgical services at RSH to support general surgery, and a corresponding lack of general surgery support for women & children's services at PRH
- There is a lack of sufficient skills and experience in Emergency Medicine and anaesthetics at RSH for acutely unwell children
- Inpatient theatre provision misaligned
- The provision of medical services on both sites is fragile with rotas being maintained through the use of locums and by making short term urgent service changes

- Inter hospital transfers from speciality to speciality are required, resulting in poor flow and prolonged hospital stays
- There are delays in accessing interventional radiology for some patients due to its availability at one site only.

3.2.3 Likelihood and timescale of impact

On completion of reconfiguration, and all other things being equal, it is likely that the expected safety benefits of the proposals would begin to be realised immediately and that they would be enduring.

3.2.4 Direction and scale of impact - overall

The main change Options B and C1 are expected to sustainably improve the safety of clinical care provided to the affected population. The women's and children's variant Option C2 potentially introduces some new risks due to the separation of women's and children's services from other critical services.

Specific benefits expected include the following:

- Single site delivery for emergency care ensures effective medical recruitment to pressed specialities, effective 24/7 medical rotas and therefore timely access to senior decision makers
- Unified pathways for care reduce variation and the risks inherent in this
- Separation of Planned Care from Emergency Care allows the development of effective elective care pathways, reducing unwarranted variation in care, and also reduces the risk of infection to elective patients through 'ring-fencing' of beds on the planned care site
- All emergency care and complex planned care would benefit from access to all specialities in a crisis following colocation on the emergency site
- 7 day working would be deliverable on both sites with increased presence of senior decision makers reducing any risk of sub-optimal care.

Depending on the specific option, there is potential for some disruption of existing care pathways, for example ambulatory cancer care and trauma services under Option B. All options could also necessitate occasional inter-hospital transfer of unexpected critically ill patients from the Planned Care site to the Emergency Care site.

In Option C2, however, the separation of women's and children's services from critical co-dependencies on the Emergency Care site may lead to increased risks linked to delay in accessing multi-specialty senior decision-makers and appropriate treatment.

3.2.5 Direction and scale of impact - by area

No differential patient safety impact is expected by area given that, regardless of their point of origin, all patients will receive equally effective care.

3.2.6 Potential equality effects

The programme's expectation is that patient safety benefits would apply equally to all patients. It could be said, therefore, that the greater benefits will accrue to those types of patients who are higher users of hospital services than the general population. As highlighted in Chapter 2, the following groups have higher than average need for the health services affected by the preferred options: young children, young adults, older people, people with a disability, LGBT groups, BAME groups and people living in deprivation. Consequently, they are likely to be over-represented amongst patients and would benefit from a disproportionately positive effect from the projected improvements in patient safety. Any adverse impacts relating to Option C2 would necessarily apply to young children and women, including those who pregnant or who have recently given birth.

3.3 Patient experience

3.3.1 Nature of potential impact

Experience of care, clinical effectiveness and patient safety together make the three key components of quality in the NHS. Good care is linked to positive outcomes for the patient and is also associated with high levels of staff satisfaction. Patient experience of clinical care services is expected to improve following the reconfiguration of services, as specialist workforce is consolidated into stable and sustainable clinical teams. Any impact (positive or negative) on their experience of accessing services (in terms of journey times) is reported elsewhere.

3.3.2 Baseline in a "do minimum" scenario

Patient experience of current services is adversely impacted as a result of the following factors:

- There is variable access to senior decision makers in emergency medicine particularly out of hours
- Medical rotas are reliant on locums, reducing the likelihood of patients being seen by substantive/permanent clinicians embedded in Trust systems and procedures
- The current two-site service creates confusion for patients and relatives as to where care is being delivered
- There is a need for regular inter-site transfers to bring together the patient with the appropriate specialty team for each stage of their care.
- SaTH has difficulty in meeting waiting time targets due to its inability under the current configuration to keep emergency and non-emergency bed capacity separate
- There is on-going reliance on what is, to a large extent, poor quality estate and out-dated facilities (as evidence by a recent six facet estates survey).

3.3.3 Likelihood and timescale of impact

On completion of reconfiguration, and all other things being equal, it is likely that the expected patient experience benefits of the proposals would begin to be realised immediately and that they would be enduring.

3.3.4 Direction and scale of impact - overall

The main change Options B and C1 are expected to sustainably improve patient experience of clinical services for the affected population. The women's and children's variant Option C2 could lead to some adverse impact on experience where the separation of women's and children's services from other critical services leads to patients experiencing delays and/or being move to another site. Experience benefits and disbenefits arising from changes to journey times are reported separately.

Specific benefits expected include the following:

- The separation of Planned Care from Emergency Care enables the 'protection' of scheduled care activity at times of increased demand for unscheduled care resulting in improved 'referral to treatment' times and fewer cancellations – fewer delays and cancellations leads to improved patient experience
- There would be fewer delays in accessing senior clinical decision-makers in an emergency and clinical rotas would be less reliant on locum staff with more substantive/permanent clinicians who are familiar with the Trust and the wider local health & care system
- Adverse impacts arising from the current separation of the centre for complex surgery centre and the Women and Children's Centre are cancelled (except under C2)
- Estates & facilities are improved as the Trust addresses backlog maintenance issues and develops new facilities for emergency and critical care services (meeting the latest standards)

- Patients will be seen in the most appropriate service and facility and by the most appropriate staff as patients are 'streamed' based on their clinical need
- 7 day working will facilitate timely and appropriate discharge.

In Option B, ambulatory cancer care is separated from inpatient cancer care, resulting in a potentially adverse impact on patient experience and continuity of care for cancer patients.

3.3.5 Direction and scale of impact - by area

No differential patient safety impact is expected by area given that, regardless of their point of origin, all patients will receive equally effective care.

3.3.6 Potential equality effects

The programme's expectation is that patient experience benefits would apply equally to all patients. It could be said, therefore, that the greater benefits will accrue to those types of patients who are higher users of hospital services than the general population. As highlighted in Chapter 2, the following groups have higher than average need for the health services affected by the preferred options: young children, young adults, older people, people with a disability, LGBT groups, BAME groups and people living in deprivation. Consequently, they are likely to be over-represented amongst patients and would benefit from a disproportionately positive effect from the projected improvements in patient experience. Any adverse impacts relating to Option C2 would necessarily apply to young children and women, including those who pregnant or who have recently given birth.

3.4 Workforce recruitment and retention

3.4.1 Nature of potential impact

The recruitment and retention of the required clinical workforce is expected to significantly improve following the reconfiguration of services, as specialist workforce is consolidated into stable and sustainable clinical teams. This particularly applies to those specialties which current face critical workforce challenges – emergency medicine, critical care and acute medicine. However, at the time of writing this document, the community / neighbourhood response has not yet been fully scoped. It is anticipated that where there is a reduction in hospital staff this will be achieved over time through natural wastage as people retire and that the community workforce will grow commensurately so that there is not expected to be an overarching reduction in the number of people working across the health and care system over the period. We have not considered the short and medium term impact in terms of physical changes to buildings; it is possible that the changed configuration may lead to increase in work for building and maintenance related trades as buildings are repurposed.

3.4.2 Baseline in a "do minimum" scenario

SaTH currently has only 8.6 WTE emergency medicine consultants, represent only 43% of the standards recommended by the College of Emergency Medicine for 16 hours of cover, 7 days a week. Critical Care is covered with a mix of general anaesthetists and the small number of intensivists available but consultant presence is still well below recommended levels Continued and innovative solutions to address this recruitment challenge have been explored: recruitment drives nationally and overseas; sharing posts and rotas with neighbouring Trusts; and creating new roles such as fellowships and advanced practice have all failed to provide a sustainable solution. Day to day operational plans are in place to ensure the care and safety of patients within the Trust's clinical services but a long term solution is urgently needed.

Consultant staffing in acute medicine is less than 50% of the minimum recommended by the Royal College of Physicians, a third of which are locums.

In addition, there are:

- Inadequate skills in Emergency Medicine and anaesthetics at RSH for acutely unwell children
- Insufficient senior doctors in Emergency Medicine, reducing access to senior decision makers, particularly out of hours
- Separate consultant teams with different clinical practices on 2 existing sites (in some medical specialities) with very limited cross site working
- Parallel resident and non-resident emergency rotas running for specialities that are duplicated across both sites
- Difficulties in maintaining adequate training and skills in paediatric and newborn resuscitation for A&E staff to treat critically ill and injured children and neonates the experience, following the consolidation of women's and children's services at PRH in September 2014.

3.4.3 Likelihood and timescale of impact

On completion of reconfiguration, and all other things being equal, it is likely that the expected recruitment and retention benefits of the proposals would begin to be realised immediately and that they would be enduring. As stated previously, it is not yet possible to understand the impact of the Community and primary care response to the acute trust reconfiguration is not yet finalised.

3.4.4 Direction and scale of impact - overall

The main change options (B and C1) are expected to significantly improve the current workforce challenges faced by SaTH. The women's and children's variant option (C2) could lead to a number of adverse impacts, removing the benefits achieved through the consolidation of women's and children's services in 2014.

Consolidation of emergency care on a single site is expected to significantly improve recruitment and retention for both emergency and acute medicine (supported by recent experience in consolidating Women and Children's services at PRH). The greater consultant presence in the Emergency Department (ED) achieved through consolidation reduces admissions, reduces inappropriate discharges, improves clinical outcomes and reduces risk to patients, all of which are expected to be more attractive to potential and existing staff. In addition, the on call rota frequency would reduce to be more in line with Royal College guidelines.

Combining duplicated specialities enables rota frequency reduction but increased intensity driving a process of 7 day and evening presence and working at consultant level. At Tier 2 and 1, consolidation for rotas will reduce the number of Tier 1 doctors required to staff the service and will facilitate the expansion of Advanced Practitioner posts.

The options are likely to be more attractive to both medical and non-medical trainees as their learning experience would be enhanced.

Workforce transformation opportunities and new role development would be considerably easier to operationalise due to increased capacity to mentor and to sign off clinical competences.

With the ring fencing of elective beds within Planned Care there is a reduced adverse impact from medical outliers, and this may be attractive for surgical recruitment.

A single acute medical take on the Emergency Care Site will improve rota management of acute physicians and improve access to senior review and clinical decision making 7 days per week.

The multi-disciplinary workforce required to support acutely ill patients will be consolidated onto one site, reducing duplication and supporting enhanced communication for decision making.

The Planned Care Site will enable targeted therapeutic interventions and appropriate on-going medical care from the multi-disciplinary team.

Critical Care consolidation improves compliance to core standards, enhancing the quality of care that staff can deliver, with a knock on benefit in terms of staff morale.

In relation to Option C2, the following additional impacts are expected:

- The separation of Paediatric Inpatient services from Emergency Medicine creates the potential of competency deficiencies for acute Paediatric and Neonatal Care.
- Additional full time paediatric support would be required for ED and Trauma at RSH. Managing a seriously unwell or critically injured child requires a full paediatric team. This will mean 3 tiers of medical and paediatric nursing staff at both sites 24 hours a day
- No timely neonatal support would be available to patients arriving at the RSH ED. This will increase the risk of poor clinical outcome for babies.
- As acute surgery (abdominal, trauma, ophthalmology, head and neck etc) will be based at RSH and the Paediatric inpatient beds will be at PRH, Option C2 creates the need for a staffed (paediatric medical/nursing) paediatric surgical bed base at RSH or the development of a rapid transfer service with appropriate surgical (abdominal, trauma, ophthalmology, head and neck) staff (largely medical) 24/7 at PRH
- Anaesthetic support for paediatric services would be required on both sites. This would require a full time rota of anaesthetists with competence and confidence in managing children on both sites. All these anaesthetists will need regular exposure to paediatric lists to maintain their skills
- There would be a high risk of losing trainees as their time in SaTH would exclude experience of acutely unwell paediatric & neonatal patients who arrive in the ED. The loss of trainees within the county would make current paediatric services unsustainable
- Recruitment of a SaTH paediatric retrieval team for increased transfers of highly dependent paediatric patients would need to be undertaken
- Recruitment and retention of staff within all disciplines of paediatrics is currently challenging. This model with split site care would make SaTH less likely to attract candidates with the required skills in both nursing and medical staff at all grades
- In conjunction with a site to site paediatric transfer team there would be a need to develop a SaTH neonatal stabilisation & transport retrieval service requiring a separate rota for consultants/neonatal nurse practitioners & neonatal nurses
- Rotation between sites would require considerable tier 2 work force expansion and there is a national absence of suitable candidates
- With the separation of Women and Children's services from the Emergency Care site there is limited scope to reduce rota duplication due to the multi-speciality support required. This has a negative impact on the ability to facilitate growth within non-medical advanced roles due to reduced opportunity to supervise/clinically sign off
- Separation of Women and Children's services from the EC presents medical recruitment issues as the split results in the need to increase medical staffing rotas)
- In addition Obstetrics need access to interventional radiology and as such the separation will require an additional rota. However, there are significant challenges with the ability to recruit further interventional radiology individuals to staff an additional rota.

3.4.5 Direction and scale of impact - by area

There is some potential for area-specific impact in terms of recruitment and retention. This could relate to the impact on existing staff of services moving from one site to another. Staff travel time consequences may be positive or negative; if negative, staff may be attracted to seeking roles in out of county areas where comparable facilities are closer to home. Others may face decisions about having to move home in order to stay within a required on-call travel time of a specific site. A full analysis of the impact of options on existing staff has not yet been undertaken.

In terms of potential staff, SaTH reports evidence of a reduced volume of applicants across all staff grades and types at RSH compared with PRH. This is believed to be a factor of PRH's relative proximity to the urban conurbation of Birmingham and the Black Country, and would affect all options (with the greater impact likely to be felt where the most challenged specialties are proposed to be located at RSH). Nevertheless, it is still expected that all change options would materially improve on the 'do minimum' position.

3.4.6 Potential equality effects

Any differential impact of the options on workforce would be expected to be in line with the current make-up of the workforce.

3.5 Services delivered in local community

3.5.1 Nature of potential impact

It is clear that changes to hospital based care will have a consequential impact on health and care services provided in the community. The Future Fit Clinical Workstream Model of Care report 2014 (The Report) assumes that there will be a shift of care for some patients out into the community. The Report quotes the need for integrated working which improves the co-ordination, collaboration and consistency of care delivered across the whole system both through the placement of integrated teams but also at a more basic level through effective networking and communication across the whole system. The Report tells us that integrated care requires smooth transitions between different levels of care and between organisations providing that care. The Report emphasises the importance of providers defining and planning these transitions as carefully as they do their core service. The Report cites the need for the clinical workforce to 'follow the patient' across organisational boundaries, for example, through embedding rotating posts across acute and community to improve mutual understanding and relationships between clinicians working in different care settings.

In summer of 2015 Shropshire CCG and Telford and Wrekin CCG commissioned the Strategy Unit at Midlands and Lancashire CSU to undertake a data modelling exercise, designed to provide insight into the challenges facing the non-acute sector and to encourage stakeholders to consider how these challenges and those originating from Future Fit might be met.

Six deliverables were expected from the first phase of the Community Fit project:

- To summarise the level and nature of activity currently taking place in the out-of-hospital health and care sectors
- To estimate the likely impact of demographic changes on the demand for health services in these sectors.
- To create a patient-linked dataset to provide insight into the patterns of patients' health service use across multiple sectors
- To develop a taxonomy or classification of patients based on their patterns of healthcare use.
- To summarise the assumptions in the Future Fit activity models about the movement of activity out of acute settings
- To assess of the current and potential contribution to Community Fit of voluntary sector organisations in Shropshire, Telford and Wrekin.

Soon after the Phase One Community Fit work was complete in spring of 2016, it became apparent that it would be sensible to use the Community Fit work and an associated project looking into the viability of rural urgent care services to be absorbed into the STP Neighbourhood workstream. This has now taken place and the description of the Neighbourhoods work which follows take into account previous work based on Community Fit phase one analysis.

The findings from the health and social care data matching work for Phase One of Community Fit suggest that an integrated approach to commissioning health and social care may be beneficial as service users receiving both health and social care services have an average cost 5 times higher than the overall average cost.

The impact of any community redesign work planned or underway in Powys is separate and not included in this narrative. Our recent experience is that the models being pursued by

Shropshire, Telford and Wrekin which seek to harness community resilience, blur the boundaries between health and social care and promote prevention and wellbeing are common service transformation themes being pursued across the country. We have no reason to believe Powys is pursuing significantly different objectives.

The Neighbourhood work describes a model of care based on the development of resilient communities, focussing on wellbeing and prevention. The Neighbourhoods approach highlights the historic tendency to 'silo' pathways of care for people with frailty into 'acute', 'primary' or 'social' when in fact all elements of care and organisations providing them are interdependent. The Neighbourhoods approach is based on a recognition that older people and their families often fall through the gaps or suffer at transitions from poor communication and co-ordination and a system not designed around their needs. The Neighbourhoods work starts with the assertion that populations are insufficiently engaged in their own care, and the way we provide services can promote dependence; and that too many people in Shropshire, Telford and Wrekin county end up in hospital when they could stay at home and be treated by their GP or other community healthcare professionals.

3.5.2 Baseline in a "do minimum" scenario

This section sets out some of the pressures currently facing community services, drawing where possible on local data for Shropshire, Telford and the Wrekin. Community services are under increasing pressure; according to the Primary Care Workforce Commission, the number of community nurses nationally fell by 38per cent between 2001 and 2011. Nationally, 41% of Community nurses, health visitors and district nurses are over 50 years old, this is reflected in our ageing community workforce in Shropshire, Telford & The Wrekin. (NHS workforce statistics, HSCIC).

36% of Shropshire Community Trust staff are over the age of 50, although this varies between professions. 27% of AHPs fall into this group, compared to 36% of nurses and 43% of non-clinical staff. These numbers give an indication of the potential need to recruit new employees; over the next 5 years up to one third of nurses and one quarter of AHPs may choose to retire.

The demographic modelling completed for phase 1 of Community Fit, suggests that if we were to successfully implement a community based programme which prevented people from becoming ill and manage those with healthcare problems differently, characterised as 'dynamic equilibrium', there is potential over the next 5 years to achieve improved outcomes for our population and a balanced financial position.

Senior managers of community services highlight:

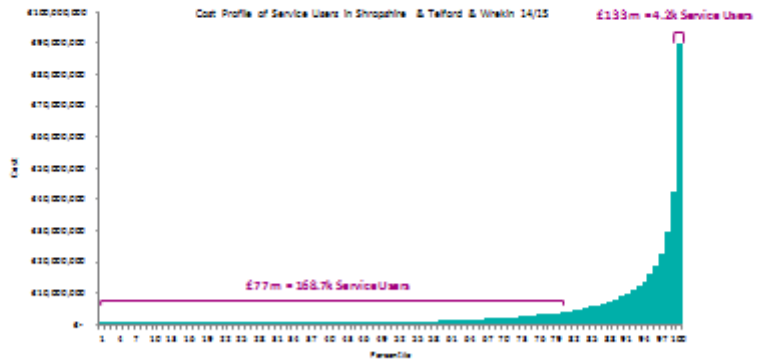
- A lack of integration between services for people with mental and physical health problems.
- People with mental health problems suffer more physical health problems and at a younger age than the rest of the population.
- In those with long-term mental health conditions, such as schizophrenia or bipolar disorder, a range of physical illnesses is more common and dispose emblematic of and caused by the inequalities faced by this group.
- People with low level, long-term mental health conditions frequently have low incomes with the consequent health issues; there are very high rates of smoking in this group and higher rates of obesity.
- Many people do not know how to access care for those with mental health problems, there are often delays in receiving the care that is needed and too frequently a crisis is reached before care is made available.

Cost of service users

The total cost of the analysed health and social care services incurred in 2014/15 was £408,147,156 which covered 210,659 service users.

The highest costing 2% of service users cost £132,910,335 compared to the least costing 80% of service users who cost less than this at £77,218,916.

This shows a large proportion of costs were incurred by a relatively small proportion of service users.



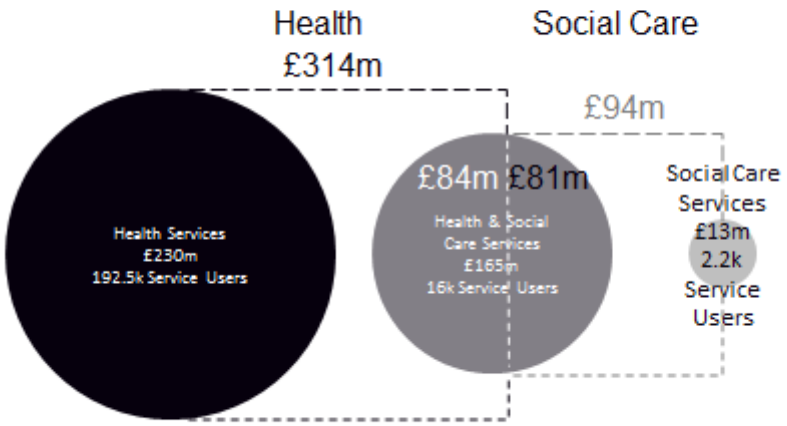
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Whilst there is no doubt that there are some very good community based services already in operation, opportunities do exist to improve, enhance and expand the range and nature of delivery of services in community settings to better meet patient needs. There is a growing body of evidence from areas that are successfully integrating care and providing enhanced outcomes and patient experience. A wealth of medical evidence shows that patients are better served where specialist care is offered by fewer hospitals and routine services are provided closer to home. Where health and care professionals work closely together, patients receive a more comprehensive and caring service.

Overlap between services

91% of the matched population received Health services only and accounted for 56% of the costs compared to Health & Social Care Users who accounted for 8% of the matched population and 40% of the costs. The average cost of the Health and Social Care group was more than 5 times the average cost.



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3.5.3 Likelihood and timescale of impact

The Neighbourhood approach envisages full community, service user and patient involvement in their health, care and wellbeing, reducing reliance on services. The Neighbourhood care models aim to ensure patients and service users will be part of a significant change in the ways that their health and social care is provided and delivered. As the Neighbourhood models become more fully developed, it will be possible to better understand potential equality effects and develop mitigation plans for reducing these.

3.5.4 Direction and scale of impact - overall

The proposed models for Shropshire, Telford and Wrekin focusses on the development of neighbourhood models of care, building on natural neighbourhoods and optimising total resource. The development of prototypes in some neighbourhoods is underway, building on a strong foundation of partnership working that has already delivered results. A plan exists to have the neighbourhood approach operational across Shropshire, Telford and Wrekin over the next 12 months. The ambition is to a 'Communities First – Services second' approach which generates social value and social action. Over time we aim to achieve the following outcomes:

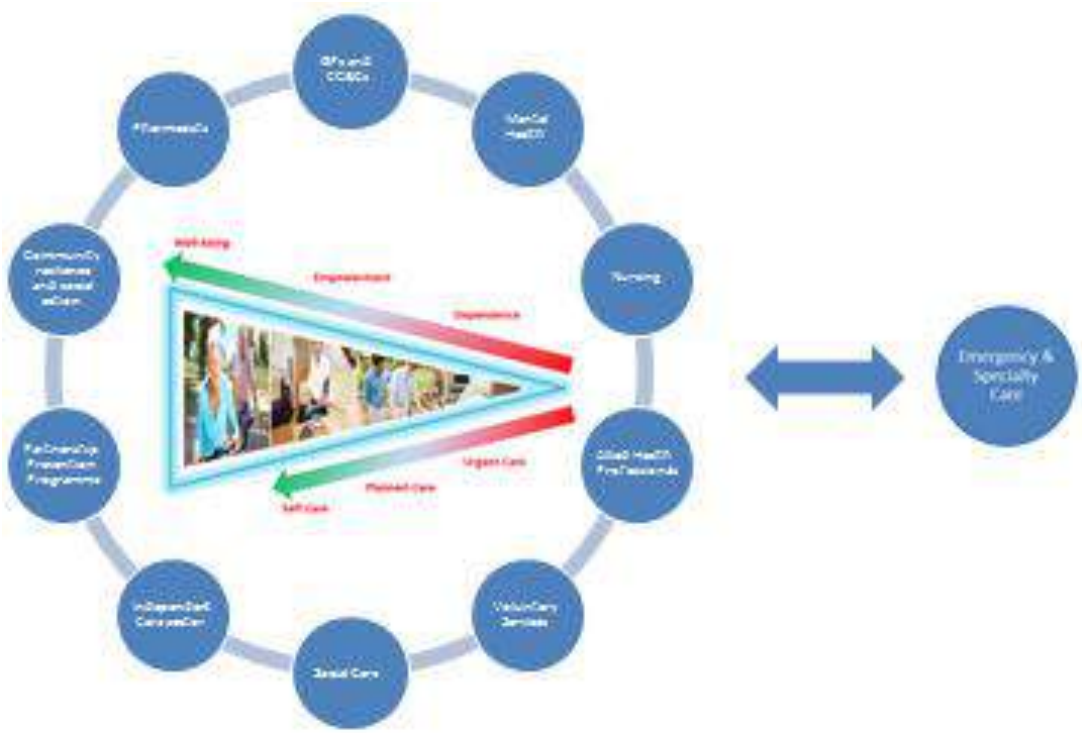
- People know how, and feel able, to live well
- People feel connected with others – with friends and support networks
- People have confidence to know, when their health concern is beyond their knowledge and skills, how to get support that is easy and proportionate to what their needs are
- Our care services enable and empower patients rather than create dependency
- Our care system delivers care right first time – better for patients and better for the system
- Our care services are able to deliver care in the most efficient way across the system – support the shift in care.

Health and care professionals have worked together with patients and other stakeholders to develop local models of care for Telford and Wrekin and Shropshire. These models are based on similar principles and are depicted diagrammatically below.

Figure 3.1 Telford Model of Care



Figure 3.2 Shropshire Model of care



The Powys Teaching Health Board Medium Term Plan, 2016-19 covers the further development of primary and community care, planned care, and a strategy to increase the capacity, capability and resilience of primary and community service. Powys' geography and rurality mean that health and care services are fragile and access to services is often difficult.

The plan sets out a rural service model that balances prevention, integration with other public services and care closer to home, with the need to achieve economies of scale, sustainable service delivery and access to specialised services. The plan highlights that the fragility of the rural service model, and of primary care itself, continues to be a major risk to the delivery of health and care in Powys.

The Powys plan seeks to provide high quality and efficient care in or close to home, supporting GP teams, pharmacists, optometrists/opticians and dentists and develop a wide range of services in health and social care settings and community hospitals. Integrated working is a strong theme and in addition to integrated working with Powys council, working with other health organisations in and outside of Wales who provide services to the people of Powys is strongly referenced.

The plan includes improvements to pathways of care and the development of new pathways, improvements to efficiency and flow across the health and care systems, the management of demand and capacity and implementing new ways of working to improve quality and sustainability. In the longer terms, the Powys plan envisages the establishment of a more robust and sustainable future rural model of care which aims to transform the way things are done through innovation, t implementing evidence based best practices and co-production, integrated working and integration.

Powys' Third Sector provides a wide range of services and activities that directly or indirectly contribute to the health and general wellbeing of Powys' citizens. The Powys plan seeks to capitalise upon opportunities for partnership working across sectors to develop truly integrated care and engaging people with their own and community wellbeing as well as their health services.

3.5.5 Direction and scale of impact - by area

Due to the manner in which the development of the Neighbourhoods service provision is being planned in Shropshire, Telford and Wrekin, it is likely that there will be a different range of services available according to the need and local assets in specific areas. Therefore it will make sense to review these at Neighbourhood level, when the nature of the service provision by Neighbourhood is agreed. Currently there is a working assumption that there will be around 4 Neighbourhoods in the Telford & Wrekin CCG area and around 11 Neighbourhoods in the Shropshire CCG area. It is clear at the time of writing that there are likely to be differential scales of impact by area, it is uncertain at the moment what these will be. It is therefore recommended that further work is done to ascertain the impact when the services are known at a Neighbourhood level. Similarly for Powys, when the nature of the integrated service provision is firmed up at a locality level, it will be possible to estimate direction and scale of impact by area.

3.5.6 Potential equality effects

These are uncertain at the time of writing, but due to the likely differences in the nature of services provided by Neighbourhood based on need, we may expect to see differential equality effects in different areas.

3.6 Travel times to access urgent and emergency care

3.6.1 Nature of potential impact

Travel times for urgent care are not expected to change as these services will still be accessible on both sites. For emergency care, some patients would face longer travel times by ambulance to the single Emergency Care site. Although not reported in detail here, the same impacts would apply to complex planned care patients attending the emergency site.

3.6.2 Baseline in a "do minimum" scenario

The following tables summarise the journey times for patients attending SaTH for urgent and emergency care in 2015/16:

Table 3.1 Average journey times to Urgent Care

Average Journey Times (Mins)	Urgent Care	
Mode of Transport	Public Transport	Car/Ambulance
Bridgnorth	62.7	22.4
North Shropshire	58.5	28.2
Oswestry	63.9	25.6
Shrewsbury & Atcham	38.7	11.5
South Shropshire	57	37.8
Hadley Castle	40.9	11.5
Lakeside South	48.9	14.3
The Wrekin	30.4	8.8
Powys	50.1	38.4
Out Of Area	64.4	21.9
Overall Average	**44.4**	**16.2**

Strategy Unit analysis

Table 3.2 Average journey times to Emergency Care

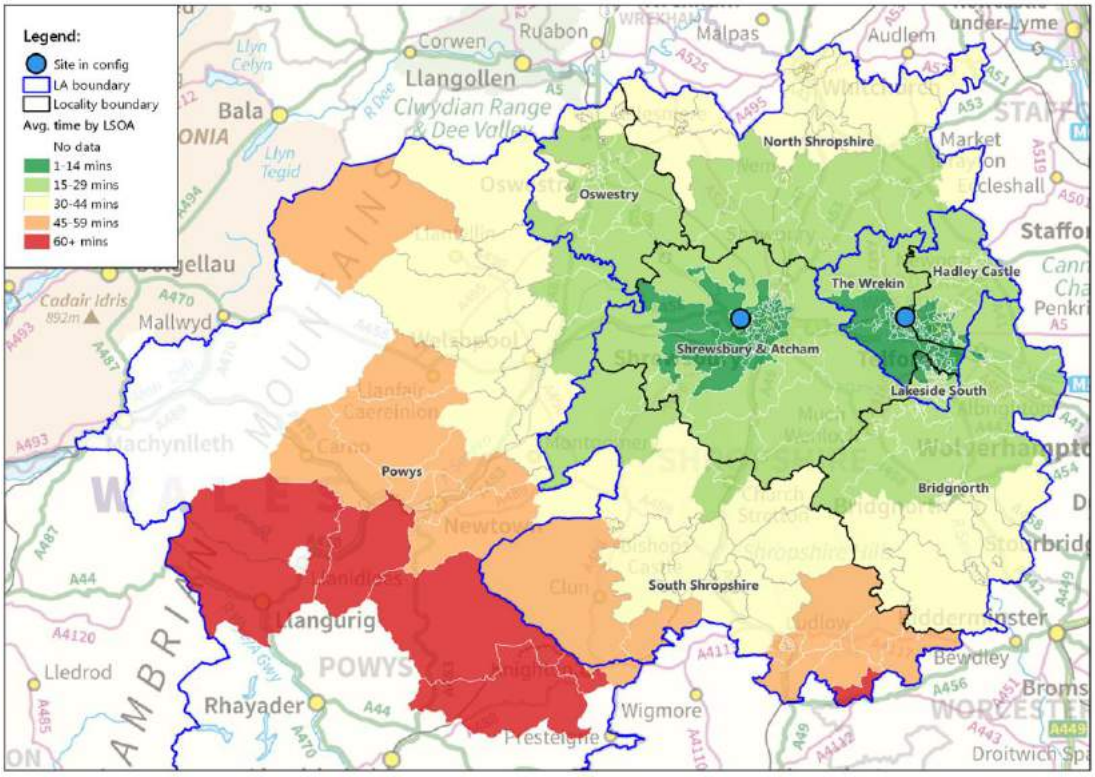
Average Journey Times (Mins)	Emergency Care
Mode of Transport	Ambulance
Bridgnorth	26.0
North Shropshire	30.3

Oswestry	27.0
Shrewsbury & Atcham	12.5
South Shropshire	38.9
Hadley Castle	14.1
Lakeside South	15.9
The Wrekin	10.6
Powys	39.6
Out Of Area	24.8
Overall Average	**20.9**

Strategy Unit analysis

The longest journey times currently are faced by patients from South Shropshire and Powys, followed by Bridgnorth, North Shropshire and Oswestry.

Figure 3.3 Map of average journey times to Emergency Care



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The differential travel times compared with urgent care may reflect a combination of factors including:

- Site-specific emergency services (e.g. trauma, stroke);
- The availability of closer to home urgent care services (e.g. community hospitals, GP practices); and
- The specific postcodes of the patients recorded in the 2015-16 data.

3.6.3 Likelihood and timescale of impact

The likelihood of the modelled impact occurring for each of the options is very high, and would follow immediately upon the relocation of services.

3.6.4 Direction and scale of impact - overall

The majority of urgent and emergency care patients (76% - 108,133) would be unaffected.

The 78,488 urgent care patients currently treated via A&E would experience no change in travel time by car or public transport. Waiting times on arrival may improve due to the separation of urgent care from emergency care and the availability of appropriate clinicians.

For emergency care, the following impacts are expected:

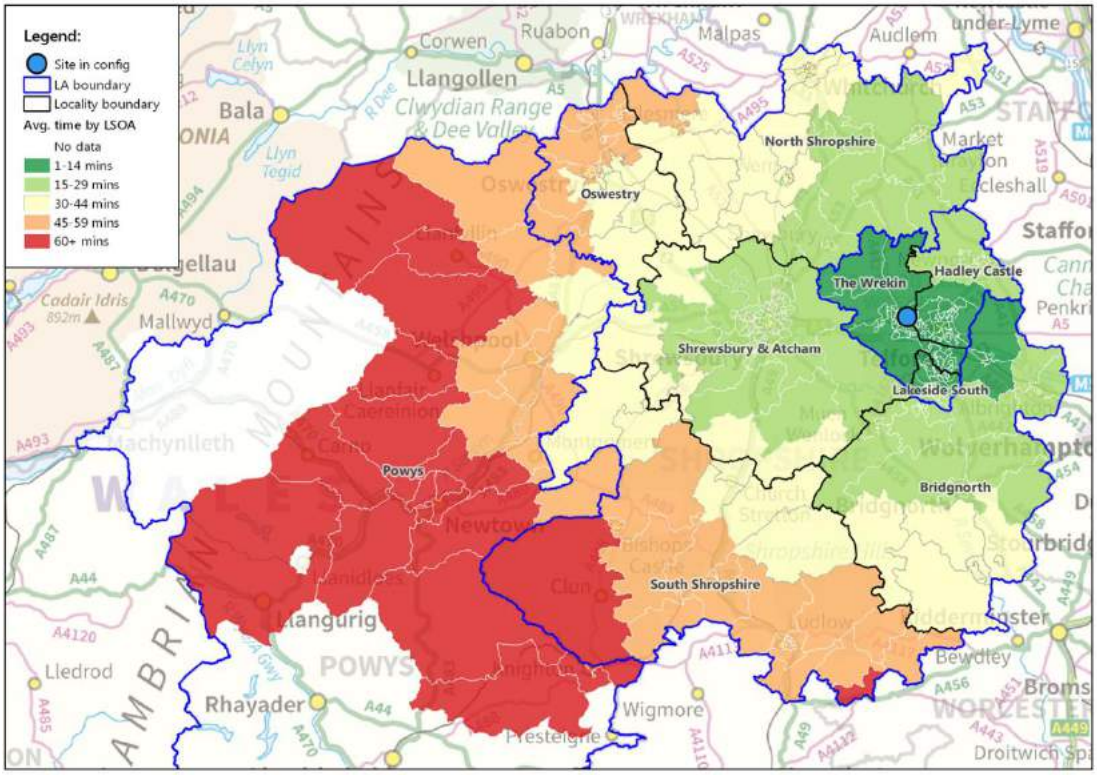
Option B

- 29,645 emergency journeys would be unaffected
- 32,886 emergency journeys would be to PRH instead of RSH
- Average emergency journey times would increase slightly to 25.3 mins (+4.4 mins)
- Of the displaced 32,886 journeys –
  - The localities adversely affected are South Shropshire (+10.1 mins), Shrewsbury & Atcham (+12.9 mins), Powys (+20 mins) and Oswestry (+20.1 mins);
  - Journey times will increase by an average of 8.5 minutes;
  - Women are marginally more affected than men (+8.7 vs. +8.4 mins);
  - 2185 are from BME groups (+7.2 mins);
  - 9,257 are aged 75 and over (+10.2 mins);
  - 784 are of pre-school age (+11.2 mins);
  - 8,800 live in the two most deprived quintiles (+4.5 mins); and
  - 10,143 live nearer to an external emergency facility.

Table 3.3 Average journey times under Option B

	Locality										All journeys	
	Shropshire					Telford			Powys	Out of Area		
Impact factor	Bridgnorth	North Shropshire	Oswestry	Shrewsbury & Atcham	South Shropshire	Hadley Castle	Lakeside South	The Wrekin	Powys		**n**	**% of all**
Total baseline journeys	4,942	6,922	3,377	14,557	3,249	8,633	5,678	7,222	5,478	2,473	**62,531**	**100.0%**
Baseline avg. time (mins)	26.0	30.3	27.0	12.5	38.9	14.1	15.9	10.6	39.6	24.8	**20.9**	
Option B avg. time (mins)	23.8	29.9	45.0	23.9	47.8	11.5	13.9	8.2	56.5	23.3	**25.3**	
Journeys displaced to PRH	**1,095**	**4,272**	**3,010**	**12,955**	**2,847**	**1,417**	**858**	**1,178**	**4,628**	**626**	**32,886**	**52.6%**
Change to avg. journey time (mins)	-9.9	-0.5	20.1	12.9	10.1	-15.7	-13.6	-14.5	20.0	-6.5	**8.5**	
Displaced avg. time (mins)	25.0	31.7	45.3	24.1	48.0	11.9	13.9	8.7	59.8	48.2	**33.3**	
Patients living nearer to an alternative site than PRH	**60**	**1,561**	**2,823**	**23**	**745**				**4,039**	**892**	**10,143**	**16.2%**
Option B avg. time (mins) if alternative chosen	23.7	28.1	27.0	23.9	44.4				51.4	17.0	**23.3**	
Displaced patients in protected groups												
Age - 75+	278	1,283	993	3,311	1,070	270	150	213	1,595	94	**9,257**	**14.8%**
change to avg. journey time	-9.6	0.0	20.1	13.5	9.9	-15.7	-13.6	-14.4	20.0	-6.0	**10.2**	
Age - Pre-school	6	67	41	549	29	8	2	10	63	9	**784**	**1.3%**
change to avg. journey time	-10.0	1.8	20.1	12.1	12.1	-15.6	-13.7	-11.9	20.0	-9.9	**11.2**	
BME groups	48	269	193	892	145	154	49	140	251	44	**2,185**	**3.5%**
change to avg. journey time	-9.5	-0.8	20.1	13.0	10.8	-16.5	-13.6	-14.7	19.9	-9.5	**7.2**	
Gender - Male	595	2,206	1,507	6,174	1,428	678	399	552	2,334	371	**16,244**	**26.0%**
change to avg. journey time	-9.9	-1.0	20.1	12.7	10.1	-15.8	-13.6	-14.6	20.0	-6.1	**8.4**	
Gender - Female	500	2,066	1,503	6,781	1,419	739	459	626	2,294	255	**16,642**	**26.6%**
change to avg. journey time	-9.9	0.0	20.1	13.0	10.1	-15.7	-13.6	-14.5	20.0	-7.2	**8.7**	
IMD 1&2 (most deprived 40%)	235	905	879	2,985	877	728	578	673	940		**8,800**	**14.1%**
change to avg. journey time	-10.4	-2.9	20.2	10.1	8.0	-15.8	-13.7	-13.9	19.9		**4.5**	

Figure 3.4 Map of average journey times under Option B



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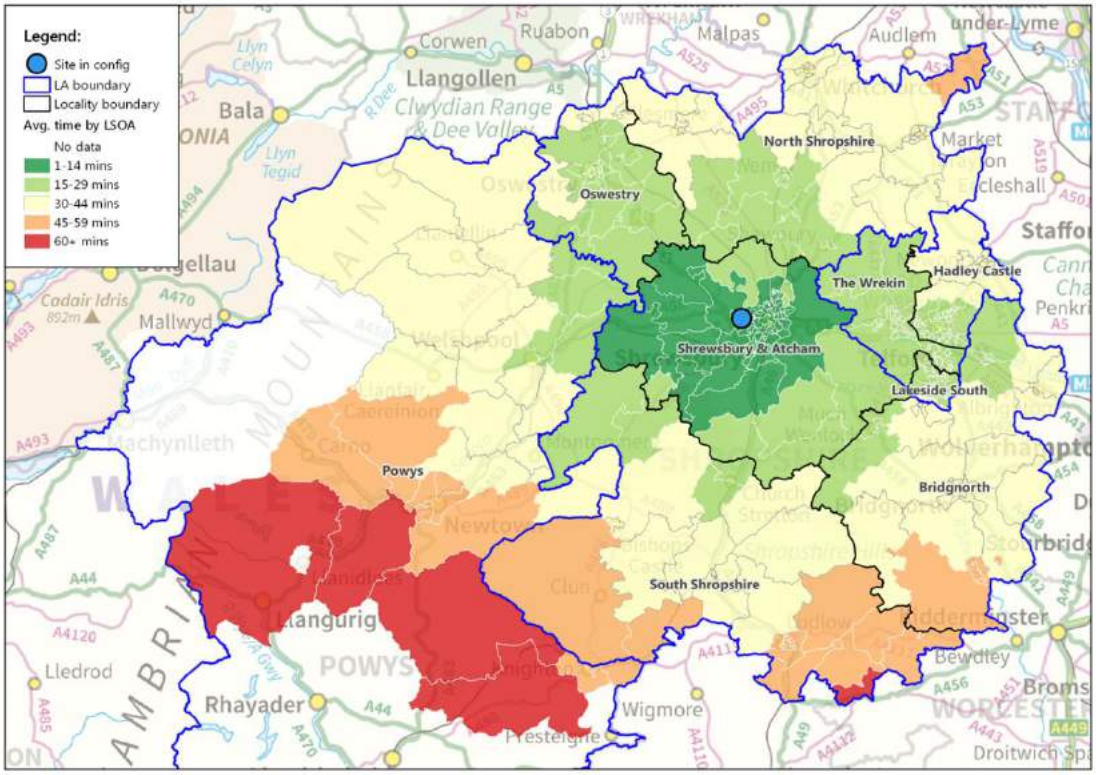
Option C1/2

- 34,785 emergency journeys would be unaffected
- 27,746 emergency journeys would be to RSH instead of PRH
- Average emergency journey times would increase slightly to 25.7 mins (+4.8 mins)
- Of the displaced 27,746 journeys –
  - The localities adversely affected are North Shropshire (+9.2 mins), Bridgnorth (+10.8 mins), Lakeside South (+13.6 mins), The Wrekin (+15 mins) and Hadley Castle (+15.7 mins);
  - Journey times will increase by an average of 10.8 minutes;
  - Men are marginally more affected than women (+11.1 vs. +10.6 mins);
  - 2,634 are from BME groups (+12.6 mins);
  - 6,996 are aged 75 and over (+10 mins);
  - 2,049 are of pre-school age (+9.8 mins);
  - 12,967 live in the two most deprived quintiles (+12.7 mins); and
  - 7,116 live nearer to an external emergency facility (+3.8 mins).

Table 3.4 Average journey times under Option C1/2

	Locality										All journeys	
	Shropshire					Telford			Powys	Out of Area		
Impact factor	Bridgnorth	North Shropshire	Oswestry	Shrewsbury & Atcham	South Shropshire	Hadley Castle	Lakeside South	The Wrekin	Powys		**n**	**% of all**
Total baseline journeys	4,942	6,922	3,377	14,557	3,249	8,633	5,678	7,222	5,478	2,473	**62,531**	**100.0%**
Baseline avg. time (mins)	26.0	30.3	27.0	12.5	38.9	14.1	15.9	10.6	39.6	24.8	**20.9**	
Option C avg. time (mins)	34.3	33.7	25.0	11.2	38.0	27.0	27.3	22.9	37.6	28.6	**25.7**	
Journeys displaced to RSH	**3,816**	**2,624**	**339**	**1,531**	**387**	**7,065**	**4,768**	**5,922**	**546**	**748**	**27,746**	**44.4%**
Change to avg. journey time (mins)	10.8	9.2	-20.1	-11.7	-8.0	15.7	13.6	15.0	-20.1	12.4	**10.8**	
Displaced avg. time (mins)	34.4	36.5	25.3	12.0	40.0	27.4	27.6	23.3	40.0	48.5	**28.5**	
Patients living nearer to an alternative site than RSH	**2,874**	**1,901**	**217**		**141**	**1,225**			**10**	**748**	**7,116**	**11.4%**
Option C avg. time (mins) if alternative chosen	31.0	31.4	24.8		37.6	26.1			37.6	20.4	**24.7**	
Displaced patients in protected groups												
Age - 75+	1,397	773	84	421	141	1,607	924	1,347	156	146	**6,996**	**11.2%**
change to avg. journey time	10.5	8.7	-20.1	-12.1	-8.6	15.5	13.6	15.0	-20.1	13.2	**10.0**	
Age - Pre-school	184	186	32	160	33	498	403	456	61	36	**2,049**	**3.3%**
change to avg. journey time	10.8	8.4	-20.2	-11.6	-6.3	15.8	13.6	14.5	-20.2	13.3	**9.8**	
BME groups	162	136	26	112	16	913	319	823	42	85	**2,634**	**4.2%**
change to avg. journey time	10.5	9.9	-20.0	-12.4	-6.2	16.4	13.6	15.2	-20.2	12.8	**12.6**	
Gender - Male	1,781	1,234	171	643	191	3,391	2,332	2,908	251	397	**13,299**	**21.3%**
change to avg. journey time	10.9	9.5	-20.1	-11.2	-8.2	15.8	13.6	15.0	-19.9	12.1	**11.1**	
Gender - Female	2,035	1,390	168	888	196	3,674	2,436	3,014	295	351	**14,447**	**23.1%**
change to avg. journey time	10.7	8.9	-20.1	-12.0	-7.8	15.7	13.6	15.0	-20.2	12.7	**10.6**	
IMD 1&2 (most deprived 40%)	866	825	103	331	153	3,792	3,243	3,544	110		**12,967**	**20.7%**
change to avg. journey time	10.8	10.7	-20.2	-10.0	-4.9	15.9	13.7	14.2	-20.0		**12.7**	

Figure 3.5 Map of average journeys times under Option C1/2



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A subset of emergency journeys are defined by the ambulance service as being time-critical. The impact of the options on these journeys is as follows:

Table 3.5 Time-critical average journey times under each option

Locality	Option A Avg. time	Option B Avg. time	Option B Difference	Option C1/2 Avg. time	Option C1/2 Difference
Bridgnorth	25.1	24.9	-0.2	33.0	+7.9
North Shropshire	27.8	29.0	+1.2	31.8	+4.0
Oswestry	23.6	41.8	+18.2	23.6	0.0
Shrewsbury & Atcham	12.1	22.9	+10.8	10.9	-1.2
South Shropshire	38.0	44.8	+6.8	35.8	-2.2
Hadley Castle	11.3	10.8	-0.5	27.0	+15.7
Lakeside South	14.9	14.4	-0.5	26.2	+11.3
The Wrekin	10.1	8.3	-1.7	23.0	+13.0
Powys	37.8	56.5	+18.7	36.5	-1.3
Overall Average	**20.0**	**26.3**	**+6.2**	**25.1**	**+5.1**

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3.6.5 Direction and scale of impact - by area

Option B generally has an adverse impact on patients from South Shropshire, Shrewsbury & Atcham, Powys and Oswestry.

Options C1/2 generally have an adverse impact on North Shropshire, Bridgnorth, Lakeside South, The Wrekin and Hadley Chase.

3.6.6 Potential equality effects

As highlighted in Chapter 2, the following groups have higher than average need for the health services affected by the preferred options: young children, young adults, older people, people with a disability, LGBT groups, BAME groups and people living in deprivation. Consequently, they are likely to be over-represented amongst patients requiring conveyance to emergency care, and would be disproportionately negatively affected by increased journey times. There are also potential equality effects arising out of the distribution of certain groups in different geographical areas and the projected journey times for these areas. As a consequence of this, Option B has a greater adverse impact on BAME and over 75 year old patients. Options C1/2 have a greater adverse impact on pre-school children and those living in the two most deprived quintiles.

3.7 Travel times to access non-complex planned care

3.7.1 Nature of potential impact

Travel times for outpatients and diagnostic appointments are not expected to change as these services will still be accessible on both sites. For non-complex planned operations and other procedures, some patients would face longer travel times by car or by public transport to the planned care site.

3.7.2 Baseline in a "do minimum" scenario

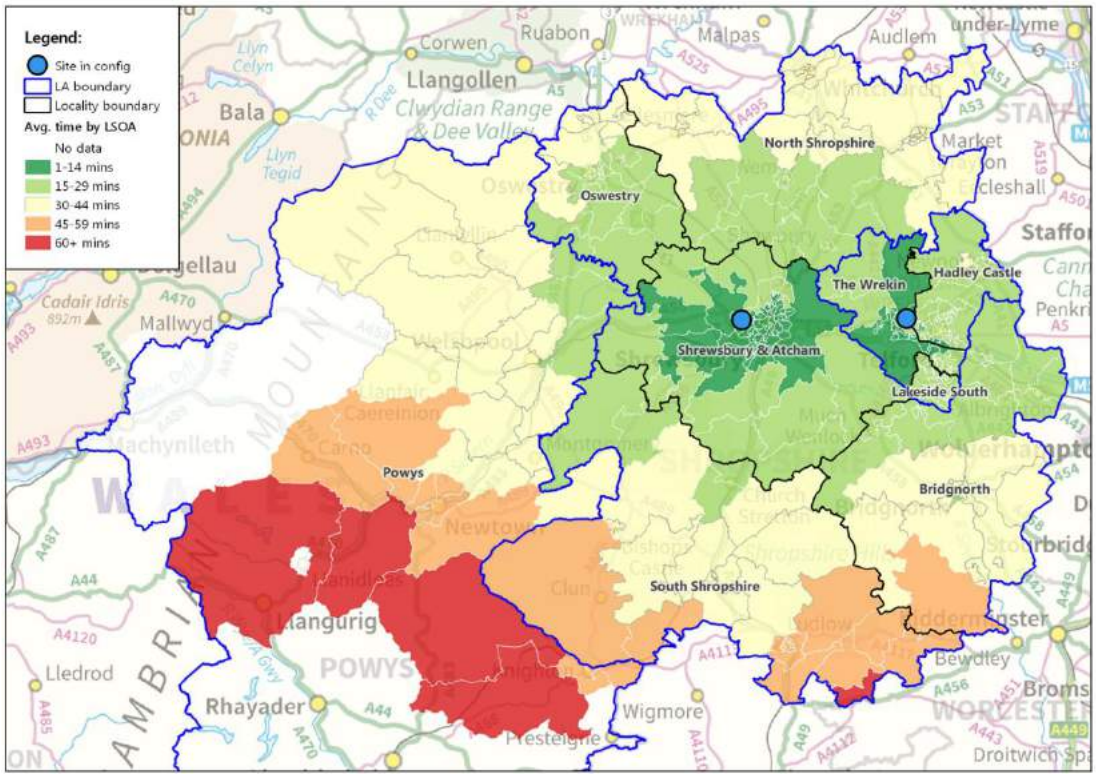
There were 57,444 non-complex planned care patients in 2015/16, and their current travel times by car and public transport are illustrated below:

Table 3.6 Average journey times to access non-complex planned care

Average Journey Times (Mins)	Non-complex planned care	
Mode of Transport	Public Transport	Car
Bridgnorth	76.8	29.4
North Shropshire	63.7	31.3
Oswestry	67.5	26.9
Shrewsbury & Atcham	40.8	12.5
South Shropshire	58.4	39.3
Hadley Castle	63.7	19.9
Lakeside South	64.8	20.3
The Wrekin	49.9	14.7
Powys	58.0	37.2
Out Of Area	81.3	38.0
Overall Average	**58.5**	**24.0**

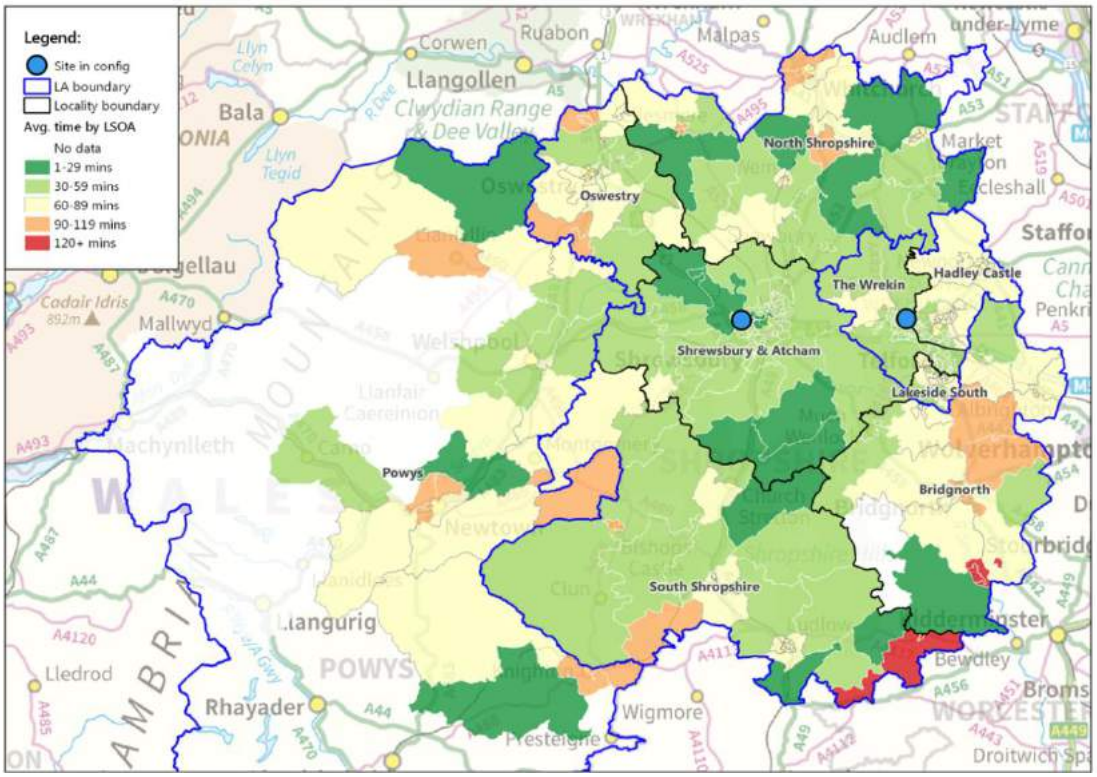
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Figure 3.6 Map of average journey times to access non-complex planned care by car



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Figure 3.7 Map of average journey times to access non-complex planned care by public transport



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3.7.3 Likelihood and timescale of impact

The likelihood of the modelled impact occurring for each of the options is very high, and would follow immediately upon the relocation of services.

3.7.4 Direction and scale of impact – overall

The following impacts are expected on non-complex planned care journeys:

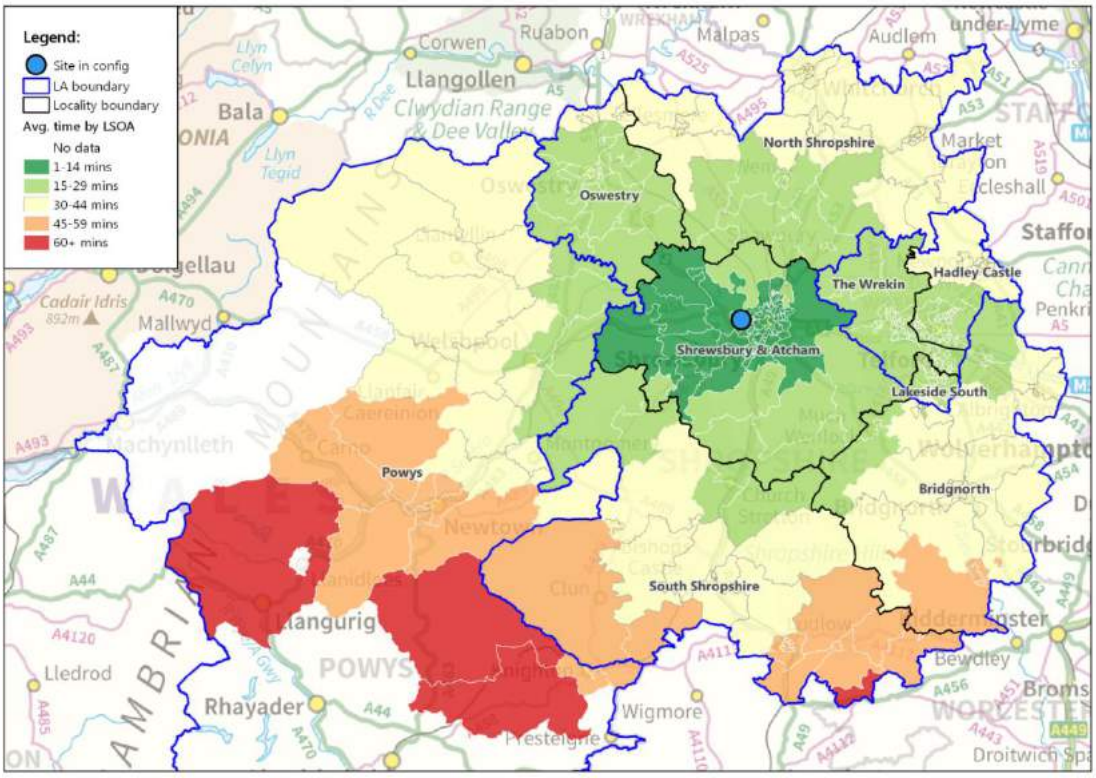
Option B

- 42,204 journeys would be unaffected
- 15,240 journeys would be to RSH instead of PRH
- Average journey times would increase slightly to 26.3 mins (+2.3 mins)
- Of the displaced 15,240 journeys –
  - The localities adversely affected are North Shropshire (+7.9 mins), Bridgnorth (+10.8 mins), Lakeside South (+13.6 mins), The Wrekin (+15.2 mins) and Hadley Castle (+15.7 mins);
  - Journey times will increase by an average of 8.8 minutes;
  - Men are marginally more affected than women (+9 vs.+8.5 mins);
  - 1,073 are from BME groups (+11.3 mins);
  - 2,864 are aged 75 and over (+8.8 mins);
  - None are of pre-school age;
  - 5,974 live in the two most deprived quintiles (+11.3 mins); and
  - 4,225 live nearer to an external facility.
  - Public transport journeys show an increase in overall access time (+6.1 mins) but with a very varied geographical impact, as for car journeys. The greatest adverse impact appears to be on over 75s, BAME groups and deprived populations in Bridgnorth, Hadley Castle, Lakeside South and The Wrekin.

Table 3.7 Average journeys times to access non-complex planned care by car under Option B

	Locality										All journeys	
	Shropshire					Telford			Powys	Out of Area		
Impact factor	Bridgnorth	North Shropshire	Oswestry	Shrewsbury & Atcham	South Shropshire	Hadley Castle	Lakeside South	The Wrekin	Powys		**n**	**% of all**
Total baseline journeys	5,434	6,616	3,240	11,987	3,629	8,293	4,656	6,082	5,989	1,518	**57,444**	**100.0%**
Baseline avg. time (mins)	29.4	31.3	26.9	12.5	39.3	19.9	20.3	14.7	37.2	38.0	**24.0**	
Option B avg. time (mins)	33.9	33.1	24.6	11.3	38.2	26.7	26.3	22.0	35.6	41.0	**26.3**	
Journeys displaced to RSH	**2,247**	**1,485**	**369**	**1,230**	**448**	**3,622**	**2,063**	**2,917**	**490**	**369**	**15,240**	**26.5%**
Change to avg. journey time (mins)	10.8	7.9	-20.1	-11.8	-9.0	15.7	13.6	15.2	-20.0	12.5	**8.8**	
Displaced avg. time (mins)	34.4	36.3	25.8	11.9	39.2	27.6	27.6	23.2	39.7	44.9	**28.4**	
Patients living nearer to an alternative site than RSH	**1,719**	**1,054**	**239**		**166**	**657**			**21**	**369**	**4,225**	**7.4%**
Option B avg. time (mins) if alternative chosen	32.1	31.7	24.3		37.7	26.3			35.5	35.6	**25.7**	
Displaced patients in protected groups												
Age - 75+	496	309	65	229	81	643	339	538	93	71	**2,864**	**5.0%**
change to avg. journey time	10.6	8.6	-20.1	-11.9	-9.7	15.8	13.6	15.3	-20.0	12.6	**8.8**	
Age - Pre-school											**0**	**0.0%**
change to avg. journey time												
BME groups	108	86	17	56	16	314	133	271	19	53	**1,073**	**1.9%**
change to avg. journey time	10.9	8.7	-20.2	-13.3	-8.8	16.0	13.6	15.8	-20.2	12.6	**11.3**	
Gender - Male	1,088	695	158	554	189	1,698	979	1,326	214	187	**7,088**	**12.3%**
change to avg. journey time	10.9	8.0	-20.1	-11.6	-10.4	15.7	13.6	15.2	-19.9	12.6	**9.0**	
Gender - Female	1,159	790	211	676	259	1,924	1,084	1,591	276	182	**8,152**	**14.2%**
change to avg. journey time	10.6	7.8	-20.1	-12.1	-7.9	15.7	13.6	15.1	-20.0	12.3	**8.5**	
IMD 1&2 (most deprived 40%)	502	438	101	253	144	1,733	1,252	1,457	101		**5,981**	**10.4%**
change to avg. journey time	11.0	9.9	-20.2	-10.2	-5.9	15.7	13.7	14.2	-19.9		**11.3**	

Figure 3.8 Map of average journeys times to access non-complex planned care by car under Option B

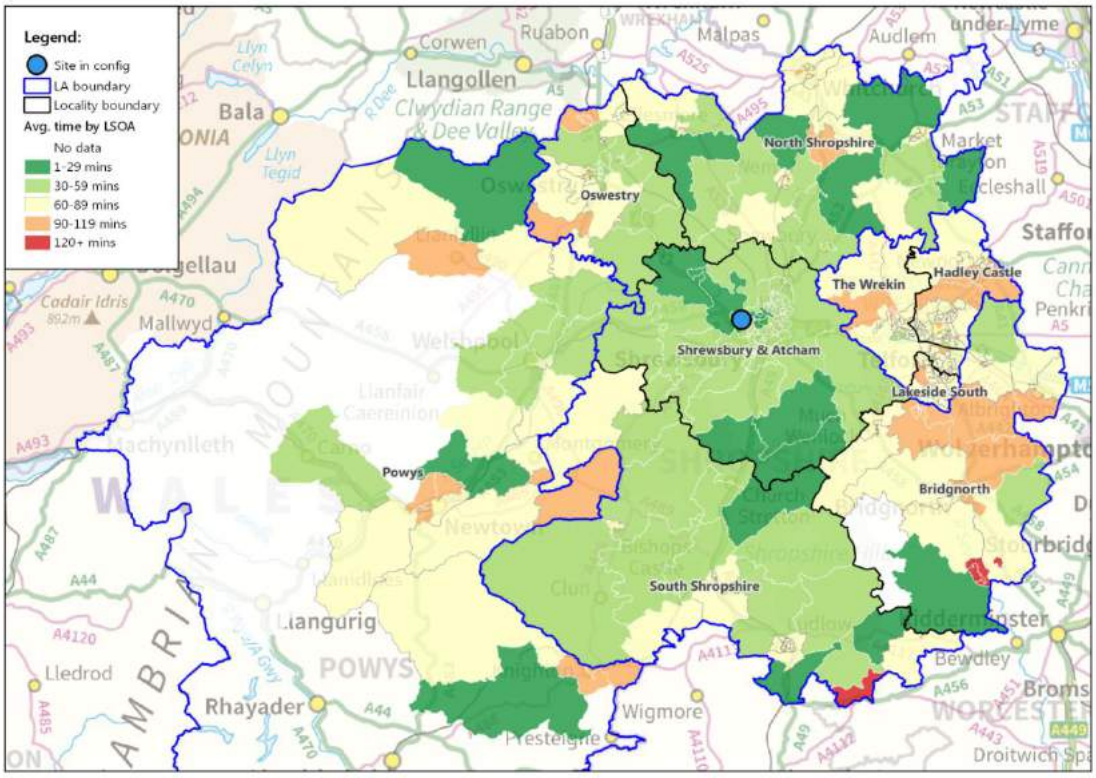


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Table 3.8 Average journey times to access non-complex planned care by public transport under Option B

	Locality										All journeys	
	Shropshire					Telford			Powys	Out of Area		
Impact factor	Bridgnorth	North Shropshire	Oswestry	Shrewsbury & Atcham	South Shropshire	Hadley Castle	Lakeside South	The Wrekin	Powys		**n**	**% of all**
Total baseline journeys	5,430	6,588	3,218	11,888	3,632	8,142	4,439	5,986	5,987	1,497	**56,807**	**100.0%**
Baseline avg. time (mins)	76.8	63.7	67.5	40.8	58.4	63.7	64.8	49.9	58.0	81.3	**58.5**	
Option B avg. time (mins)	84.7	63.5	62.5	38.1	55.9	81.9	80.7	74.2	56.4	85.2	**64.6**	
Journeys displaced to PRH	**1,976**	**1,192**	**341**	**1,156**	**342**	**3,535**	**1,934**	**2,858**	**323**	**239**	**13,896**	**24.5%**
Change to avg. journey time (mins)	21.9	-0.9	-47.6	-27.9	-26.1	41.8	36.4	50.8	-29.9	23.6	**24.8**	
Displaced avg. time (mins)	99.4	81.7	69.5	41.7	77.0	85.4	84.8	78.9	96.6	140.8	**82.6**	
Patients living nearer to an alternative site than PRH	**1,774**	**532**	**89**		**173**	**3,155**	**347**	**1,784**	**40**	**237**	**8,131**	**14.3%**
Option B avg. time (mins) if alternative chosen	76.2	62.1	62.1		54.8	77.4	80.6	71.8	56.3	71.7	**62.3**	
Displaced patients in protected groups												
Age - 75+	440	254	61	219	65	637	324	532	64	41	**2,637**	**4.6%**
change to avg. journey time	21.3	2.7	-50.5	-28.6	-22.2	40.1	35.5	50.9	-31.0	22.9	**23.6**	
Age - Pre-school											**0**	**0.0%**
change to avg. journey time												
BME groups	88	65	15	54	12	305	121	256	14	34	**964**	**1.7%**
change to avg. journey time	24.0	-2.8	-51.8	-28.6	-15.9	45.2	35.4	51.2	-23.6	14.0	**31.9**	
Gender - Male	948	557	146	516	142	1,650	917	1,300	147	118	**6,441**	**11.3%**
change to avg. journey time	23.0	0.1	-48.4	-28.0	-24.3	42.0	36.2	51.4	-30.2	22.9	**25.5**	
Gender - Female	1,028	635	195	640	200	1,885	1,017	1,558	176	121	**7,455**	**13.1%**
change to avg. journey time	21.0	-1.8	-47.0	-27.8	-27.4	41.6	36.6	50.3	-29.6	24.2	**24.1**	
IMD 1&2 (most deprived 40%)	479	376	100	239	98	1,709	1,191	1,435	49		**5,676**	**10.0%**
change to avg. journey time	25.4	3.1	-47.9	-26.1	-22.6	47.1	33.8	44.1	-42.8		**32.1**	

Figure 3.9 Map of average journey times to access non-complex planned care by public transport under Option B



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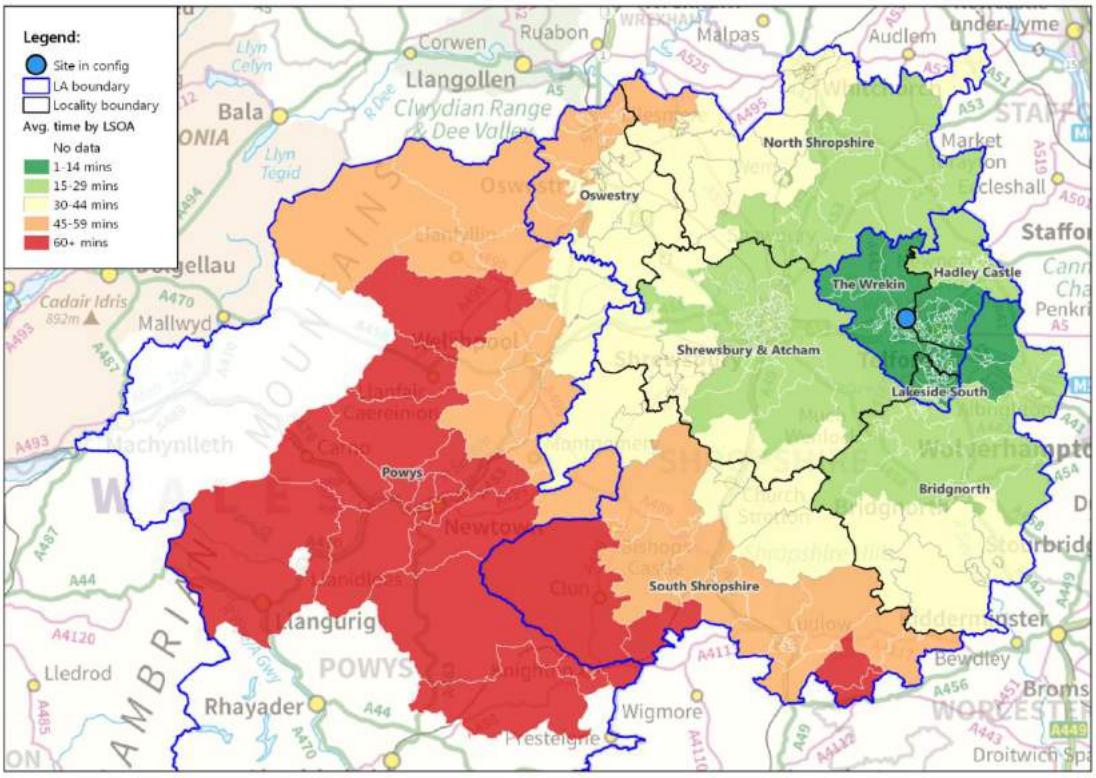
Option C1/2

- 17,735 journeys would be unaffected
- 39,709 journeys would be to PRH instead of RSH
- Average journey times would increase slightly to 26.1 mins (+2.1 mins)
- Of the displaced 39,709 journeys –
  - The localities adversely affected are South Shropshire (+9.3 mins), Shrewsbury and Atcham (+12.6 mins), Powys (+19.9 mins) and Oswestry (+20.1 mins);
  - Journey times will increase by an average of 3.1 minutes;
  - Women are very marginally more affected than men (+3.2 vs.+3.1 mins);
  - 1,908 are from BME groups (+0.1 mins);
  - 8,536 are aged 75 and over (+4.4 mins);
  - None are of pre-school age;
  - 11,355 live in the two most deprived quintiles but would face shorter journey times (-1.6 mins); and
  - 10,534 live nearer to an external facility.
  - Public transport journeys show an increase in overall access time (+2.9 mins) but with a very varied geographical impact, as for car journeys. The greatest adverse impact appears to be on over 75s, BME groups and deprived populations in North Shropshire, Shrewsbury & Atcham, Powys and Oswestry.

Table 3.9 Average journey times to access non-complex planned care by car under Option C1/2

	Locality										All journeys	
	Shropshire					Telford			Powys	Out of Area		
Impact factor	Bridgnorth	North Shropshire	Oswestry	Shrewsbury & Atcham	South Shropshire	Hadley Castle	Lakeside South	The Wrekin	Powys	Out of Area	**n**	**% of all**
Total baseline journeys	5,434	6,616	3,240	11,987	3,629	8,293	4,656	6,082	5,989	1,518	**57,444**	**100.0%**
Baseline avg. time (mins)	29.4	31.3	26.9	12.5	39.3	19.9	20.3	14.7	37.2	38.0	**24.0**	
Option C avg. time (mins)	23.8	29.8	41.5	23.6	41.1	11.7	13.3	7.8	53.1	54.5	**26.1**	
Journeys displaced to PRH	**3,046**	**4,950**	**2,766**	**10,547**	**3,122**	**4,323**	**2,389**	**2,862**	**4,788**	**916**	**39,709**	**69.1%**
Change to avg. journey time (mins)	-10.0	-2.1	20.1	12.6	10.0	-15.8	-13.6	-14.7	19.9	-8.9	**3.1**	
Displaced avg. time (mins)	25.0	31.3	45.5	24.1	48.8	12.4	13.8	8.3	60.3	41.0	**30.2**	
Patients living nearer to an alternative site than PRH	**105**	**1,760**	**2,717**	**19**	**994**				**4,156**	**783**	**10,534**	**18.3%**
Option C avg. time (mins) if alternative chosen	23.7	27.4	24.2	23.6	37.6				48.0	43.5	**23.8**	
Displaced patients in protected groups												
Age - 75+	616	1,035	622	2,289	813	870	403	569	1,204	115	**8,536**	**14.9%**
change to avg. journey time	-9.8	-0.7	20.1	12.6	9.9	-16.0	-13.6	-14.3	19.9	-10.7	**4.4**	
Age - Pre-school											**0**	**0.0%**
change to avg. journey time												
BME groups	93	210	112	473	119	281	107	263	136	114	**1,908**	**3.3%**
change to avg. journey time	-11.8	-2.0	20.2	14.6	8.4	-16.3	-13.6	-14.7	20.1	-11.7	**0.1**	
Gender - Male	1,412	2,604	1,392	5,242	1,669	2,279	1,334	1,436	2,532	522	**20,422**	**35.6%**
change to avg. journey time	-9.9	-2.4	20.1	12.7	10.7	-15.9	-13.6	-14.8	19.9	-8.6	**3.1**	
Gender - Female	1,634	2,346	1,374	5,305	1,453	2,044	1,055	1,426	2,256	392	**19,285**	**33.6%**
change to avg. journey time	-10.1	-1.8	20.1	12.6	9.1	-15.7	-13.6	-14.7	19.9	-9.4	**3.2**	
IMD 1&2 (most deprived 40%)	616	1,106	735	2,025	1,046	1,971	1,442	1,416	1,069		**11,426**	**19.9%**
change to avg. journey time	-10.8	-5.3	20.2	10.5	7.3	-15.8	-13.7	-14.0	19.8		**-1.6**	

Figure 3.10 Map of average journey times to access non-complex planned care by car under Option C1/2

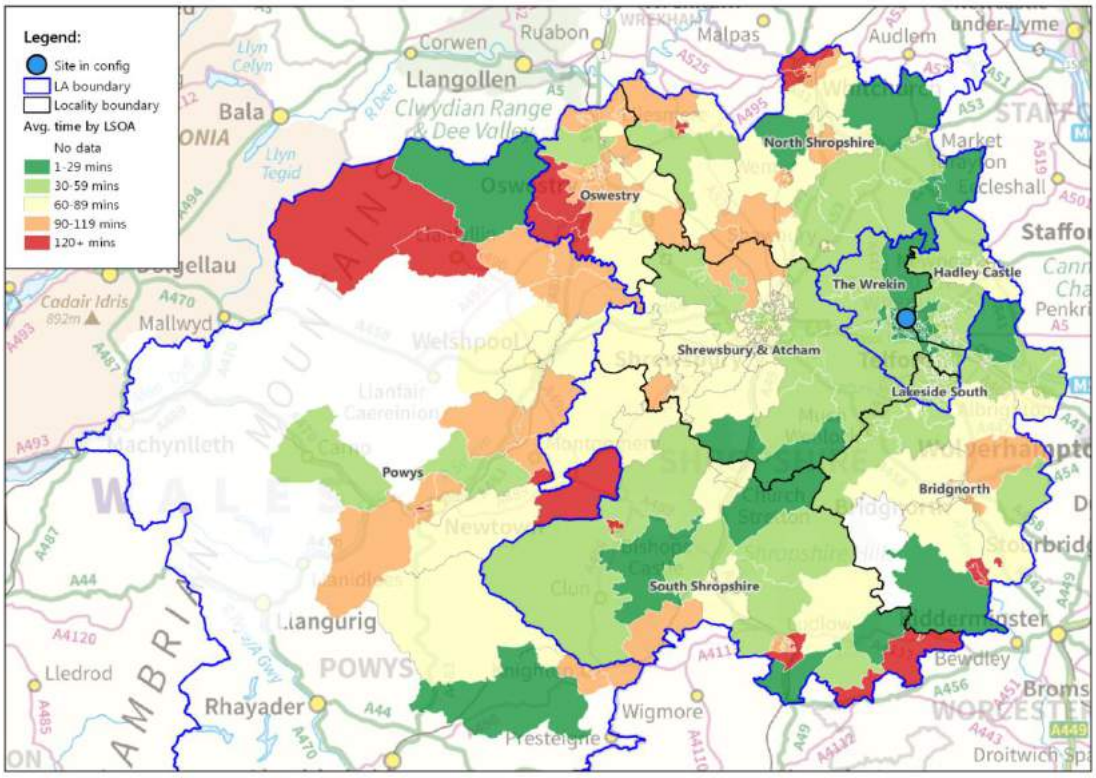


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Table 3.10 Average journey times to access non-complex planned care by public transport under Option C1/2

	Locality										All journeys	
	Shropshire					Telford			Powys	Out of Area		
Impact factor	Bridgnorth	North Shropshire	Oswestry	Shrewsbury & Atcham	South Shropshire	Hadley Castle	Lakeside South	The Wrekin	Powys		**n**	**% of all**
Total baseline journeys	5,430	6,588	3,218	11,888	3,632	8,142	4,439	5,986	5,987	1,497	**56,807**	**100.0%**
Baseline avg. time (mins)	76.8	63.7	67.5	40.8	58.4	63.7	64.8	49.9	58.0	81.3	**58.5**	
Option C avg. time (mins)	67.1	74.0	105.1	64.5	73.2	42.3	46.1	26.9	74.5	74.6	**61.4**	
Journeys displaced to RSH	**2,658**	**3,992**	**2,569**	**9,839**	**2,283**	**4,199**	**2,285**	**2,804**	**3,241**	**650**	**34,520**	**60.8%**
Change to avg. journey time (mins)	-19.7	17.0	47.0	28.7	23.7	-41.6	-36.4	-49.1	30.3	-14.9	**4.8**	
Displaced avg. time (mins)	79.5	97.4	116.1	69.8	101.0	45.2	48.5	28.8	124.9	128.7	**77.8**	
Patients living nearer to an alternative site than RSH	**1,550**	**2,060**	**2,453**	**3**	**1,508**	**206**			**886**	**650**	**9,316**	**16.4%**
Option C avg. time (mins) if alternative chosen	62.8	64.9	73.3	64.5	55.9	42.2			68.2	42.9	**55.5**	
Displaced patients in protected groups												
Age - 75+	556	888	597	2,182	649	846	362	559	808	46	**7,493**	**13.2%**
change to avg. journey time	-19.4	21.7	48.9	29.0	25.5	-40.8	-37.0	-50.1	31.8	-4.6	**9.0**	
Age - Pre-school											**0**	**0.0%**
change to avg. journey time												
BME groups	85	193	106	438	111	258	104	263	100	102	**1,760**	**3.1%**
change to avg. journey time	-14.5	20.6	47.3	32.9	19.6	-45.6	-35.8	-45.9	25.4	-18.7	**-1.4**	
Gender - Male	1,263	2,132	1,313	4,856	1,187	2,176	1,270	1,420	1,642	376	**17,635**	**31.0%**
change to avg. journey time	-18.3	16.9	47.1	28.8	22.9	-40.1	-36.6	-49.2	30.3	-15.4	**4.7**	
Gender - Female	1,395	1,860	1,256	4,983	1,096	2,023	1,015	1,384	1,599	272	**16,883**	**29.7%**
change to avg. journey time	-21.0	17.1	46.9	28.6	24.5	-43.3	-36.2	-49.0	30.3	-13.9	**4.9**	
IMD 1&2 (most deprived 40%)	615	957	713	1,919	721	1,931	1,387	1,394	652		**10,289**	**18.1%**
change to avg. journey time	-27.5	9.3	48.3	26.1	19.7	-48.4	-34.0	-42.1	40.5		**-8.0**	

Figure 3.11 Map of average journey times to access non-complex planned care by public transport under Option C1/C2



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3.7.5 Direction and scale of impact - by area

Option B generally has an adverse impact on patients from North Shropshire, Bridgnorth, Lakeside South, The Wrekin and Hadley Castle.

Options C1/2 generally have an adverse impact on South Shropshire, Shrewsbury & Atcham, Powys, Oswestry and (for patients travelling by public transport) North Shropshire.

3.7.6 Potential equality effects

Options C1/2 have a greater adverse impact on BAME patients, over 75 year old patients and those living in the two most deprived quintiles.

3.8 Convenience of travel to access non-complex planned care by public transport

3.8.1 Nature of potential impact

In addition to travel times, the preferred options also have a potential impact on the convenience of public transport journeys to access non-complex planned care provision. This is currently provided at both RSH and PRH. Under the preferred options this provision would be delivered at a single Diagnostic and Treatment Centre (DTC) located at either RSH or PRH. This could result in journeys by public transport to access non-complex planned care becoming less convenient – i.e. requiring more changes to complete – from parts of the catchment area.

3.8.2 Baseline in a "do minimum" scenario

RSH is currently served by 8 local bus services (1, 74, 12, 552, 553, 558, X3, X75) which directly travel to/from several areas across Shropshire and some parts of Powys. PRH is

currently served by 9 local bus services (4, 15, 16, 341, 342, 721, 860, WR16, WR69) which directly travel to/from most areas in Telford and Wrekin and some in Shropshire.

This mixed coverage means that, even currently, people living in some areas will need to change bus (or train) at least once in order to access the nearest non-complex planned care provision by public transport. The following table is based on analysis by the Strategy Unit of journeys from a stratified sample of 2,013 post codes across Shropshire, Telford and Wrekin and Powys. The sample was weighted areas with lower levels of car ownership where local residents are likely to be most reliant on public transport. As with the analysis of journey times by public transport, the analysis is based on off-peak conditions (9a.m. to 4 p.m.) when the bulk of activity takes place. As such the results are not fully representative of services at all times of the day and may present a more favourable impression of journey time and convenience than is the case at other times.

Table 3.11 Number of changes currently required to complete journey to nearest non-complex planned care provision

	No changes	One change	Two changes	Three or more changes	Not possible by public transport[47]
Overall	29%	49%	5%	3%	14%
Shropshire	21%	56%	5%	3%	15%
Telford & Wrekin	43%	44%	6%	1%	4%
Powys	18%	23%	1%	6%	52%

Strategy Unit analysis

This indicates that, overall, non-complex planned care provision can currently be accessed directly by public transport from over a quarter of the catchment area, while one change is required from just under a half. Access is currently highest in Telford and Wrekin where it is possible to travel directly or involving one change to PRH from most areas. Access is more mixed in Shropshire, partly reflecting the larger and more dispersed geography of the county. Access is most limited in Powys. Although a minority of areas immediately bordering Shropshire have direct bus services to RSH, from most areas in Powys such a journey requires at least one change or is not possible at all by public transport.

Potential changes to this baseline over the next 25 years are difficult to forecast. The vast majority of bus services in the catchment area are commercially operated, meaning provision is focused on corridors with a critical mass of potential users and popular destinations. Although the population size in Powys, Telford and Wrekin and Shropshire is projected to rise over the next 25 years (see chapter 2), this is unlikely to prompt any significant expansion in local private bus service provision. Central government funding for local authorities to subsidise local bus services has been significantly reduced over the last 10 years. This has resulted in reductions in services subsidised by local authorities – both in the catchment area and nationally. For example, in Telford and Wrekin further reductions were made to the bus services the local authority subsidised in 2015, meaning that 98% of bus services in the area are now commercially operated and only 2% are subsidised[48]. Local authorities can divert additional funding towards subsidising more local bus services but no evidence was identified in this assessment to suggest that this is currently being considered by the local authorities concerned. Overall this indicates there may be little change, positive or negative, over the next 25 years to local public transport provision.

[47] These were journeys that would have required a person to walk over 1 mile to start, interchange or complete by public transport.

[48] Retrieved 02 08 2016: http://www.telford.gov.uk/info/20301/subsidised_bus_routes

3.8.3 Likelihood and timescale of impact

Each of the options is highly likely to impact on the baseline scenario outlined above, because they will involve the location of non-complex planned care provision at one of the hospital sites rather than both. Under Option B there will be a single DTC at RSH. Under Option C1 and C2 there will be a single DTC at PRH. This impact will occur from the point at which this change is implemented and continue indefinitely.

3.8.4 Direction and scale of impact - overall

The overall impact of each of the preferred options on the catchment is likely to be negative. People living in some areas who rely on public transport would have to undertake journeys that require more changes in order to access the one hospital site where the DTC is located. This is illustrated in table 3.12, which is again based on journeys from a sample of 2,013 post codes across the catchment area to the hospital site that would have a DTC under each option.

Table 3.12 Number of changes required to complete journey to nearest non-complex planned care provision - overall

	No changes	One change	Two changes	Three or more changes	Not possible by public transport
Option A	29%	49%	5%	3%	14%
Option B	9%	47%	20%	9%	14%
Option C1/C2	20%	28%	28%	9%	15%

Strategy Unit analysis

Option B would significantly reduce the proportion of areas from which it was possible to access non-complex planned care provision directly, although nearly a half of areas could still do so by making one change.

Option C1 and C2 would have a less significant impact on the proportion of areas from which it was possible to access non-complex planned care provision directly (from 29% to 20%) but it would mean a lot less areas could do so by making one change (from 49% to 28%).

However, although many areas are potentially affected, the scale of this impact is not likely to be great when viewed for the perspective of the catchment area as a whole. Only a small proportion of the population in each affected area would directly experience any impact. As reported in chapter 2, over 80% of the catchment area population have access to a car in their household. While not all of these may be able or willing to drive potentially long distances, this still implies most of the population is not reliant on public transport. Journeys to non-complex planned care provision also only represent a fraction of all journeys to hospital services in the catchment area. Consequently, the impact is only likely to be experienced as significant by certain groups in the population – see further discussion below.

3.8.5 Direction and scale of impact - by area

There are variations when the impacts of the options are compared between Telford and Wrekin, Shropshire, and Powys, as illustrated in table 3.13.

Table 3.13 Number of changes required to complete journey to nearest non-complex planned care provision - by area

	No changes	One change	Two changes	Three or more changes	Not possible by public transport
Option A:					
Shropshire	21%	56%	5%	3%	15%
Telford & Wrekin	43%	44%	6%	1%	4%
Powys	18%	23%	1%	6%	52%

	No changes	One change	Two changes	Three or more changes	Not possible by public transport
Option B:					
Shropshire	15%	56%	11%	4%	15%
Telford & Wrekin	0%	40%	37%	19%	4%
Powys	18%	23%	1%	6%	52%
Option C1/C2:					
Shropshire	7%	23%	42%	14%	15%
Telford & Wrekin	43%	43%	7%	1%	6%
Powys	0%	0%	30%	19%	52%

Strategy Unit analysis

Option B would mean it was no longer be possible to access non-complex planned care provision directly by public transport from any area in Telford and Wrekin, and multiple changes would be required from over half to access the DTC at RSH. Shropshire and Powys would be largely unaffected.

Option C1 and C2, the impacts are largely reversed. Access is unaffected in Telford and Wrekin but more changes would be required to travel from most areas in Shropshire and Powys to access the DTC at PRH.

3.8.6 Potential equality effects

Each of the preferred options would potentially have a disproportionate effect on groups that have low levels of car ownership and access. In terms of deprivation, 47% of households in the lowest income quintile and 32% of households in the second-lowest income quintile do not have a car, compared to an average of 24%[49]. In terms of ethnicity, 44% of Black / African / Caribbean / Black British adults live in a household without a car, compared to 18-25% amongst all other ethnic groups[50]. By age, people aged 21-29 and 70+ are most likely to live in a household without any cars (26% and 31% respectively compared to 14-19% amongst other age ranges)[51]. By gender, females are slightly more likely to live in a household without any cars than males (21% compared to 17%)[52].

Groups that are over-represented amongst the population in the geographical areas most affected under each option would also potentially be disproportionately affected. Under Option B, the most affected areas would be across Telford and Wrekin, which have higher concentrations of people aged 21-29 and Black / African / Caribbean / Black British than average for the catchment area. Under Option C1 and C2, the most affected areas would be in central and south Shropshire and across Powys, which both have higher concentrations of people aged 70+ and with lower levels of income than average for the catchment area.

In addition, each of the preferred options would potentially have a differential effect on groups that experience particular difficulties with changing between buses and/or trains to complete a journey. Previous research has highlighted that over a third of disabled people experience difficulties in using public transport, and the most frequently cited difficulty is getting on/off a bus or train[53]. These difficulties are most acute for people with a physical impairment, those who are blind or partially sighted, those with a hearing impairment, and those with a cognitive impairment[54]. Local stakeholder interviewed for this assessment also

[49] DfT (2015) National Travel Survey Table NTS0703 Household car availability by household income quintile

[50] DfT (2015) National Travel Survey Table NTS0707 Adult personal car access and trip rates by ethnic group

[51] DfT (2015) National Travel Survey Table NTS0208 Adult personal car access by age and gender

[52] ibid

[53] Demos (2006) Disablist Britain - Barriers to independent living for disabled people in 2006

[54] Centre for Disability Studies (2006) Secondary analysis of existing data on disabled people's use and experiences of public transport in Great Britain

suggested that people with a mental health condition can experience increased anxiety when having to undertake long and/or complicated journeys by public transport.

4 Economic Impacts and Equality Effects

This chapter presents detailed evidence on the projected economic impacts and equality effects of the preferred options.

Local employment

- The level of employment at each hospital will have an effect on the overall employment in the local economy. As large employers they also influence the local economy: they buy goods and services; and employees spend their earnings in the local economy. These are known as 'multiplier effects'.
- The preferred options would have an effect on employment both directly (through employment at each hospital site) and indirectly through the multiplier effect. The evidence for estimating impact is relatively broad and robust, although changes will occur gradually and be of a relatively small scale. Changes to the workforce under the preferred options would be managed through a five year Workforce Transformation Programme.
- Under Option B, the number of WTE staff at RSH and PRH would fall by around 150 at each. Under Option C1, there would be a more significant fall of nearly 600 at PRH but an increase of over 400 at RSH. Under Option C2, there would be a small increase of 30 at PRH and a decrease of just over 200 at RSH.
- Translating these changes into direct impacts on employment levels (and subsequent multiplier effects on wider employment) in each area is problematic.
- On the basis of broad assumptions, Option B would have some roughly equal negative impact on employment levels in Shropshire and Telford and Wrekin. Option C1 would have some negative impact on employment levels in Telford and Wrekin but some positive effect in Shropshire. Option C2 would have no impact on employment levels in Telford and Wrekin and some negative impact in Shropshire.

Local business

- The level of employment at each hospital could have an effect on the businesses in the local economy in the same way that wider local employment is affected, through multiplier effects.
- Given that the level of employment is expected to change, the likelihood of the number of businesses and level of business turnover changing is high. The impact is not expected to be significant and is likely to follow a similar timescale as set out for the changes to employment.

Local education/training opportunities

- The introduction of any of the policy options could have an impact on the number of people undertaking qualifications at local colleges and universities if the total number of jobs in the health sector is affected.
- Due to the relatively small changes in the overall level of employment, and small number of FE colleges and universities operating in the area, it is likely that there will be no impact on the provision of education for health related courses in the area.

Local economy

- The preferred options could have an impact on the overall performance of the local economy. Changes in employment and local business in a local area would impact on the level of output (or income) in a local area, measured through Gross Value Added (GVA).
- The evidence of the effect of changing employment at hospital sites on local income is fairly well established and robust. Given the level of employment is expected to change in each area, the level of GVA is highly likely to be affected. The impact is likely to follow a similar timescale as set out for the changes to employment.
- The analysis projects that regional GVA would increase by marginally less under the preferred options than under the baseline option, with option B having a more negative impact in this

respect than option C1 and C2. However, the scale of these impacts are small. Under the baseline option and the three preferred options GVA is projected to increase to around £17.2 billion by 2036.

Local house prices

- The options could have an impact on house prices in two ways. Firstly, through changed in employment; secondly, the distance from a hospital or specific hospital departments (for example Accident and Emergency or maternity services) could have an influence. A literature review found no evidence for this second effect. The evidence linking changes in employment to house prices is not statistically significant.

hapter presents detailed evidence on the projected economic impacts and equality effects of the preferred options.

4.1 Local employment

4.1.1 Nature of impact

The level of employment at each hospital will have an effect on the overall employment in the local economy. This is because the hospitals in each area are large employers, both currently employing over 2,000 staff. As a large employer the hospitals influence the local economy (and specifically the labour market) in two main ways: they buy goods and services from local businesses, creating businesses opportunities and employment in the local area; and the employees of the hospitals spend their earnings in the local area, again creating business and employment opportunities. These two effects are commonly known as 'multiplier effects', meaning the spending at the hospitals is worth more to the local economy than the total amount spent.

The preferred options would have an effect on employment both directly (through employment at each hospital site) and indirectly through the multiplier effect. Any change in the number of people employed at each hospital site will have a direct effect on the level of local employment. In addition, the change in service provision and level of employment at each hospital site will have an indirect multiplier effects on the level of employment in the local economy.

There are currently 2,596 Whole-time Equivalent (WTE) staff at PRH and 2,034 at RSH, plus 402 non site-based WTE staff. This equals 5,032 WTE staff in total. This data has been provided by SaTH.

SaTH also provided estimates of the number of WTE roles required under each preferred option, based on current staffing levels:

- Option B: 4,709
- Option C1: 4,719
- Option C2: 4,854

The level of the multiplier effect on employment has been estimated for hospitals and for other large employers. These are mainly for studies in the UK and North America. For example, research by Holmes et al. (2006) that the closure of a rural hospital in USA would lead to a decrease in retail sales and tax revenue, which would have a further impact on employment. Price et al (2008) estimated that the construction hospital in rural USA generated an additional 284 jobs, both through direct employment at a hospital and through additional retail sales.

Research by the National Centre for Rural Health Works (2012) carried out a literature review of 73 studies which looked at the impact of a hospital on a community. This research found that the average hospital employment multiplier was 1.38. This means that for each job at the critical access hospital, another 0.38 jobs are created in other businesses and industries in the local economy.

Research by Erickcek (2010) estimated that the employment multiplier for a hospital was 1.27, that for every ten jobs at a hospital a further three are generated in the wider economy. The highest proportion of these jobs were in the non-market service sector, retail and administrative positions.

As the research by the National Centre for Rural Health Works (2012) is based on a literature review and is the most recent evidence, these findings have been used in the analysis below.

4.1.2 Baseline in a "do minimum" scenario

The data for the number of current WTE staff and data from the NHS Hospital & Community Health Service (HCHS) monthly workforce statistics was used to estimate the total number of people currently employed (the headcount). The headcount data for Shrewsbury and Telford Hospital NHS Trust from HCHS workforce data was divided by the number of WTE (or Full-time Equivalent, FTE) roles from the same dataset to estimate the number of people employed per WTE. Monthly data from September 2009 to March 2016 was used. The number of workers per WTE role was estimated to be 1.19. Using this figure, the total number of workers currently employed, including part time and full-time staff, was estimated to be 5,979.

The number of WTE roles and number of people employed at each site in future years has been estimated using the figures provided by SaTH and employment projections by the UK Commission for Employment and Skills (2016)[55]. The employment projections estimate that there will be an average annual growth rate in employment in the non-market services sector[56] of 0.2% in the West Midlands up until 2024. This annual growth factor has been applied to the current number of WTE roles. Using these assumptions it has been estimated that there will be 5,123 WTE roles in 2024 (equivalent to 6,087 staff).

There are no employment projections at a regional level in England beyond 2024. Therefore, for years after 2024 the number of WTE roles and workers has been estimated using population projections. The number of WTE roles and workers in 2024 has been divided by the population in Shropshire and Telford and Wrekin, and the per capita number of WTE roles and workers for 2024 has been held constant to estimate the number the level of employment in future years. The population for each subsequent year was multiplied by the per capita employment level in 2024 to estimate future employment levels. This is summarised in the equations below:

Before 2024:

$$Emp_{i,t} = 1.02 * Emp_{i,t-1}$$

After 2024:

$$Emp_{i,t} = \frac{Emp_{i,t=2024}}{Pop_{i,t=2024}} * Pop_{i,t}$$

Where:

$Emp_{i,t}$: the number of WTE or headcount in each hospital in each time period

$Pop_{l,t}$: the number of people resident in each area in each time period.

In 2036, it is estimated that there will 5,316 WTE roles (6,316 staff) under the baseline scenario.

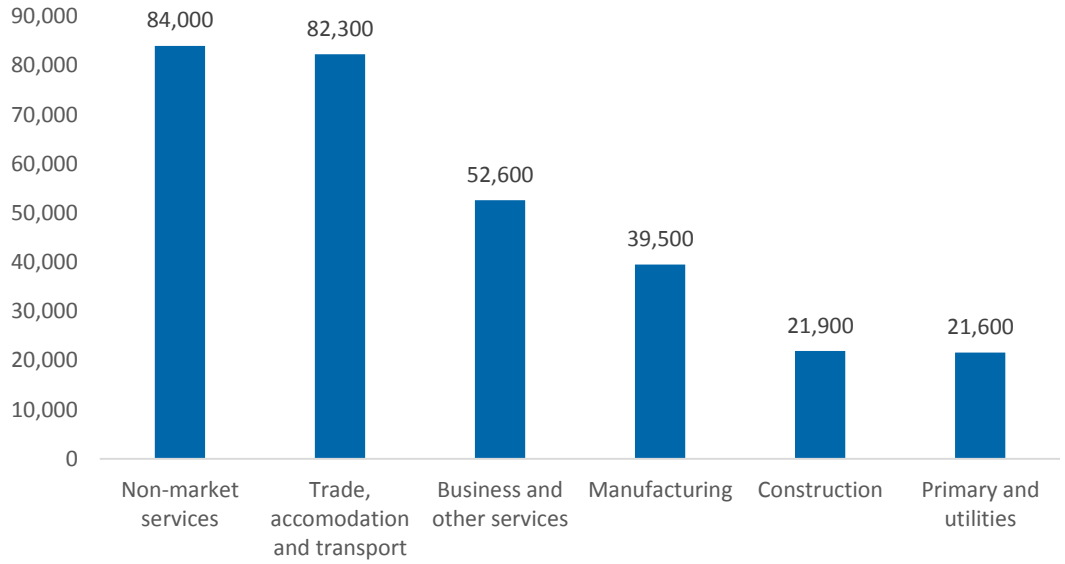
The level of current and future employment in the catchment area as a whole has also been calculated using data from the Annual Population Survey (APS) for Shropshire, Telford and

[55] UKCES (2016) Working Futures 2014-2024.

[56] The non-market service sector includes: public administration, education, health and social work.

Wrekin and Powys. This provides details of the level of employment in each area disaggregated by sector up to 2015. In total across the three areas, over 300,000 people were employed in 2015. Most of these workers were employed in the non-market services (28%) and trade, accommodation and transport (27%) sectors (see figure 4.1). Over half of the employment is in Shropshire (157,700; 52%).

Figure 4.1 Total employment in Shropshire, Telford and Wrekin and Powys, 2015



ONS (2016) Annual Population Survey, 2015

The level of employment in each area in each sector has been projected up until 2036. As with the projections for the level of employment at each hospital site, the UKCES (2016) research has been used to estimate employment up until 2024 using average annual growth rates disaggregated by geography (Government Office Region) and sector. For years after 2024, the number of people employment in each sector per capita in 2024 has been held constant and multiplied by the population in future years. This is summarised in the equations below:

Before 2024:

$$Emp_{i,g,t} = (1 + GR_{i,g}) * Emp_{i,g,t-1}$$

After 2024:

$$Emp_{ig,t} = \frac{Emp_{i,g,t=2024}}{Pop_{g,t=2024}} * Pop_{g,t}$$

Where:

Emp $_{I, g, t}$: the number of people employed in each sector, area and time period;

$GR_{I,g}$: the growth rate for each sector in each area; [57] and

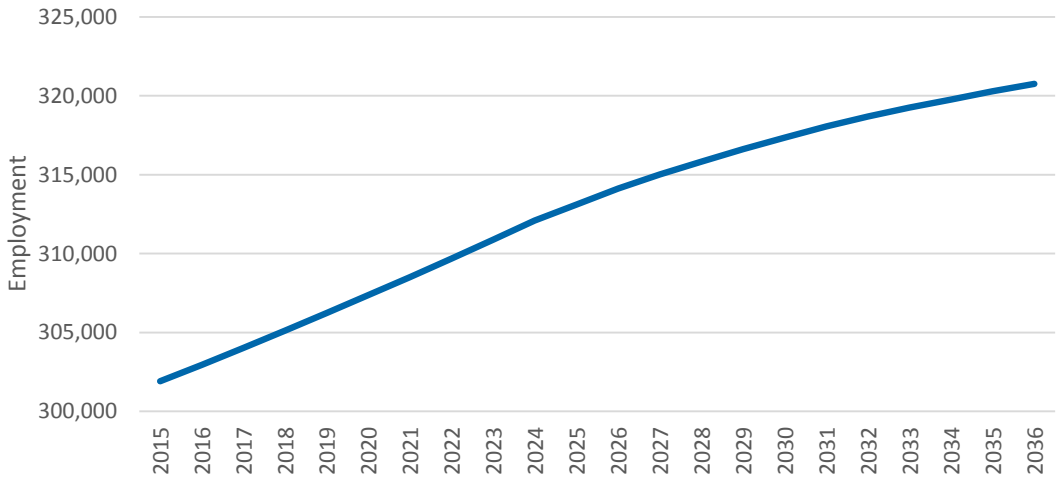
Pop $_{g, t}$: the number of people resident in each area in each time period.

Using this methodology, the total employment across all three areas is expected to grow to 312,000 in 2024 and 321,000 in 2036. This is shown in figure 4.2. The proportion of people working in each sector remains broadly the same over time, although the trade,

[57] The annual employment growth rate from the UKCES (2016) Working Futures 2014-2024 is disaggregated by the six sectors and by Government Office region. Therefore, in Shropshire and Telford and Wrecking, the growth rate for the West Midlands has been used; in Powys the growth rate for Wales has been used.

accommodation and transport sector (91,700; 29%) becomes larger than the non-market services sector (88,000; 27%).

Figure 4.2 Employment in Shropshire, Telford and Wrekin and Powys, 2015 to 2036



ONS (2016) Annual Population Survey, 2015; UKCES (2016) Working Futures 2014-2024; ICF calculations

4.1.3 Likelihood and timescale of impact

The evidence that there will be an impact from the preferred options on local employment is relatively broad and robust, suggesting it is highly likely to occur under each preferred option, although gradually rather than overnight.

4.1.4 Direction and scale of impact - overall

The level of employment in the local economy under each preferred option has been calculated using the following equation:

$$Emp_{g,po,t} = Emp_{g,b,t} + \{(HC_{g,po,t} - HC_{g,b,t}) * (1 + M_{g,t})\}$$

Where:

$Emp_{g,po,t}$: the level of employment in each area for each policy option and time period;

$Emp_{g,b,t}$: the level of employment in each area in each time period in the baseline scenario;

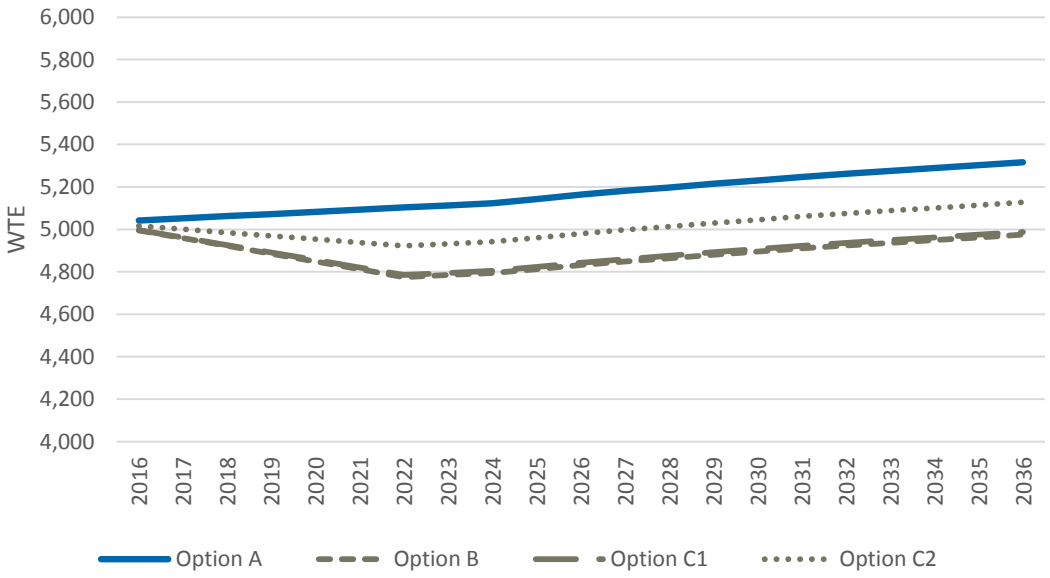
$HC_{g,po,t}$: the headcount in each hospital in each time period for each policy option;

$HC_{g,b,t}$: the headcount in each hospital in each time period in the baseline scenario; and

$M_{g,t}$: the multiplier effect in each area in each time period.

SaTH confirmed that changes to the workforce under the preferred options would be managed through a five year Workforce Transformation Programme, with reductions in WTE roles managed through annual turnover. With this in mind it has been assumed that the level of staffing estimated by SaTH under each preferred option will be achieved by 2022. Up until that point, a linear change in the level of employment has been assumed. Using these assumptions, there are differences in the level of employment required in each option by 2036. Under Option C2 this is just over 5,100. Under Option B and C2 it is just under 5,000. This is presented in figure 4.3.

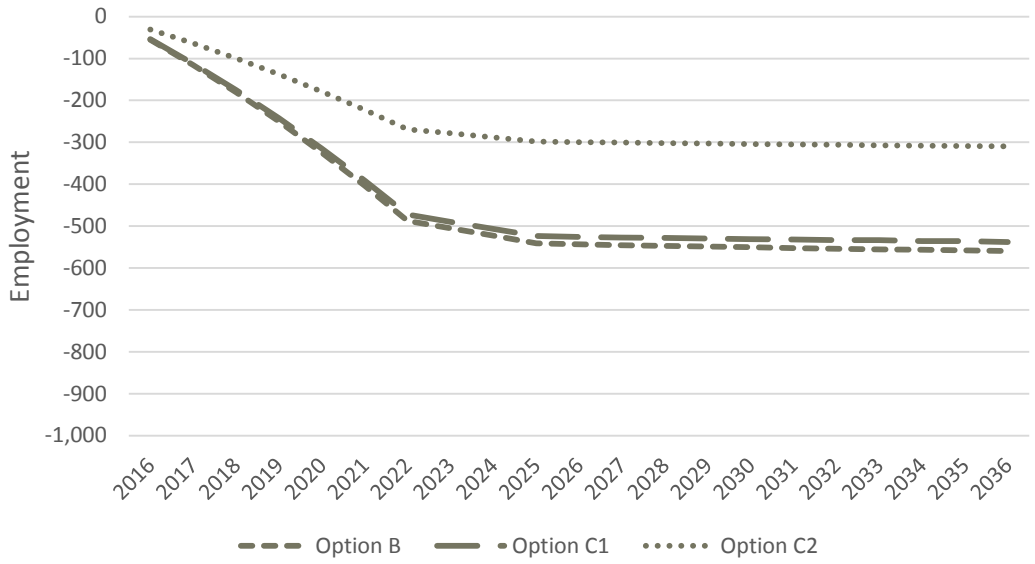
Figure 4.3 Total WTE staff estimated under each option: 2016-2036



Staffing levels for each option provided by SaTH; UKCES (2016) Working Futures 2014-2024; ICF calculations

The impact on total employment of each option compared to the baseline scenario (Option A) is presented in figure 4.4. This presents the direct change in employment (due to changes in SaTH staffing levels) and indirect employment changes (through the multiplier effect). This shows that by 2036, the level of employment under Option C2 is reduced by 309 jobs. Option C1 and B would lead to larger reductions in employment (538 jobs and 560 jobs respectively) by 2036.

Figure 4.4 Difference in employment from the baseline scenario, 2014 to 2036



ONS (2016) Annual Population Survey, 2015; Staffing levels for each option provided by SaTH; UKCES (2016) Working Futures 2014-2024; ICF calculations

Viewed in the context of total projected employment in the catchment area of 321,000 jobs in 2036 in the baseline scenario, these impacts are relatively small in scale.

4.1.5 Direction and scale of impact - by area

The impact of the preferred options on employment could potentially vary by area, most notably between Shropshire and Telford and Wrekin. SaTH estimates for staff numbers under each option are illustrated below in table 4.1.

Table 4.1 Whole-time equivalent staff under each option

Option	PRH	RSH	Site based	Non site based	Total
A	2,596	2,034	4,630	402	5,032
B	2,430	1,903	4,333	376	4,709
C1	1,907	2,435	4,342	377	4,719
C2	2,634	1,833	4,467	387	4,854

Under Option B, the number of WTE staff at RSH and PRH would fall by around 150 at each. Under Option C1, there would be a more significant fall of nearly 600 at PRH but an increase of over 400 at RSH. Under Option C2, there would be a small increase of 30 at PRH and a decrease of just over 200 at RSH.

However, translating these changes into direct impacts on employment levels (and subsequent multiplier effects on wider employment) in each area is problematic. Firstly, it not known where members of staff working at each hospital current live, meaning that it cannot be assumed, for example, that a decrease in staff numbers at PRH would automatically result in an equivalent decrease in employment in Telford and Wrekin. Secondly, it cannot be assumed that staff who found that their role was relocated from one hospital to another who consequently choose to move home to live closer to where their job was now located. They could choose to remain living where they are and commute to the hospital their role has been moved to. This second scenario is particularly feasible in this case because of the relative proximity of the two hospitals.

Overall, it is reasonable to expect some different impacts arising by area as a result of the changes in staff numbers at each hospital illustrated in table 4.1. The majority of staff currently working at RSH are likely to live in Shropshire, meaning any fall in staff numbers at RSH would have the greatest effect on employment levels in Shropshire, while also potentially affecting some in Powys and Telford and Wrekin. Amongst those staff who found their role relocated from RSH to PRH some could choose to move to Telford and Wrekin, or vice versa. On the basis of these broad assumptions, Option B would have some roughly equal negative impact on employment levels in Shropshire and Telford and Wrekin. Option C1 would have some negative impact on employment levels in Telford and Wrekin but some positive effect in Shropshire. Option C2 would have no impact on employment levels in Telford and Wrekin and some negative impact in Shropshire.

4.1.6 Potential equality effects

Data has not been provided by SaTH on the specific job roles or employees that will be affected under the preferred options, meaning it is not possible to assess whether particular groups in the population (e.g. men or women) would be disproportionately affected by this impact.

4.2 Local businesses

4.2.1 Nature of impact

The level of employment at each hospital could have an effect on the businesses in the local economy in the same way that wider local employment is affected, through multiplier effects. For businesses, this will have an impact on the number of businesses operating in a local area and their level of turnover and profitability.

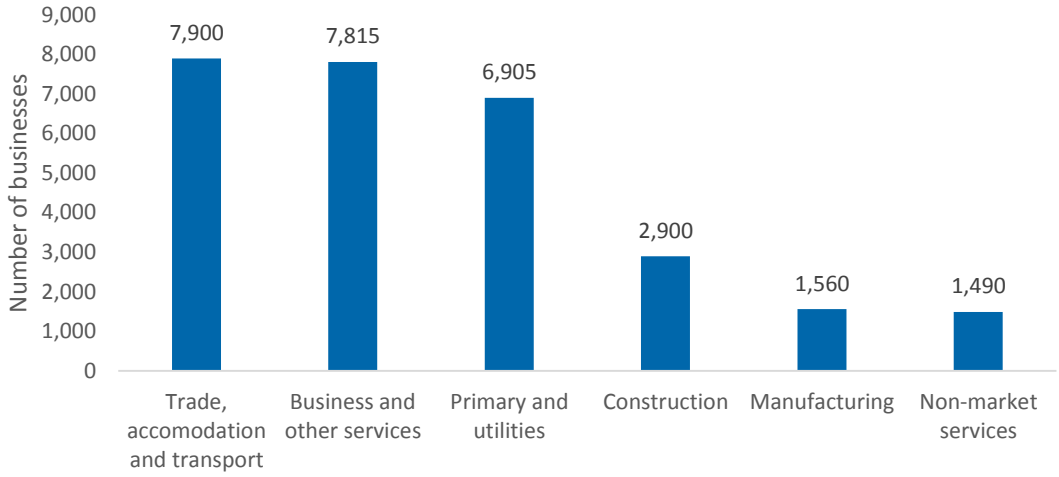
It is not possible to assess the effect of the different policy options on business profitability. There are no publicly available national statistics which present the level of profit by

businesses by geography. Therefore, the effect on businesses in Shropshire, Telford and Wrekin and Powys has been analysed using information on the number of businesses operating in each area and the level of business turnover.

4.2.2 Baseline in a "do minimum" scenario

The number of businesses currently based in Shropshire, Telford and Wrekin and Powys has been taken from the UK Business Count data. The number of enterprises has been used. This provides details of the number of enterprises based in each area disaggregated by sector up to 2015. In total across the three areas there were nearly 29,000 enterprises operating. Most of these enterprises were involved in the trade, accommodation and transport (28%) and business and other services (27%) sectors (see figure 4.5). Over half of the enterprises were based in Shropshire (15,200; 53%).

Figure 4.5 Number of businesses based in Shropshire, Telford and Wrekin and Powys



ONS (2016) UK Business Count – Number of enterprises, 2015

There are no projections available for the estimated number of businesses operating in future years. Therefore, in order to estimate the number of businesses based in the area in future years, the proportion of businesses to level of employment for 2015 has been multiplied by the anticipated level of employment in future years, summarised in the equation below:

$$BC_{i,g,t} = \frac{BC_{i,g,2015}}{Emp_{i,g,2015}} * Emp_{i,g,t}$$

Where:

$BC_{i,g,t}$: The business count in each sector, area and time period;

$Emp_{i,g,t}$: The level of employment in each sector, area and time period;

$BC_{i,g,2015}$: The business count in each sector and area in 2015; and

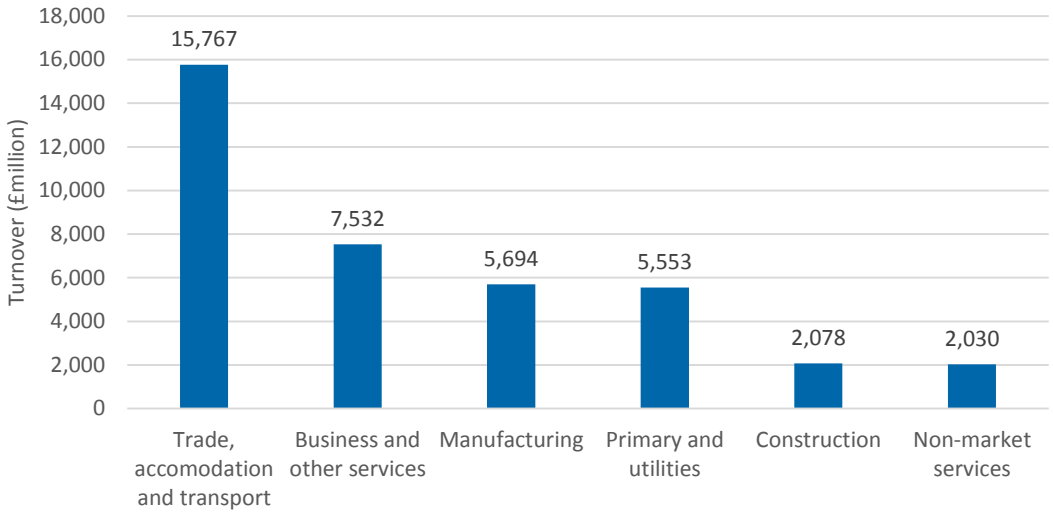
$Emp_{i,g,2015}$: The level of employment in each sector and area in 2015.

Using these assumptions, the number of businesses is estimated to grow from nearly 29,000 in 2015 to over 30,000 in 2036, with the sectoral breakdown remaining broadly the same as currently.

The level of business turnover in the area has been collected from the Annual Business Survey. This provides data on the level of business turnover by area and sector up to 2014. The total value of business turnover in the area was £39 billion. The data disaggregated by sector for 2014 is presented in figure 4.6. This shows that as with the number of businesses, the highest proportion of turnover is based in the trade, accommodation and transport (41%)

and business and other services sectors (19%). Over half of the business turnover is for businesses based in Shropshire (53%; £21 billion).

Figure 4.6 Level of turnover of businesses based in Shropshire, Telford and Wrekin and Powys, 2014



ONS (2015) Annual Business Survey, 2014

As with the number of businesses operating, there are no projections available for the estimated business turnover in future years. Therefore, in order to estimate the level of business turnover in future years, the growth rate of regional income has been used as a proxy measure. This growth rate is taken from the UKCES (2016) research, which provides annual growth rates up until 2024. For years after 2024, the level of businesses turnover per job has been held constant in each sector in each region, therefore any changes in business turnover in these years is driven by changes in employment. This is summarised in the equations below:

Before 2024:

$$Turn_{i,g,t} = (1 + GR_{i,g}) * Turn_{i,g,t-1}$$

After 2024:

$$Turn_{ig,t} = \frac{Turn_{i,g,t=2024}}{Emp_{i,g,t=2024}} * Emp_{i,g,t}$$

Where:

Turn $_{i, g, t}$: the level of business turnover in each sector, area and time period;

$GR_{i,g}$: the growth rate for each sector in each area; and

Emp $_{i, g, t}$: the number of people employed in each sector, area and time period.

4.2.3 Likelihood and timescale of impact

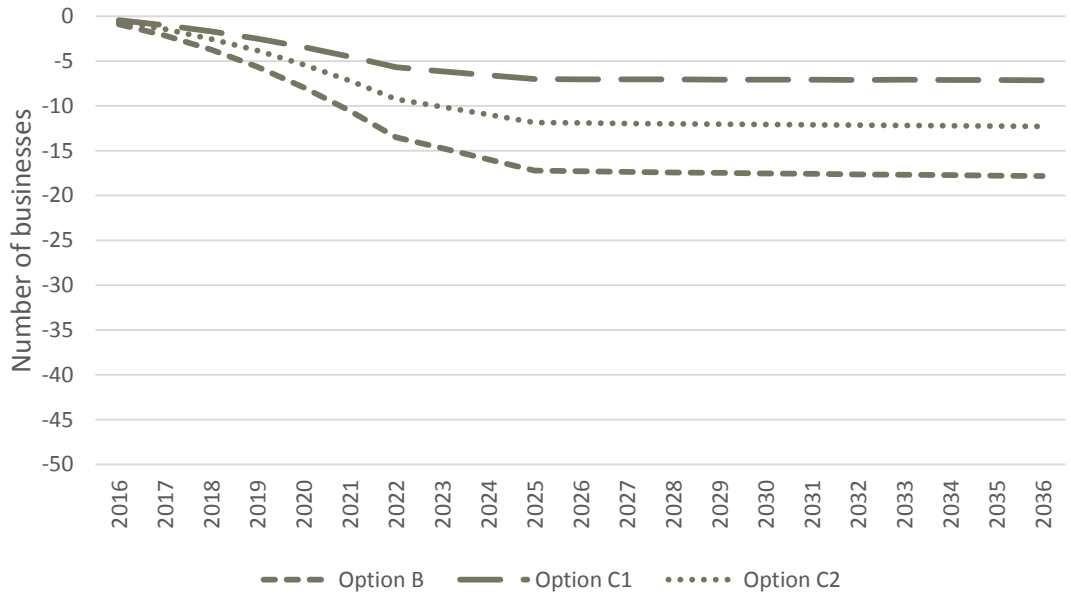
Given that the level of employment is expected to change, the likelihood of the number of businesses and level of business turnover changing is high. The impact is likely to follow a similar timescale as set out for the changes to employment.

4.2.4 Direction and scale of impact - overall

The number of businesses operating in each policy option has been estimated in the same way as the baseline scenario described above, expect the employment level for each option has been used to multiply the ratio of businesses to employment.

Under Option C1 there would be seven less businesses operating in the catchment area in 2036, under Option C2 it would be 12 less, and under Option B it would be 18 businesses less. This is illustrated below in figure 4.7.

Figure 4.7 Difference from baseline in the number of businesses operating, 2016 to 2036



ONS (2016) UK Business Count – Number of enterprises; ICF calculations

Given that there are projected to be over 30,000 businesses in the catchment area by 2036 under the baseline scenario, the scale of these impacts is not very significant.

The level of business turnover generated in each option has been estimated using the projections of GVA for each option, and is summarised in the equation below:

$$Turn_{ig,po,t} = \frac{Turn_{i,g,po,t=2014}}{GVA_{i,g,po,t=2014}} * GVA_{i,g,po,t}$$

Where:

$Turn_{i,\,g,\,po,\,t}$: the level of business turnover in a sector in each policy option, area and time period;

$Turn_{i,\,g,\,po,\,t}$: the level of business turnover in 2014 in a sector in each policy option, area;

$GVA_{i,\,g,\,po,\,t}$: the level of regional GVA in a sector in each policy option, area and time period; and

$GVA_{i,\,g,\,po,\,t}$: the level of regional GVA in 2014 in a sector in each policy option, area

The scale of the projected impact on Net Present Value (NPV) business turnover is small under each of the preferred options, as illustrated below in table 4.2. This is impact is projected to be positive under Option C1, which partly reflects the expected positive impact of this option on employment levels in Shropshire, but negative under Option B and C2.

Table 4.2 NPV of regional business turnover in each policy option, 2014 to 2036

Option	NPV business turnover (£ million)	Difference from baseline (%)
A (baseline)	732,667	
B	732,322	-0.05%
C1	732,915	+0.03%
C2	732,371	-0.04%

ICF calculations

4.2.5 Direction and scale of impact - by area

It is not possible to quantitatively analyse the relative impacts on businesses in each of the three areas for the same reasons as those set out in relation to impacts on employment. If there was any geographical variation in the distribution of these impacts, it would be similar to that of the projected employment effects suggested in section 4.1.5, i.e. any positive and negative impacts on employment levels in Shropshire or Telford and Wrekin under each option may be reflected in positive and negative impacts on local businesses in these areas.

4.2.6 Potential equality effects

There are no obvious equality effects arising out of this impact.

4.3 Local education/training opportunities

4.3.1 Nature of impact

The introduction of any of the policy options could have an impact on the number of people undertaking qualifications at local colleges and universities if the total number of jobs in the health sector is affected. For example, if there is a large increase in the number of staff required, then the number of people undertaking medical related courses could increase to meet the employment needs of the hospital. However, if there is a decrease in demand for employees at local hospitals, people may be discouraged from obtaining qualifications in the health sector as employment opportunities diminish.

4.3.2 Baseline in a “do minimum” scenario

There is limited information about the number of individuals studying for health related qualifications. The Skills Funding Agency (SFA) releases statistics on the number of apprenticeships started by subject area in each Local Authority area in England. There are no comparator statistics available for Wales, and no statistics disaggregating participation or achievement in other vocational qualifications are available at a area level.

The number of apprenticeships starts in health, public services and care in 2015 was over 1,200 in Shropshire and Telford and Wrekin. The majority of these (760; 62%) were in Shropshire. Due to recent Government policy changes, it is difficult to estimate the anticipated number of apprenticeship starts in future years, due to a lack of trend data.

There is one university operating in Shropshire, Telford and Wrekin and Powys – a site in Shrewsbury that forms part of the University of Chester. Unfortunately, statistics for the number of learners studying particular courses at a specific site are not available. The Higher Education Statistics Authority do produce statistics of the number of learners at each institution disaggregated by type of course studied. Using this information, in 2014 there were nearly 11,000 individuals studying undergraduate courses and over 4,000 individuals studying post-graduate courses relating to health at the University of Chester. A proportion of these individuals would be based in Shrewsbury, although it is not possible from the statistics to say what proportion. Again, due changes in Government policy and a lack of trend data, it is difficult to estimate the anticipated number of apprenticeship starts in future years.

4.3.3 Likelihood and timescale of impact

This is uncertain at the time of writing but due to the relatively small changes in the overall level of employment, and small number of FE colleges and universities operating in the area, it is likely that there will be no impact on the provision of education for health related courses in the area.

4.3.4 Direction and scale of impact - overall

This is uncertain at the time of writing but it is anticipated that there will be no overall impact from any of the options on the provision of education in health related subjects in the three areas analysed.

4.3.5 Direction and scale of impact - by area

This is uncertain at the time of writing but it is anticipated that there will be no impact from any of the options on the provision of education in health related subjects in any of the three areas analysed.

4.3.6 Potential equality effects

This is uncertain at the time of writing but there are not anticipated to be any equality effects from any changes in the provision of education in any of the options.

4.4 Local economy

4.4.1 Nature of impact

The preferred options could have an impact on the overall performance of the local economy. Changes in employment and local business in a local area would impact on the level of output (or income) in a local area, measured through Gross Value Added (GVA)[58]. The main inputs into GVA are the level of earnings (wages) paid to workers in an area, and the profits generated by businesses in the area. Therefore, the change in employment at a hospital will affect the local GVA measure through the change in earnings paid to staff employed at each hospital site, and the change in profits for businesses in the local area.

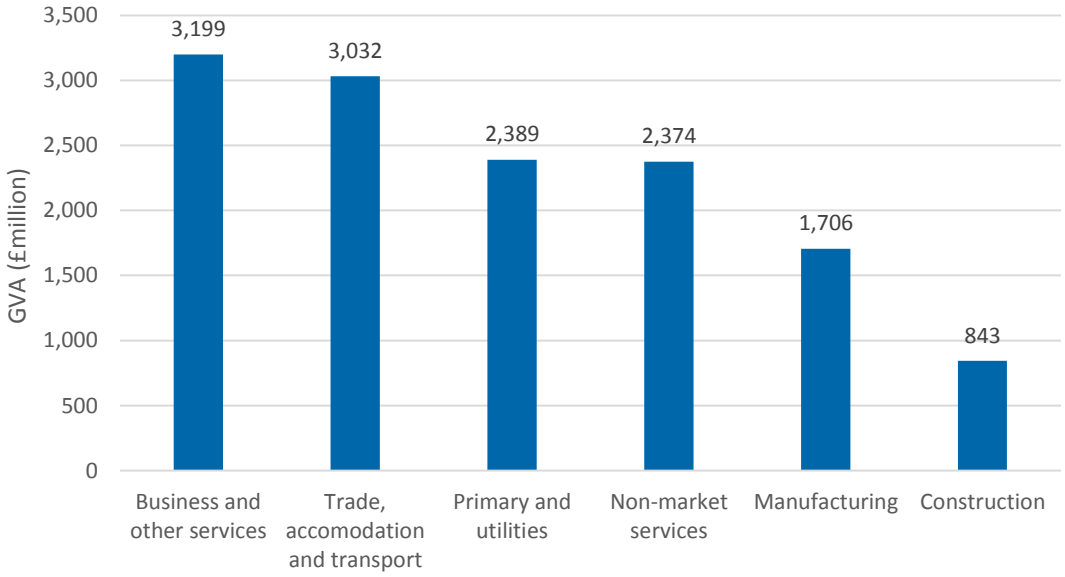
The multiplier effect of hospital employment on the local economy has been explored in many studies, which have highlighted that an increase in employment leads to an increase in the use of other services and increased retail sales (Price et al, 2008; Holmes et al. 2006). The literature review by the National Centre for Rural Health Works (2012) estimated the multiplier effect on income from hospital employment was 1.25 – this means for every £1 earned by staff working at a hospital the regional economy generates £1.25 of income. As this finding is based on a literature review and is the most recent evidence, this multiplier has been used in the analysis below.

4.4.2 Baseline in a “do minimum” scenario

The level of local GVA has been taken from the Regional Gross Value Added dataset from the national annual accounts. This datasets provides estimates of regional GVA (at the area level) up to 2014. The information is provided broken down by broad economic sector. In 2014, the total GVA generated in the three areas was £13.5 billion. The breakdown of GVA by sector is presented in figure 4.8, which shows that the business and other services (24%) and trade, accommodation and transport (22%) sectors generate the most income for the region. Half of the GVA generated in the region is generated in Shropshire.

[58] Gross Value Added (GVA) is the measure of the value of goods and services produced in an area.

Figure 4.8 GVA generated in Shropshire, Telford and Wrekin and Powys, 2014



ONS (2015) Regional Gross Value Added dataset, 2014

The level of GVA generated in future years has been estimated in the UKCES (2016) working futures research. This research provides an average annual growth rate for GVA in each Government Office region of the UK. Therefore, the average annual growth rates in GVA for the West Midlands and Wales have been applied to the level of GVA in each area and sector in 2014. The projections from the UKCES research end in 2024. For subsequent years, the level of GVA per capita in 2024 has been held constant, and multiplied by the projected population in future years. This is summarised in the equation below:

Before 2024:

$$GVA_{i,g,t} = (1 + GR_{i,g}) * GVA_{i,g,t-1}$$

After 2024:

$$GVA_{ig,t} = \frac{GVA_{i,g,t=2024}}{Pop_{g,t=2024}} * Pop_{g,t}$$

Where:

$GVA_{l,g,t}$: the level of GVA in each sector, area and time period;

$GR_{l,g}$: the growth rate for each sector in each area; and

$Pop_{g,t}$: the number of people resident in each area in each time period.

In the baseline scenario, regional GVA is projected to increase to £17.2 billion by 2036.

4.4.3 Likelihood and timescale of impact

The evidence of the effect of changing employment at hospital sites on local income is fairly well established and robust. Given the level of employment is expected to change in each area, the level of GVA is highly likely to be affected. The impact is likely to follow a similar timescale as set out for the changes to employment.

4.4.4 Direction and scale of impact - overall

The level of GVA generated in each option has been estimated using the additional wages received by individuals working at each hospital site. The level of GVA in each option has been estimated using the equation below:

$$GVA_{i,g,po,t} = GVA_{i,g,b} + \{ \left(WTE_{g,po,t} - WTE_{g,pb,t}\right) * Earn * (1 + M_t)\}$$

Where:

$GVA_{i, g, po, t}$: the level of GVA generated in each policy option in each sector, area and time period;

$GVA_{i, g, b}$: the level of GVA generated in the baseline scenario in each sector and area;

$WTE_{i, g, po, t}$: the number of WTE roles in each policy option in each hospital and time period;

$WTE_{i, g, b}$: the number of WTE roles in the baseline scenario in each hospital;

Earn : The average earnings of a WTE role in the NHS (£29,762); and

M_t : the multiplier effect for income (0.25)

Up to 2036, GVA is projected to increase by £12.7 million less than the baseline under Option B; by £7.5 million less under Option C1; and by £7 million less under Option C2. However, the scale of these impacts are small, and under each preferred option GVA is still projected to increase to £17.2 billion by 2036, as it is under the baseline.

The scale of the impact on regional GVA follows the same pattern as the impact on employment presented earlier in this chapter. The value of GVA generated each year has been discounted to calculate the Net Present Value (NPV) of regional GVA. These are presented in table 4.3. This shows that over the entire period 2014-2036, each of the preferred options are projected to have a small negative impact.

Table 4.3 NPV of regional GVA under each policy option, 2014 to 2036

Option	NPV of GVA (£ billion)	Difference from baseline (%)
A (baseline)	255,554	
B	255,411	-0.06%
C1	255,469	-0.03%
C2	255,475	-0.03%

ICF calculations

4.4.5 Direction and scale of impact - by area

It is not possible to quantitatively analyse the relative impacts on local economies in each of the three areas for the same reasons as those set out in relation to impacts on local employment and local businesses. If there was any geographical variation in the distribution of these impacts, it would be similar to that of the projected employment effects suggested in section 4.1.5, i.e. any positive and negative impacts on employment levels in Shropshire or Telford and Wrekin under each option may be reflected in positive and negative impacts on the local economies in these areas.

4.4.6 Potential equality effects

It is not possible to distinguish which groups will benefit from this impact over any other group, as regional GVA is a measure of regional output and does not affect individual groups.

4.5 Local house prices

4.5.1 Nature of impact

The introduction of the policy options could have an impact on house prices in two ways. Firstly, the policy options will affect the level of employment in a local area, which could in turn affect house prices in the area (through changes in income, risk of unemployment and defaulting on mortgages and potential movement in and out of the area). Secondly, the

distance from a hospital or specific hospital departments (for example Accident and Emergency or maternity services) could have an influence on house prices.

The literature review could not find any evidence that distance from hospital services had an effect on house prices. A study by Miller et al. (2015) found that there was not a significant relationship between distance from hospital services and house prices.

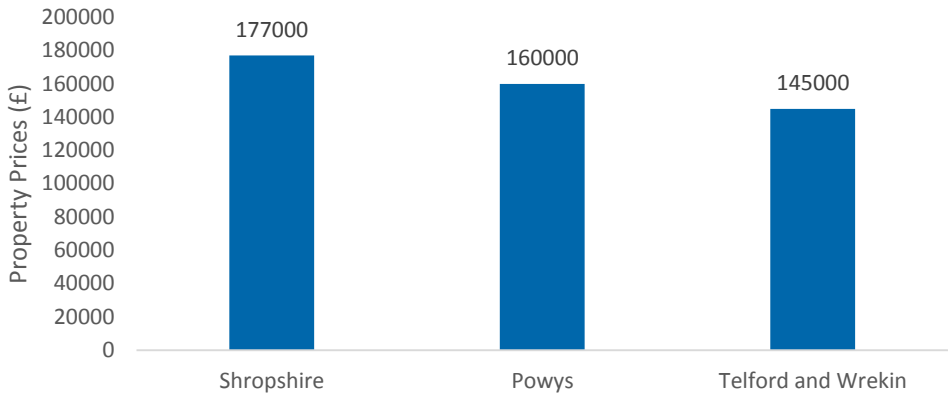
There is more evidence of a relationship between the level of employment (and unemployment) and house prices. International evidence (from Poland and Ireland) suggests that there is a positive relationship between employment and house prices. However, there is less evidence from the UK of the effect of unemployment on house prices. Several studies explore the impact of house prices on the level of employment (Gathergood et al. 2013; Cameron and Muellbauer, 2001; Pinter 2015). The results from the most recent study by Pinter showed that house prices and the unemployment rate were negatively related. A further study at the University of Glasgow found that unemployment had a negative effect on house prices, although the effect was not statistically significant.

It has been assumed that the effect of unemployment on house prices in the area is -0.27: namely that for every 1% increase in the unemployment rate, house prices decrease by 0.27%.

4.5.2 Baseline in a "do minimum" scenario

The value of property in the three areas has been collected from the House Price Statistics for Small Areas (HPSSAs) release from the ONS. The most recent annual data available is from 2014. The average value of a property in the three areas is presented in figure 4.9, which shows that property prices are highest in Shropshire.

Figure 4.9 Average property price, 2014



ONS (2015) House Price Statistics for Small Areas, 2014

Property prices are difficult to project over the long term, as there are many different factors which have an effect on house prices. Therefore, there are few projections of future house prices, particularly at a regional level. A study by Price Waterhouse Cooper (PWC) (2015) has been used to estimate the annual growth rate in house prices up until 2020. These projections are at a regional level (Government Office Region). After 2020, the annual growth rate in house prices has been set at a conservative level (due to the unpredictable nature of house prices), and is assumed to be 1%.

$$HP_{g,t} = (1 + GR_g) * HP_{g,t-1}$$

Where:

$HP_{g,t}$: the level of house prices in each area and time period;

$GR_{l,g}$: the growth rate in house prices in each area.

House prices are expected to grow in all areas up to 2036. House price growth is anticipated to be slightly higher in the West Midlands than in Wales. Overall, average house prices across the catchment area are projected to rise to £250,000 by 2036.

4.5.3 Likelihood and timescale of impact

Although most of the evidence suggests a negative relationship between unemployment and house prices, there are few statistically significant results from econometric models for the UK market. Therefore, although it is suggested that house prices will change in the three areas, it is not certain that this impact will be realised.

4.5.4 Direction and scale of impact - overall

The level of house prices in each policy option has been estimated using the change in the level of unemployment in each area. For each 1% increase in the unemployment rate in an area, house prices are estimated to decrease by 0.25% the following formula:

$$HP_{g,po,t} = \{\frac{(Unemp_{g,po,t} - Unemp_{g,b,t})}{Unemp_{g,b,t}} * -0.27\% * HP_{g,b,t}\} + HP_{g,b,t}$$

Where:

$HP_{g, po, t}$: House prices in each area in each policy option at each time period;

$HP_{g, b, t}$: House prices in each area at each time period in the baseline scenario;

$Unemp_{g, po, t}$: Unemployment rate in each area under each policy option in each time period; and

$Unemp_{g, b, t}$: Unemployment rate in each area in the baseline scenario in each time period.

Overall, house prices are expected to increase in the catchment area under all options, driven mainly by house price inflation. However, due to changes in employment levels there are expected to differences in house prices under the preferred options compared to the baseline scenario. In order to estimate the impact on house prices, it has been assumed that all changes in employment calculated in section 4.1 become unemployed (are actively seeking alternative employment) and the economic inactivity rate remains constant. Under the baseline scenario, average house prices across the catchment area are projected to have increased by approximately £76,000 in 2036. This compares to an increase of £65,500 under Option B, £64,000 under Option C1, and £70,500 under Option C2.

4.5.5 Direction and scale of impact - by area

The projected impacts on house prices are a function of the impacts of the preferred options on employment levels, and there are the same difficulties with differentiating these impacts between Shropshire, Telford and Wrekin and Powys. If there was any geographical variation in the distribution of these impacts, it would be similar to that of the projected employment effects suggested in section 4.1.5, i.e. any positive and negative impacts on employment levels in Shropshire or Telford and Wrekin under each option may be reflected in positive and negative impacts on house prices in these areas.

4.5.6 Potential equality effects

Higher income groups, who are most likely to own their own home in the catchment area, may be disproportionately affected by the impact of the preferred options on house prices - although they will still benefit from substantial increases in the value of their home by 2036 under each of the preferred options.

5 Social Impacts and Equality Effects

This chapter presents detailed evidence on the projected social impacts and equality effects of the preferred options.

Community cohesion

- Hospitals can play an important role in supporting community cohesion because they provide a public physical space where different members of the community interact and provide opportunities for civic engagement, in the form of volunteering. If the preferred options affect the extent to which either of the hospitals could perform this role in the future, this could have a knock-on impact on wider community cohesion.
- Any impacts on community cohesion will predominantly be experienced by the local communities within which the two hospital sites are located. With this in mind the available baseline evidence for Shropshire and Telford & Wrekin is considered here but not for Powys.
- The likelihood of this impact is, at the time or writing, uncertain. No plans have currently been published for changing or relocating any of the existing volunteering activities at either hospital site following the selection of a preferred option.
- The scale of volunteering opportunities could also either be increased or decreased as either site could create new opportunities; an overall increase or decrease in patient numbers could lead to increased or decreased demand for existing activities.
- Under Option C2, Telford & Wrekin would experience a similar impact arising from the equivalent changes being made at PRH. Under Option C1 Telford & Wrekin would also lose volunteering opportunities associated with Women and Children Care at PRH which would be transferred to RSH, potentially creating additional volunteering opportunities in Shropshire.

Local well-being

- Analysis by the Office for National Statistics has demonstrated that a person's well-being is partly influenced by their personal characteristics and partly determined by other variables, widely recognised as: anxiety, happiness, self-worth and life satisfaction.
- Current levels of personal well-being in the catchment area are very similar to the national average, with small variations in the three localities. Under a do minimum baseline scenario, levels of well-being over the next 25 years would be likely to remain similar to what they are now.
- The findings reported in Chapter 3 highlight that the projected health impacts of each preferred option are positive and moderate. Health as a strong determinate of well-being. Anxiety caused by the future fit programme is likely to have a short-medium term negative affect on well-being. Over a long-term 25 year horizon, the impact of the preferred options on well-being may be positive but minimal.

Local deprivation

- Deprivation is complex and linked to income and employment as well as access to services and the physical environment. The preferred options could have impacts in several of these domains. Some local stakeholders thought the preferred options would lead to higher travel costs for patients and friends or family visiting hospital.
- Quantitatively projecting the impact of the preferred options is problematic because of the number of domains because their scale is uncertain. Nonetheless, it is possible to qualitatively assess the potential impacts of the preferred options on different domains of deprivation.
- There are projected to be negative impacts in more domains than there are positive, under each preferred option, but these are all minimal in scale. There are no major differences by area.

Local traffic levels and congestion

- Overall the catchment area currently has relatively low levels of congestion, although there are

some hotspots particularly in Telford & Wrekin.

- This impact is highly likely to occur under preferred options because each is projected to result in some increase in the volume of road traffic vehicle miles undertaken to access hospital services in the catchment area. This would occur once the selected option had been implemented.
- The overall scale of this impact on the catchment area would be minimal. Journeys to RSH and PRH currently account for around 0.5% of the total number of road vehicle miles driven in the catchment area. Other underlying factors such as population growth would have a much greater bearing on overall traffic and congestion levels over time.
- The impact will be on the roads serving each hospital. Detailed projects for these are not available. Considering the wider road network, Option B would have a negative impact predominantly on residents in Telford & Wrekin, and that Option C1 and C2 would have a negative impact predominantly on residents in Shropshire.

eThis chapter presents detailed evidence on the projected social impacts and equality effects of the preferred options.

5.1 Local community cohesion

5.1.1 Nature of potential impact

Hospitals can play an important role in supporting community cohesion because they provide a public physical space where different members of the community interact and provide opportunities for civic engagement, in the form of volunteering[59]. If the preferred options affect the extent to which either of the hospitals could perform this role in the future, this could have a knock-on impact on wider community cohesion.

A local stakeholder highlighted that a number of local community members currently volunteer at PRH and RSH and the SaTH 2014/15 Annual Report confirms this, stating that: *"There are currently approximately 950 volunteers active in the Trust"*. Volunteers are reported to work in a variety of departments alongside hospital staff at both sites and run activities including lunch clubs, groups for social, reminiscence and memory interactive activities. There are currently four volunteer-run shops at RSH (including a daily trolley service for wards) and one at PRH. Volunteers have also been instrumental in refurbishing two courtyard gardens at PRH (the Memory Garden and Garden of Reflection) and the Wildlife Garden at RSH to provide seating for staff and visitors. There is wider evidence that hospital gardens *"not only provide restorative or calming nature views, but can also reduce stress and improve outcomes through other mechanisms, including fostering access to social interaction"*[60].

Physical design changes to the hospital sites made under the preferred options could also create a more or less conducive environment for interaction. For example, the British Medical Association report that *"Hospital design can facilitate or hinder access to social interaction…levels of social interaction can be increased by providing lounges, day rooms, and waiting rooms with comfortable movable furniture arranged in small flexible groupings"*[61]. However, at the time of writing, detailed architectural plans for the preferred options had not been produced, meaning this could not be considered in the assessment.

5.1.2 Baseline in a "do minimum" scenario

Any impacts on community cohesion will predominantly be experienced by the local communities within which the two hospital sites are located. With this in mind the available

[59] The King's Fund (2013) Volunteering in health and care; DCLG (2009) Guidance for local authorities on how to mainstream community cohesion into other services.

[60] Ulrich R (1999) Effects of gardens on health outcomes: Theory and research. Cooper Marcus & Barnes (Eds.), *Healing Gardens:* New York: Wiley.

[61] British Medical Association (2011) The psychological and social needs of patients

baseline evidence for Shropshire and Telford and Wrekin is considered here but not for Powys.

The last year that data on levels of community cohesion were collected and reported for local areas in England was 2008 through the Place survey. In that year, the survey results indicate that Shropshire had above average levels of community cohesion and volunteering, while Telford and Wrekin was below regional and national averages in terms of community cohesion but similar in terms of volunteering.

Table 5.1 Community Cohesion and Volunteering by Area

	% who agree their local area is a place where people from different backgrounds get on well together	% who feel they belong to their immediate neighbourhood	% who have given unpaid help at least once per month over the last 12 months
Telford & Wrekin	72.9	57.7	23.6
Shropshire	83.6	71.2	32.2
West Midlands	75.1	59.4	21.7
England	76.4	58.7	23.2

DCLG (2009) Place Survey: England - Headline Results 2008

The Community Life survey has subsequently collected data on one indicator of community cohesion and an indicator for volunteering. However, the survey's sample size only allows results to be reported by region. The survey results for 2015-2016 indicate the West Midlands region have slightly below average levels of community cohesion but above average levels of volunteering.

Table 5.2 Community Cohesion and Volunteering by Region

	% who agree their local area is a place where people from different backgrounds get on well together	% who have participated in formal or informal volunteering at least once in the last year
West Midlands	86.1	80.6
England	88.8	70.0

Cabinet Office (2016) Community Life Survey 2015-2016

In terms of potential changes to this baseline in the future, reported levels of community cohesion and volunteering have incrementally increased over the last five years - both in the West Midlands and nationally. This would suggest they may continue to increase in future years, although beyond this broad direction of travel it is not possible to make any more firm projections.

5.1.3 Likelihood and timescale of impact

The likelihood of this impact is, at the time or writing, uncertain. No plans have currently been published for changing or relocating any of the existing volunteering activities at either hospital site following the selection of a preferred option. However, each of the options will involve certain hospital services closing, moving and/or being newly created at the two sites. This could prompt volunteering activities that are tied to a particular service having to move if they are to be continued, and volunteers may not be willing or able to commute to a more distant hospital in order to continue to participate in them. The scale of volunteering opportunities could also either be increased or decreased as either site - e.g. the new DTC could create new opportunities at the site it is located, while either site that experienced an overall increase or decrease in patient numbers could find there is increased or decreased demand to continue existing activities, such as the volunteer shops.

Both hospital sites will continue provide a physical space where different members of the community interact, although again the overall number of patients at each site will vary by option. Physical design changes to the hospital sites could also create a more or less

conducive environment for interaction. Equally the additional building work could encroach on the existing hospital garden spaces on each site. At the time of writing the architectural plans under each option are not sufficiently developed to assess this.

If this impact does occur, it will follow the implementation of the hospital service changes under the selected option.

5.1.4 Direction and scale of impact - overall

This is also currently uncertain, and there is little basis for comparing between the impacts of the different preferred options until more detailed plans are developed. As highlighted above, there are both positive and negative potential impacts for local community cohesion that could arise from the preferred options. At the overall scale of the catchment area these impacts are not likely to be very significant. Firstly, the hospital sites are only two amongst several public spaces in the catchment area where different members of the community can interact. Secondly, the volunteer activity at each site only represents a proportion of all local voluntary activity[62]. Thirdly, the existence and design of physical spaces for interaction and levels of civic engagement are only two of several factors that contribute to community cohesion[63]. Equally, these impacts may still be felt as a significant impact by any individuals who were, for example, to lose the opportunity to volunteer at their local hospital.

5.1.5 Direction and scale of impact - by area

Data on where volunteers at each hospital live is not readily available but it may assumed that the majority of those who volunteer at RSH live in Shropshire while the majority who volunteer at PRH live in Telford and Wrekin. As such, any impacts (be they positive or negative) on community cohesion will predominantly be felt by residents in these two localities. Under Option B, Shropshire would potentially lose volunteering opportunities associated with the existing A&E department at RSH but gain opportunities associated with the new DTC that would be sited at RSH. Under Option C2, Telford and Wrekin would experience a similar impact arising from the equivalent changes being made at PRH. Under Option C1 Telford and Wrekin would also lose volunteering opportunities associated with Women and Children Care at PRH which would be transferred to RSH, potentially creating additional volunteering opportunities in Shropshire.

The architectural plans for each site under each option are not sufficiently developed to assess their comparative impacts but this will also potentially mediate the balance of impacts in each area.

5.1.6 Potential equality effects

Any positive or negative impacts on community cohesion will potentially affect all groups in the population. However, the effects of any negative impact on community cohesion may be disproportionately experienced by groups that are already vulnerable to forms of prejudice or discrimination such as hate crime[64]. Hate crimes are defined as criminal offences motivated by hostility or prejudice based on personal characteristics which include: race or ethnicity; sexual orientation; disability; and transgender identity[65]. In the West Midlands there were 5,020 reported hate crimes in 2014-15, and of these 4,357 were related to race, 491 to sexual orientation, 130 to disability, and 56 to transgender[66]. The implications of this are that

[62] For example it has recently been estimated that there are 1,184 registered voluntary sector organisations and a further 1,127 small, informal community groups in operation within Shropshire alone: VCSA Shropshire (2014) Shropshire's Voluntary and Community Sector.

[63] See for example: Centre for Local Economic Strategies (2014) Community cohesion and resilience - acknowledging the role and contribution of housing providers – which details 11 key contributors to community cohesion.

[64] Abrams, D. (2010) Processes of prejudice: Theory, evidence and intervention. EHRC Research Report no. 56. Manchester: Equality and Human Rights Commission.

[65] The Home Office (2015) Hate crimes, England and Wales, 2014/15.

[66] ibid

any negative impacts on community cohesion arising out of the preferred options could have a disproportionate effect on BAME, LGBT and disabled groups.

5.2 Local well-being

5.2.1 Nature of potential impact

Analysis by the Office for National Statistics has demonstrated that a person's well-being is partly influenced by their personal characteristics and partly determined by other variables. Table 5.3 displays the results of regression analysis to calculate the unique contribution that different variables make to four widely recognised indicators of personal well-being: anxiety, happiness, self-worth and life satisfaction.

Table 5.3 The contribution of variables to explained variance in personal well-being

	Anxiety	Happiness	Self-worth	Life satisfaction
Self-reported health	Large	Large	Large	Large
Marital status	Very Small	Moderate	Moderate	Large
Age	Small	Small	Very Small	Moderate
Ethnicity	Very Small	Very Small	Very Small	Small
Religion	Very Small	Small	Small	Very Small
Socio-economic status	Very Small	Very Small	Very Small	Very Small
Index of multiple deprivation decile	Very Small	Very Small	Very Small	Very Small

Office for National Statistics (2013) Measuring National Well-being – What matters most to Personal Well-being?

These results illustrate that health is a significant determinant of personal well-being. Other things being equal, 'life satisfaction' scores for people who said they were in very bad health were 2.4 points lower on average than for people who said they were in good health and almost 3 points lower than for people who said they were in very good health. There is a similar relationship between health and reported levels of 'anxiety', 'happiness' and 'self-worth'[67]. As reported in Chapter 3, the preferred options are projected to have impacts on health, meaning that they can also be expected to have some knock-on impact upon levels of personal well-being.

The results in table 5.3 also illustrate that other potential impacts of the preferred options, on socio-economic status and deprivation, are not significant determinants of personal well-being. On this basis they are not considered further here, although they are considered elsewhere in this report as impacts in their own right.

However, it is feasible that other impacts of the preferred options (not reflected in the ONS analysis) will have a knock-on impact on levels of personal well-being. The analysis was not able to measure the influence of every possible determinant, only the variables that data was collected on in the Annual Population Survey. Local stakeholders interviewed for this assessment suggested ways in which they thought the preferred options would impact on well-being, and most specifically on levels of anxiety. They expressed concerns that levels of anxiety would increase due to the closure of the A&E department at one of the two hospitals and the expectation that this would lead to longer journey times to access emergency health services. Indeed, it was thought that the Future Fit programme was already creating anxiety because of these concerns. Stakeholders thought an important contributory factor to this was that members of the public currently had limited awareness of

[67] Office for National Statistics (2013) Measuring National Well-being – What matters most to Personal Well-being?

the details of the preferred options, and specifically the intention that both hospitals would have a new urgent care centre under each option.

5.2.2 Baseline in a "do minimum" scenario

Current levels of personal well-being in the catchment area are very similar to the national average, as illustrated in table 5.4. NB. These figures are based on survey data collected in 2012/13, 2013/14 and 2014/15, which has been combined by the Office for National Statistics in order to create robust sample sizes for individual local authority areas in England and Wales.

Table 5.4 Average levels of personal well-being – by area

	Anxiety Question: Overall, how anxious did you feel yesterday? Where 0 is 'not at all anxious' and 10 is 'completely anxious'.	**Happiness** Question: Overall, how happy did you feel yesterday? Where 0 is 'not at all happy' and 10 is 'completely happy'.	**Self-worth** Question: Overall, to what extent do you feel the things you do in your life are worthwhile? Where 0 is 'not at all worthwhile' and 10 is 'completely worthwhile'.	**Life satisfaction** Question: Overall, how satisfied are you with your life nowadays? Where 0 is 'not at all satisfied' and 10 is 'completely satisfied'.
Telford & Wrekin	2.78	7.26	7.76	7.52
Shropshire	2.79	7.54	7.88	7.67
Powys	2.87	7.50	7.83	7.61
UK average	2.93	7.38	7.76	7.53

Office for National Statistics (2016) Annual Population Survey Personal Well-being dataset: April 2012 to March 2015.

The small variations between well-being levels in the three localities (which indicate residents of Telford and Wrekin have marginally lower levels than those in Shropshire and Powys) are likely to reflect socio-demographic differences between each.

Nationally, levels of well-being have not fluctuated greatly since measurement began in 2011, and it was reported most recently that between 2015 and 2016 levels of happiness, anxiety and self-worth remained the same while there was a small increase in levels of life satisfaction[68]. This suggests that, under a do minimum baseline scenario, levels of well-being over the next 25 years would be likely to remain similar to what they are now.

5.2.3 Likelihood and timescale of impact

If the projected health impacts of the preferred options reported in Chapter 3 occur then these are very likely to have some knock-on impact on local levels of well-being, and to do so in a similar timescale. The likelihood and timescale of any impact on well-being arising from concerns over longer journey times is uncertain. For their part, stakeholders thought these concerns were already creating some anxiety amongst local residents but equally that this would reduce (though not disappear entirely) over time as people learnt more about the details of the preferred options.

5.2.4 Direction and scale of impact - overall

The findings reported in Chapter 3 highlight that the projected health impacts of each preferred option are positive and moderate. This indicates that the long term impacts of the options on well-being will also be positive due to the role of health as a strong determinate of well-being. Anxiety caused by the future fit programme is likely to have a short-medium term negative affect on well-being. Taking these both into account, and over a long-term 25 year horizon, the impact of the preferred options on well-being may be positive but minimal.

[68] Office for National Statistics (2016) Personal well-being in the UK: 2015 to 2016.

5.2.5 Direction and scale of impact - by area

This impact is likely to be felt equally across the catchment area.

5.2.6 Potential equality effects

There are no obvious equality effects arising from this impact.

5.3 Local deprivation

5.3.1 Nature of potential impact

The Index of Multiple Deprivation (IMD) is the most widely used measure of deprivation in the UK. It combines information from several domains to produce an overall measure of deprivation. Slightly different domains, with different weightings, are used in England and Wales.

England IMD domains and weights:

- Income (22.5%)
- Employment (22.5%)
- Education, Skills and Training (13.5%)
- Health and Disability (13.5%)
- Crime (9.3%)
- Barriers to Housing and Services (9.3%)
- Living Environment (9.3%)

Wales IMD domains and weights:

- Income (23.5%)
- Employment (23.5%)
- Education (14.0%)
- Health (14.0%)
- Access to Services (10.0%)
- Community Safety (5.0%)
- Housing (5.0%)
- Physical Environment (5.0%)

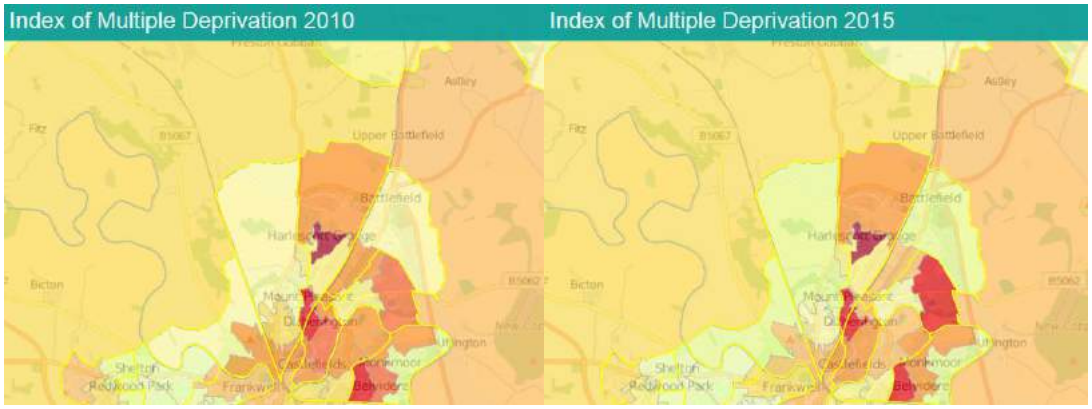
The preferred options would potentially have impacts in several of these domains and consequently could impact on overall levels of deprivation. In addition, some local stakeholders thought the preferred options would lead to higher travel costs for patients and friends or family visiting hospital, due to having to catch and pay for an increasing number of buses to complete these journeys or having to travel by taxi. This could also conceivably have a contributory effect on levels of deprivation amongst certain groups in the catchment area population.

5.3.2 Baseline in a “do minimum” scenario

Current levels of deprivation in the catchment area are discussed in detail Chapter 2. Overall, Shropshire, Telford and Wrekin and Powys have lower than average levels of deprivation, but equally all three contain small areas that are amongst the 20% most deprived nationally. In Shropshire and Telford and Wrekin these are mainly urban areas within Shrewsbury and Telford respectively, while in Powys they are in Newtown and Welshpool.

An area’s level of deprivation does not tend to fluctuate widely over the short term. For example, figure 5.1 compares 2010 and 2015 IMD results for a section of Shropshire, and shows little change. Areas of higher relative deprivation are denoted by darker shading.

Figure 5.1 Deprivation in Shropshire – 2010 and 2015



DCLG (2016) Relative deprivation based on IMD 2010 and IMD 2015.

Over a longer 25 year timeframe, relative levels of deprivation in the catchment area could show more change – if there is a sustained worsening or improvement in the domains that contribute to it.

5.3.3 Likelihood and timescale of impact

The preferred options are likely to have some level of impact on deprivation because of the number of domains of deprivation they potentially affect. This impact may not be felt immediately but emerge over time.

5.3.4 Direction and scale of impact - overall

Quantitatively projecting the overall impact of the preferred options on levels of deprivation is problematic because of the number of domains in which the options could impact and the fact the scale of some of these contributory impacts is itself uncertain. Nonetheless, based on the analysis of other impacts undertaken in this assessment it is possible to qualitatively assess the potential impacts of the preferred options on different domains of deprivation. This assessment is presented in table 5.5. NB. Some of the England and Wales domains of deprivation have been amalgamated here for ease of comparison.

Table 5.5 Impacts of preferred options on deprivation domains - overall

Impacts	Deprivation domains	Option B	Option C1	Option C2
Local businesses	Income and Employment	minimal negative	minimal negative	minimal negative
Local employment				
Local economy				
Local education / training opportunities	Education, skills and training	neutral / uncertain	neutral / uncertain	neutral / uncertain
Clinical effectiveness	Health	moderate positive	moderate positive	moderate positive
Patient safety				
Patient experience				
Travel times to access urgent and emergency care	Access to services	moderate negative	minimal negative	minimal negative
Travel times to access non-complex planned care				
Convenience of access to non-complex planned care by public transport				
CO2 emissions	Physical & Living Environment	minimal negative / uncertain	minimal negative / uncertain	minimal negative / uncertain
Air pollution				
Noise pollution				

Biodiversity				
Cultural heritage				

ICF analysis

This illustrates a mixed picture across the different domains. There are projected to be negative impacts in more domains than there are positive, under each preferred option, but these are all minimal in scale – including on the most heavily weighted Income and Employment domains. The only impacts that are projected to be moderate in scale are the positive impacts in the health domain, under each preferred option, and the negative impacts in the access to services domain, under Option B. Notwithstanding this one difference between the options, any impact on deprivation is likely to be negative but minimal under all three.

5.3.5 Direction and scale of impact - by area

There are no major differences by area in the scale or direction of the impacts that contribute towards deprivation, indicating that the overall impact on deprivation will be the same in each area and under each option.

5.3.6 Potential equality effects

There are no obvious disproportionate equality effects arising from this impact, as all residents in the catchment area could experience some small effect on their levels of deprivation. However, this effect may be felt most acutely by those who are already living close to or in relative deprivation. As reported in Chapter 2, there are parts of Shrewsbury, Telford, Welshpool, Newtown, Gungrog and Llandrindod, that are amongst the 30% most deprived nationally, and would be most at risk in this respect.

5.4 Local traffic levels and congestion

5.4.1 Nature of potential impact

The preferred options would each contribute to an increase in traffic volume, owing to residents in some parts of the catchment area having to travel further to access certain services. This increase in traffic volume may increase congestion.

5.4.2 Baseline in a "do minimum" scenario

Overall the catchment area currently has relatively low levels of congestion. The average vehicle speed during the weekday morning peak on locally managed A roads is 35.6mph in Shropshire and 38.7mph in Telford and Wrekin compared to a national average of 24.3mph[69]. Equivalent data is not reported for Powys.

Local transport plans for Shropshire and Powys confirm this overall picture but also highlight certain localised areas of congestion:

> *"Congestion is not considered to be a significant problem except in a few 'hot spot' areas, predominantly in and around Shrewsbury. The A5 around and north of Oswestry is a further congestion hotspot…Regular congestion on the M6 can cause reliability concerns for journeys to and from Shropshire."* Shropshire Local Transport Plan 2011-2026

> *"The key issues are around journey time reliability, overtaking opportunities, road safety and journey times rather than congestion (aside from congestion issues in Newtown in particular)."* Mid Wales Joint Local Transport Plan 2015-2020

In contrast, congestion has been identified as a significant future challenge in Telford and Wrekin owing to its rapidly increasing population size and new house building:

[69] Department for Transport (2015) Average vehicle speeds (flow-weighted) during the weekday morning peak on locally managed 'A' roads: by local authority in England.

> *"Whilst Telford and Wrekin does not currently suffer from significant levels of congestion, this is likely to become a significant issue by the end of the plan period in many areas of the Borough. The Telford and Wrekin area is served by a number of key strategic routes…these routes carry significant volumes of traffic and increasing congestion and journey time unreliability is becoming an issue."* Telford and Wrekin Local Transport Plan 2011-2026

Nationally, road traffic volumes have been projected to rise by 9% to 55% between 2010 and 2040, with a resultant increase in congestion levels[70]. New road infrastructure projects and traffic management measures have been introduced or are planned in each of the catchment area localities to partly mitigate these impacts but the underlying trend over the next 25 years is towards higher levels of congestion.

5.4.3 Likelihood and timescale of impact

This impact is highly likely to occur under preferred options because each is projected to result in some increase in the volume of road traffic vehicle miles undertaken to access hospital services in the catchment area. This would occur once the selected option had been implemented.

5.4.4 Direction and scale of impact - overall

Under each of the preferred options, this impact would be negative. However the overall scale of this impact on the catchment area would be minimal. Journeys to RSH and PRH currently account for around 0.5% of the total number of road vehicle miles driven in the catchment area[71]. Vehicle miles driven to access hospital services would increase under each preferred option but in total these journeys will still account for around 0.5% of the total number of road vehicle miles driven in the catchment area. Other underlying factors such as population growth would have a much greater bearing on overall traffic and congestion levels over time.

Table 5.6 Vehicles miles driven to access hospital under each option

	Option A	Option B	Option C1	Option C2
Annual vehicle miles driven to RSH and PRH	9,790,377	10,124,322	10,209,869	10,136,096
As % of total vehicle miles driven in catchment area	0.49%	0.50%	0.51%	0.50%

ICF calculations

NB. These results to not account for road travel *from* hospital because no data is recorded for these journeys. If they were assumed to amount to an equal number of vehicle miles as journeys to hospital, the total mileage under each option would be double the figures quoted in table 5.6. The percentage of all vehicle mileage in the catchment area this represents would also double under each option.

5.4.5 Direction and scale of impact - by area

This impact will also be minimal and negative for Shropshire, Telford and Wrekin, and the affected parts of Powys as a whole because journeys to/from hospital will continue to represent a small proportion of all road traffic at this scale too.

[70] Department for Transport (2015) Road traffic forecasts 2015.

[71] The total number of vehicle miles driven in the catchment area was approximately 2.013 billion in 2015. This was comprised of 1.297 billion miles in Shropshire, 0.402 billion miles in Telford and Wrekin and an estimated 0.314 billion miles in affected parts of Powys. NB. Data is not reported for miles driven specifically in the affected parts of Powys but in order to approximate the total for the catchment area these have assumed to be 50% of the total reported mileage for the whole of Powys. *Source: Department for Transport (2016) Traffic count data..*

The scale of this impact only becomes potentially significant when it is considered in terms of the number of journeys being undertaken on specific roads serving each hospital. Although journeys to hospital are made from all over the catchment area, the surrounding roads which serve the two hospitals would be most affected by any change.

Table 5.7 illustrates the projected number of journeys to each hospital under each option.

Table 5.7 Annual number of journeys to each hospital – by option

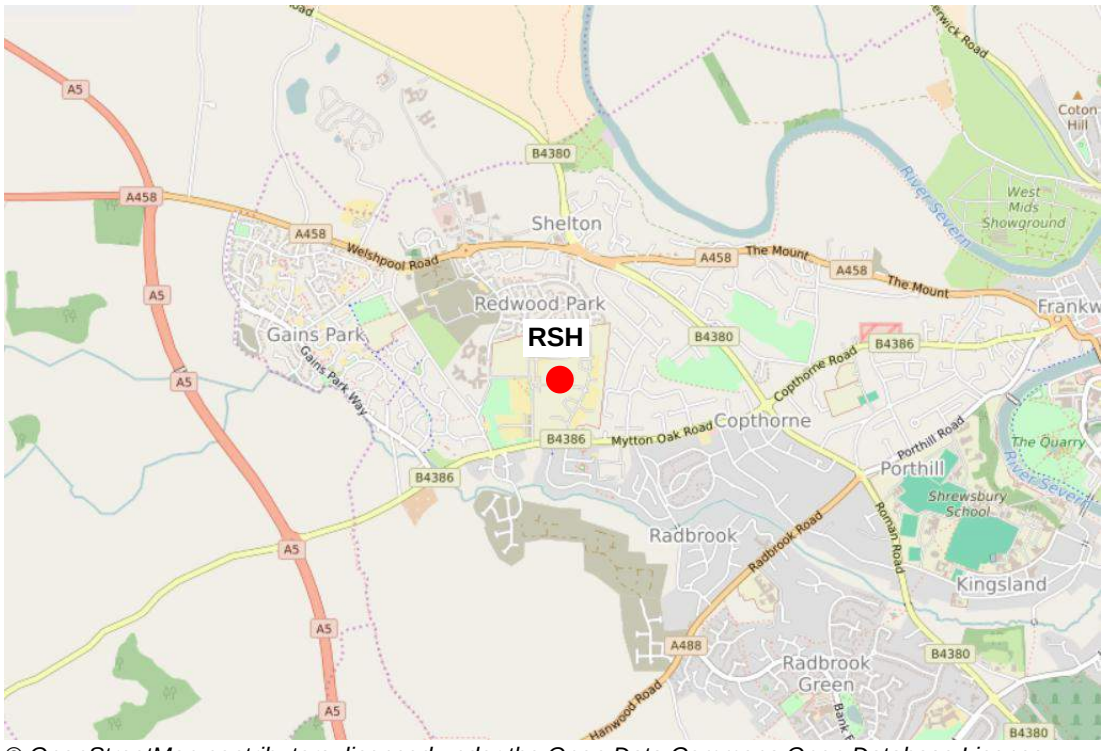
	Option A	Option B	Option C1	Option C2
RSH	475,159	450,603	473,583	448,049
PRH	329,491	354,047	331,067	356,601

ICF calculations

The differences between the options partly reflect additional journeys that would be undertaken to the one hospital that has an Emergency Centre (PRH under Option B and RSH under Option C1 and C2) and a corresponding decrease to journeys to the other hospital. Other service changes proposed under the preferred options (the creation of a single DTC for non-complex planned care at one hospital and the movement of Women and Children care from RSH to PRH under Option C1) would also have a contributory effect on the number of journeys to each hospital. Again, if journeys from hospital were also considered, and assumed to amount to an equal number of vehicle miles as journeys to hospital, this would effectively double all the figures quoted in table 5.7.

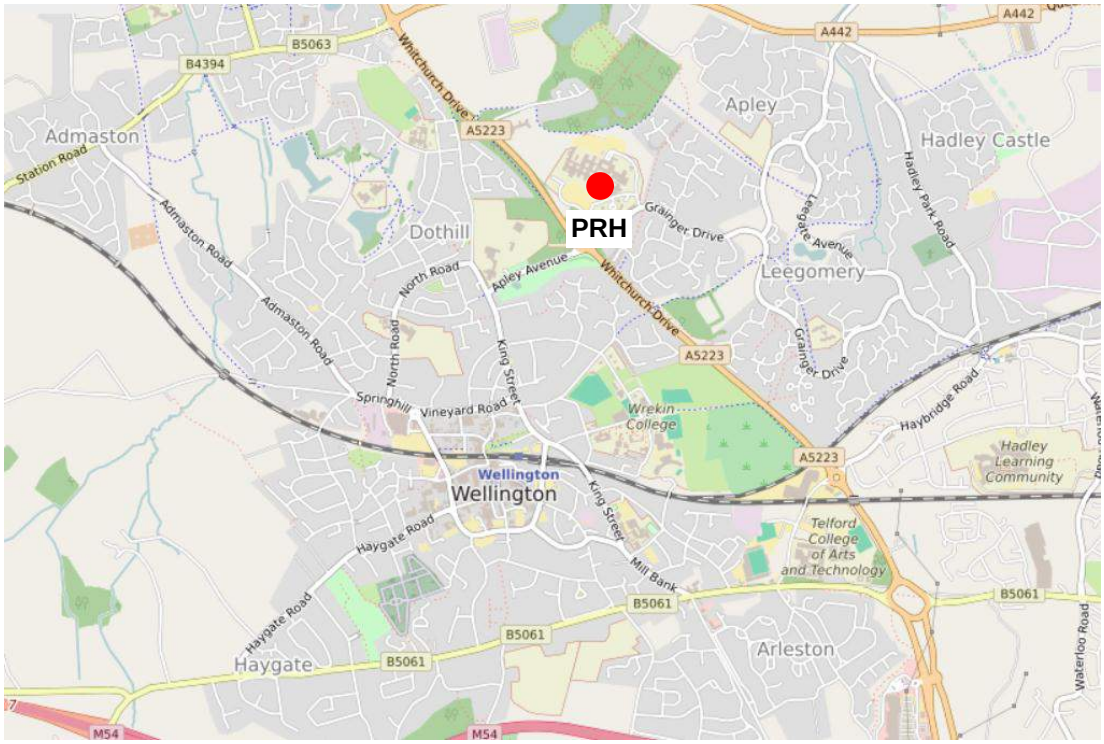
The roads immediately serving the two hospitals are illustrated in figure 5.2 and 5.3.

Figure 5.2 Roads serving Royal Shrewsbury Hospital



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Figure 5.3 Roads serving Princess Royal Hospital



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Data is reported by the Department for Transport on average journeys speeds on some of the A roads within the Shropshire and Telford and Wrekin local authority areas which serve each hospital – see table 5.8.

Table 5.8 Average vehicle speed on A roads serving hospitals in June 2015

	Direction	Average vehicle speed during weekday morning peak (mph)
Shropshire local authority area		
A458	Eastbound	34.6
A458	Westbound	37.3
A5	Northbound	48.4
A5	Southbound	49.3
A5112	Northbound	22.2
A5112	Southbound	22.8
A5191	Northbound	13.0
A5191	Southbound	13.4
A528	Northbound	33.6
A528	Southbound	31.1
Telford & Wrekin local authority area		
A442	Northbound	40.0
A442	Southbound	44.2
A5	Eastbound	32.8
A5	Westbound	29.6
A518	Eastbound	39.9
A518	Westbound	37.8

Department for Transport (2016) Average vehicle speeds during the weekday morning peak on locally managed 'A' roads.

This only provides a partial picture of congestion levels on road serving the two hospitals. Vehicle speeds on other A roads or the B roads and local roads immediately around each hospital are not routinely recorded and reported, and it was beyond the scope of this assessment to model or collect this data. Without this it is not possible to project the scale of the impacts of the preferred options on congestion levels. However if this was deemed a priority this could potentially be undertaken as a separate exercise and, in combination with projected journeys under each option, used as the basis for estimating impacts on future levels of congestion.

What can be concluded in the absence of such projections is that any impact on congestion arising out of the preferred options will be felt primarily by people who use the road network serving the two hospitals in Shrewsbury and Telford. The majority, but not all, of these can also reasonably be assumed to be local residents of Shropshire or Telford and Wrekin. The implications of this are that Option B would have a negative impact predominantly on residents in Telford and Wrekin, and that Option C1 and C2 would have a negative impact predominantly on residents in Shropshire.

5.4.6 Potential equality effects

Each of the preferred options would potentially have a disproportionate effect on groups that undertake high levels of road travel. How much people travel varies by gender, age and income. Men travel on average 7,200 miles per annum compared to 5,800 miles by women, and, for both, the majority of this travel is undertaken by road. People aged 30-39, 40-49 and 50-59 travel the furthest on average of any age group, again predominantly by road. People with higher incomes also have higher rates of car ownership and travel further on average by car than people with lower incomes[72]. However, none of these groups have been identified as potentially vulnerable in this assessment, with the possible exception of men, as gender is a protected characteristic under the 2010 Equality Act.

There are no obvious differential effects arising from this impact, although recent research has demonstrated a link between congestion and mental health. For example, a large longitudinal US study found that negative responses to daily stressors, including sitting in traffic, led to an increased risk of psychological distress or anxiety and mood disorders ten years later[73]. However, it does not necessarily follow that people with an existing mental health condition are more adversely affected by congestion than other groups. No evidence was identified in this assessment to demonstrate whether this may be the case and, if so, to what extent.

[72] DfT (2015) National Travel Survey: England 2014.

[73] Charles, S. T., Piazza, J. R., Mogle, J., Sliwinski, M. J., & Almeida, D. M. (2013). The Wear-and-Tear of Daily Stressors on Mental Health. Psychological Science, 24(5), 733–741.

6 Environmental Impacts and Equality Effects

This chapter presents detailed evidence on the projected environmental impacts and equality effects of the preferred options.

Greenhouse gas emissions

- There are two principle ways in which the options will potentially bring impact: physical alterations which lead to changes in energy consumption and emissions; changes in the volume of road traffic to the two sites.
- It is not possible to project changes to the baseline caused by new build or alterations but the current trend is towards lower emissions. Nationally, CO2 emissions from road traffic are expected to fall.
- This impact is very likely to occur. It can be concluded that there would be some overall decrease in emissions arising from the new build. CO2 emissions are expected to be around 5% higher under each of the preferred options, and highest under Option C1. These are largely a consequence of additional travel to access EC services under each of the preferred options, although other service changes (e.g. the movement of Women and Children care from PRH to RSH proposed under Option C1) also have a contributory effect.

Air pollution

- The projected increase in the volume of road travel to access hospital services under the preferred options would potentially increase emissions and impact on local levels of air pollution.
- Each of the preferred options can be expected to have a negative but very small scale impact on air pollution across the catchment area as a whole. It is only a smaller localised scale that such impacts could be more significant. Specifically, the areas immediately surrounding the roads that serve the two hospitals would see the greatest impact on traffic volumes.

Noise pollution

- The preferred options would potentially impact on local noise levels by increasing the number of ambulance journeys made to whichever of the hospitals hosts the EC.. The focus here is on ambulance journeys because of the higher noise levels they produce.
- Each of the preferred options is highly likely to have some impact on local noise pollution arising from ambulance journeys, and this would occur from the point at which the service changes intended under the selected option had been implemented. For the catchment area as a whole, this impact would be neutral.

Biodiversity

- New building work would be undertaken at both hospital sites under each of the preferred options and this may have an impact on local biodiversity in or around the sites. This impact could potentially be negative or positive. However it is uncertain because detailed architectural plans for the two hospital sites under each preferred option have not been completed.

Cultural heritage

- The preferred options could have an impact on cultural heritage if the new building work planned at the hospitals under each option affected any nearby physical features deemed to be heritage assets.
- At the time of writing, the likelihood and timescale of this impact is uncertain. Detailed architectural plans for the two hospital sites under each preferred option have not been published.

o

This chapter presents detailed evidence of projected environmental impacts and equality effects of the preferred options.

6.1 Greenhouse gas emissions

6.1.1 Nature of potential impact

There are two principle ways in which the options will potentially impact on greenhouse gas emissions:

- Physical alterations to the two hospital sites, which could lead to changes in energy consumption and emissions.
- Changes in the volume of road travel to the two hospital sites, which would also lead to changes in resultant emissions.

6.1.2 Baseline in a "do minimum" scenario

In 2014/15 the total buildings-related energy usage for both hospital sites combined was just over 82 million kilowatt hours, and the resultant CO2 emissions totalled 20,109 tonnes[74]. CO2 emissions arising out of waste disposal were 37 tonnes in 2014/15[75]. This gives a baseline carbon footprint of 20,146 tonnes for the two sites combined. There are also additional CO2 emissions associated with SaTH's procurement of supplies and services but as this is not likely to be directly affected by the preferred options they are not considered here.

It is not possible to project changes to this baseline over the next 25 years, but the current direction of travel is towards lower emissions. SaTH has introduced several measures to reduce its carbon footprint following the introduction of its Sustainable Development Management Plan in 2014 and has received national recognition for this at the NHS Sustainability Awards 2015. In line with the NHS Carbon Reduction Strategy, SaTH also has targets in place to reduce its buildings-related emissions by at least 30% by 2018/19 from a 2007 baseline[76]. Equally, the relative energy inefficiency of existing buildings at both sites is likely to be a long term constraint on further reductions in a do minimum scenario (Option A). The energy usage profiles for RSH and PRH are currently 97Gj/100m³ and 79Gj/100m³ respectively, compared with the national target of 35-55 Gj/100m³ for new and existing buildings[77].

Emissions arising out of road travel to the two hospital sites totalled 3115.3 tonnes of CO2 in 2015/16[78]. Over the next 25 years, and under a baseline scenario, these emissions can reasonably be expected to fall. Nationally, and despite total road traffic being forecast to continue to rise, CO2 emissions arising from road travel are forecast to fall by between 3 per cent and 26 per cent from 2010 to 2040. Significant fuel efficiency improvements are the main driver of this downward trend.[79] This would exert a similar influence under all the options, and so is not considered to be a significant mediating factor here.

6.1.3 Likelihood and timescale of impact

This impact is very likely to occur, as a consequence of both physical alterations to the hospital sites and changing travel volumes, once any of the preferred options had been selected and implemented.

6.1.4 Direction and scale of impact - overall

The overall direction and scale of this impact is uncertain. At the time of writing, detailed architectural plans have not been completed for the two hospital sites under the preferred

[74] SaTH (2015) SaTH Trust Board – 3 December 2015, Sustainability Update.

[75] ibid

[76] SaTH (2014) SaTH Trust Board – 27 March 2014, Sustainable Development Management Plan.

[77] ibid

[78] This is calculated based on SaTH patient data and average vehicle CO2 emission data published by DECC: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2016

[79] Department for Transport (2015) Road Traffic Forecasts 2015.

options. However, it is reasonable to expect that all the preferred options would lead to a decrease in greenhouse gas arising from the hospital building emissions. Conversely, the emissions arising from travel to the hospitals can be projected and would increase under each of the preferred options. The overall impact will be a product of whether, and if so by how much, one impact off-sets the other. That said, the scale of any resultant overall impact is going to be modest when viewed in the context of the wider catchment area. For example, all road travel to the hospital sites currently amounts to 9.3 million vehicles miles per annum. This is less than 0.5% all road traffic in Shropshire, Telford and Wrekin and Powys combined in 2015[80]. Each hospital site also represents a similarly small proportion of the total built environment across the catchment area.

In terms of emissions arising from the two hospital sites, it is known at the time of writing that there will be some new build at the hospitals sites to replace existing buildings under each of the preferred options. New buildings typically have lower emissions than existing buildings, owing to more stringent constructions standards and newer technologies. SaTH have also stated that all new build will be undertaken to meet BREEAM excellent standards, which would place them in the top 10% of UK new non-domestic buildings based on a range of characteristics including environmental performance[81]. Given the relative energy inefficiency of the existing buildings at both sites noted above, it can be concluded that there would be some overall decrease in emissions arising from the new build.

In terms of emissions arising from travel to the hospital sites, these would be higher under each preferred option than under the baseline Option A. Table 6.1 presents the projected annual CO2 emissions by option.

Table 6.1 Annual CO2 emissions arising out of travel to hospitals under each option

	Option A	Option B	Option C1	Option C2
CO2 (tonnes)	3115.3	3250.9	3290.0	3268.0
Difference to Option A	-	+4.4%	+5.6%	+4.9%

ICF calculations

This illustrates that CO2 emissions are around 5% higher under each of the preferred options, and highest under Option C1. These higher emissions are largely a consequence of additional travel to access EC services under each of the preferred options, although other service changes (e.g. the movement of Women and Children care from PRH to RSH proposed under Option C1) also have a contributory effect. NB. These results do not account for road travel *from* hospital because no data is recorded for these journeys. If they were assumed to amount to an equal number of vehicle miles as journeys to hospital, and have a similar carbon footprint, it may be surmised that the total CO2 emissions under each option would be double the figures quoted in figure 6.1. However, the percentage difference between Option A and the preferred options would remain unchanged.

6.1.5 Direction and scale of impact - by area

Greenhouse gas emissions, and the resultant consequences of climate change, are an impact felt globally. As such, no significant overall variations between Shropshire, Telford and Wrekin and Powys are expected. However, different parts of each area do have variable levels of susceptibility to flooding, which may be exacerbated by the effects of climate change over time. For example, it has been projected that the peak river flow of the River Severn will increase by 9-18% by 2050[82]. Table 6.2 illustrates the number of properties currently at risk of flooding in different areas of Shropshire and Telford and Wrekin.

[80] Department for Transport (2016) Traffic count data 2000-2015.

[81] For further details see: www.breeam.com/BREEAM2011SchemeDocument/Content/03_ScoringRating/breeam_assessment_issues_and_credits.htm

[82] Defra (2009) United Kingdom Climate Projections 2009 (UKCP09).

Table 6.2 Areas of high flood risk in Shropshire and Telford and Wrekin

	Number of households at risk of a 1 in 100 year flood event
Shropshire	
Shrewsbury	484
Oswestry	267
Bridgnorth	249
Ludlow	164
Church Stretton	125
Shifnal	73
Much Wenlock	70
Bayston Hill	61
Whitchurch	61
Market Drayton	47
Telford and Wrekin	
Telford North	106
Telford South	130
Rural East	38
Rural West	7

Shropshire Council (2014) Shropshire Local Flood Risk Management Strategy; Telford and Wrekin Council (undated) LLFA Flood Risk Management Strategy.

No directly equivalent data for Powys was identified in this assessment. However, using a different classification[83], areas with a high flood risk in Powys have previously been mapped. Figure 6.1 illustrates these high flood risk areas, highlighted in blue.

Figure 6.1 Areas of high flood risk in Powys



Powys County Council (2012) Strategic Flood Consequence Assessment

As can be seen above, there are areas of Powys within the catchment area that are already exposed to high levels of flood risk, most notably Welshpool and other areas in the north east of the county that are bisected by the River Severn.

[83] High flood risk areas under this classification are areas with a flood risk equal to or greater than 0.1% that do not have significant flood defence infrastructure.

6.1.6 Potential equality effects

There are no clear-cut equality effects arising out this impact. Given the modest potential scale of this impact on global CO2 levels and climate change, any such effects would be very small. There is research demonstrating that older people are more severely affected by elevated summer temperatures than other age groups. For example, the largest proportion of the 2,000 excess deaths in England and Wales during the August 2003 heatwave occurred in people who were over 75 years old[84]. However, more broadly the long-term effects of climate change will be felt most by future generations, meaning the younger people of today may ultimately be most affected.

6.2 Air pollution

6.2.1 Nature of potential impact

The projected increase in the volume of road travel to access hospital services under the preferred options would potentially increase emissions and impact on local levels of air pollution. Road traffic is a significant contributor to air pollution in the UK. Petrol and diesel-engines emit a variety of pollutants, including particulate matter (PM) and nitrogen dioxide (NO2). Road traffic is not the only source of air pollution and changes in energy usage by the two hospitals under the preferred options could also feasibly affect emissions. However, the effects of this would not primarily be felt locally in the catchment area, and so these are not considered here.

6.2.2 Baseline in a "do minimum" scenario

Concentrations of particulate matter and especially NO2 are highest alongside busy roads and in built up urban areas. Reflecting this, Shropshire, Telford and Wrekin and Powys have lower average concentrations of these pollutants than the UK average.

Table 6.3 Concentrations of Particulate Matter and Nitrogen Dioxide

	Mean Anthropogenic PM2.5 (µgm-3)	Mean NO2 (µgm-3)
Shropshire	7.4	7.1
Telford & Wrekin	8.5	10.4
Powys	6.2	5.2
UK average	9.4	24

Public Health England (2014) Estimating local mortality burdens associated with particulate air pollution; Defra (2014) Background Mapping data for local authorities – 2013; Defra (2014) Air pollution in the UK.

Nonetheless, the existing levels of these emissions in the catchment area are high enough to be associated with increased mortality. For example, Public Health England estimate that particulate matter could be attributed to an equivalent of 130 deaths in Shropshire, 63 in Telford and Wrekin, and 51 in Powys in 2010[85].

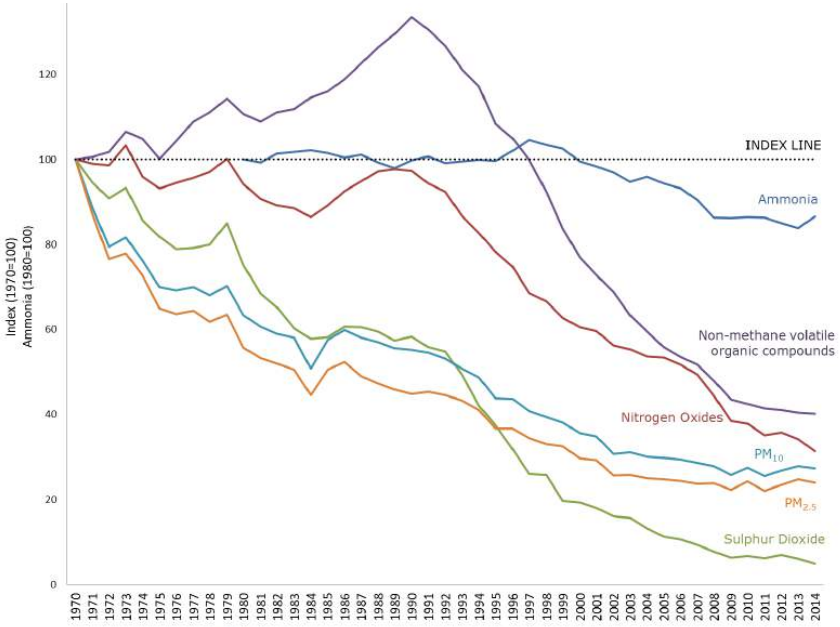
Road traffic is responsible for 33% of all NO2 emissions and 15%-18% of all particulate matter emissions in the UK. Accurately calculating the specific contribution of journeys to hospital within the catchment area is challenging, as it will partly reflect the age, model and size of the vehicles which undertake each journey and the speed they are driven. However, it can be stated with some confidence that this contribution is relatively small. As discussed in previously, journeys to hospital currently account for under 0.5% (or 1% if journeys from hospital are also considered) of all vehicles miles driven in the catchment area, meaning they would account for a similar proportion of particulate and NO2 emissions.

[84] Johnson H., Kovats S., McGregor G., Stedman J., Gibbs M., Walton H., Cook L. and Black E. (2004) The Impact of the 2003 Heat Wave on Mortality and Hospital Admissions in England. Epidemiology. Volume 15. Number 4. pp 6-11.

[85] Public Health England (2014) Estimating local mortality burdens associated with particulate air pollution.

In terms of potential changes to this baseline over the next 25 years, emission levels have followed a downwards trajectory in the UK over recent years.

Figure 6.2 Trends over time in UK emissions



The index line is a comparator that shows the level of emissions if they had remained constant from the beginning of the time series.

Defra (2015) Emissions of air pollutants in the UK, 1970 to 2014.

This has mainly been driven by regulation, more fuel efficient vehicles, and technological developments such as catalytic converters. New cars have significantly lower emissions than older cars and further reductions are forecast, particularly if the uptake of electric vehicles becomes more widespread. Under the revised Gothenburg Protocol the UK has targets to reduce particulate matter emissions by 30 per cent by 2020 compared to 2005 and to reduce nitrogen oxide emissions by 55 per cent over the same timeframe. On this basis it is reasonable to expect that particulate matter and NO2 emissions arising from journeys to hospital would fall over the next 25 years under a baseline “do minimum” scenario. Equally, improvements in the environmental performance of road vehicles would exert a similar influence under the preferred options too – i.e. mileage may increase but this would be partly offset by lower emissions by the vehicles being driven.

6.2.3 Likelihood and timescale of impact

This impact is very likely to occur, as a consequence of changing travel volumes, once any of the preferred options had been selected and implemented.

6.2.4 Direction and scale of impact - overall

Each of the preferred options can be expected to have a negative but very small scale impact on air pollution across the catchment area as a whole. As reported in section 6.4, increased travel under the preferred options would have very little impact on the total number of vehicles miles driven in the catchment area. Consequently, there would be a limited resultant impact on average particulate matter and NO2 concentrations across the catchment area as a whole.

6.2.5 Direction and scale of impact - by area

Impacts on air pollution would also be minimal and negative on Shropshire, Telford and Wrekin and Powys as a whole because, again, journeys to hospital will continue to represent a small proportion of all road traffic in each area under each option.

It is only a smaller localised scale that such impacts could be more significant. Specifically, the areas immediately surrounding the roads that serve the two hospitals would see the greatest impact on traffic volumes. Roadside concentrations of particulate matter and NO2 are also higher than concentrations elsewhere. For example, in the UK urban conurbations where emissions are most closely monitored, roadside NO2 emissions are on average twice as high as 'urban background' emissions[86].

Particulate matter and NO2 levels on the relevant roads serving RSH and PRH is not routinely measured, and it was beyond the scope of this assessment to undertake primary research to collect this data. It is also not known what the impact of the preferred options will be on traffic volumes on specific roads, as this has only projected at an aggregate scale for the purposes of Future Fit options appraisal process. Consequently it is not possible to measure existing levels of air pollution or project future levels in areas nearby the roads serving the two hospitals. Certain broad conclusions can still be drawn about the potential impacts of each preferred option based on the projected changes in road journey to each hospital.

Table 6.4 Annual number of journeys to each hospital – by option

	Option A	Option B	Option C1	Option C2
RSH	475,159	450,603	473,583	448,049
PRH	329,491	354,047	331,067	356,601

Under Option B and Option C2, the number of journeys to PRH is projected to increase, meaning nearby the roads serving the hospital would experience the greatest potential increase in air pollution. Under Option C1, the projected number of journeys to both hospitals would remain very similar to current levels. The number of journeys to RSH does not increase under any of the options.

6.2.6 Potential equality effects

Option B and Option C2 would potentially have a disproportionate effect on any groups that are over-represented amongst the population living close to the roads serving PRH. However, the area PRH is immediately situated in has a similar socio-demographic profile to the catchment area as a whole. Equally, if a significant proportion of the increased journeys to PRH passed through Telford, this would have a disproportionate effect on BAME groups, young children, young adults, and people living in deprivation – all of whom are over-represented in its population. This equality effect is currently uncertain and would require further investigation to properly assess.

In terms of differential equality effects, there is evidence that the health effects of air pollution vary between different population groups[87]. A systematic review of studies that examined deaths associated with exposure to particulate matter indicated a risk in older people of about twice that observed in younger people[88]. Air pollution also has disproportionately adverse effects on people with pre-existing long-term health conditions, for example, those suffering cardio-respiratory diseases[89]. In addition, prenatal exposure to air pollution has been found to be associated with adverse outcomes in pregnancy including still-birth, low birth weight, and intrauterine growth retardation[90]. This indicates a potential equally effect for young children.

[86] RAC Foundation (2014) Air Quality and Road Transport: Impacts and Solutions.

[87] Royal College of Physicians (2016) Every breath we take: The lifelong impact of air pollution.

[88] Bell ML, Zanobetti A, Dominici F. (2013) Evidence on vulnerability and susceptibility to health risks associated with short term exposure to particulate matter: a systematic review and meta-analysis. Am J Epidemiol 2013;178: 865–76.

[89] Royal College of Physicians (2016) Every breath we take: The lifelong impact of air pollution.

[90] Transport for London (undated) Roads Task Force - Technical Note 20: What are the main health impacts of roads in London?

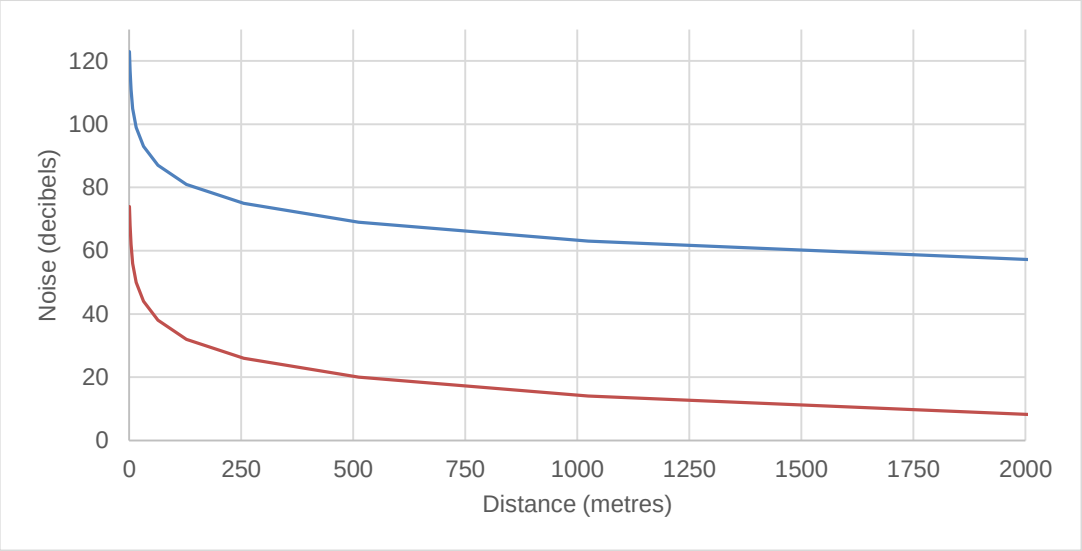
6.3 Noise pollution

6.3.1 Nature of potential impact

The preferred options would potentially impact on local noise levels by increasing the number of ambulance journeys made to whichever of the hospitals hosts the Emergency Centre(PRH under Option B and RSH under options C1 and C2). These journeys would contribute to higher levels of noise in areas nearby the hospital. Conversely, areas nearby the hospital that no longer had an A&E department would benefit from lower levels of noise.

Journeys to hospital by other vehicles also have some resultant effect on local noise levels. However, the focus here is on ambulance journeys because of the higher noise levels they produce. In response to a freedom of information request in January 2016 the West Midlands Ambulance Service confirmed that the sirens used on their ambulances have a fixed volume of 123 decibels[91]. In comparison the highest permitted noise level for cars in the UK is currently 74 decibels[92]. As illustrated by figure 6.3, even at 2,000 metres an ambulance siren produces over 50 decibels whereas a car produces under 10 decibels.

Figure 6.3 Noise produced by an ambulance siren and a car - by distance



Based on the Inverse Square Law which dictates that noise decreases by 6 decibels each time the distance from its source doubles, assuming no obstructions or barriers.

The World Health Organisation recommend that people are not regularly exposed to noise levels over 55 decibels because of the negative health effects this can cause, particularly when this exposure occurs at night time[93].

6.3.2 Baseline in a "do minimum" scenario

In 2015/16, SaTH data indicates that 14,445 patients were conveyed by ambulance to the A&E department at RSH and 15,268 patients were conveyed by ambulance to the A&E department at PRH. This equates to a baseline average of 40 ambulance journeys per day to RSH and 42 per day to PRH. These figures do not account for ambulance journeys out of each hospital to reach the patients. If these are taken into account this would equate to 80 ambulance journeys per day to/from RSH and 84 per day to/from PRH. However, it is not known how frequently and for what duration ambulances use their siren during these journeys. Ambulance staff can activate the siren at any time of day or night but should only

[91] Retrieved 22 08 2016: https://wmas365-public.sharepoint.com/Disclosure%20Log/Request%20Ref%201883.pdf

[92] VCA (2016) Cars and noise.

[93] WHO (2009) Night noise guidelines for Europe.

use the sirens when it is appropriate and necessary to make other road users, including those on foot, aware of the presence of an ambulance. Nationally, around two-thirds of ambulance conveyances arrive at hospital during daytime and a third between 9:00pm and 6:59am[94].

6.3.3 Likelihood and timescale of impact

Each of the preferred options is highly likely to have some impact on local noise pollution arising from ambulance journeys, and this would occur from the point at which the service changes intended under the selected option had been implemented.

6.3.4 Direction and scale of impact - overall

For the catchment area as a whole, this impact would be neutral. The main effect of the preferred options would to be displace noise pollution arising from ambulance journeys for one part of the catchment area to another rather than increase or decrease overall levels.

6.3.5 Direction and scale of impact - by area

The local areas most directly affected by this impact would be those immediately nearby the two hospitals. The direction and scale of this impact would vary by area under each preferred option, as presented in table 6.5.

Table 6.5 Average number of ambulance journeys to/from each hospital per day

	Option A	Option B	Option C1	Option C2
RSH	80	26	132	132
PRH	84	138	32	32

SaTH data; ICF calculations

This illustrates that under Option B, the number of ambulance journeys to/from PRH (and the resultant noise pollution for nearby areas) would significantly increase. Under options C1 and C2, largely the inverse of this would occur. NB. A proportion of ambulance journeys would continue to be made to the hospital that no longer had an A&E because it is projected that some patients who require emergency ambulance conveyance could be treated in the new Urgent Care Centres that both hospitals will have, under all the preferred options.

6.3.6 Potential equality effects

This impact does not have any certain disproportionate equality effects. Any groups that were over-represented amongst the population living nearby the two hospital sites could be disproportionately affected but both hospitals are immediately situated in areas with relatively "typical" population profiles. It is possible that if a high proportion of these ambulance journey pass through Shrewsbury and Telford (on their way to/from RSH and PRH respectively) then disproportionate effects would arise, because both towns have higher proportions of young children, young adults, BAME groups and people living in deprivation than the average for the catchment area. However, further analysis of current and future ambulance journey patterns would be required to confirm or discount this.

In terms of differential equality effects, children have an increased vulnerability to the potential negative effects of noise pollution[95]. They are more likely to be suffer sleep disturbance as a consequence of night-time noise, which has been shown have a subsequent impact on cognitive development, problem-solving and reading achievement[96]. Daytime noise has also been shown to affect children's social and emotional development,

[94] HSCIC (2016) NHS Accident and Emergency Attendances, 2014-15.

[95] Goines LRN and Hagler LMD (2007) Noise Pollution: A Modern Plague. South Med J. 2007;100(3):287-294; WHO (1999) Guidelines for community noise.

[96] WHO (2009) Night Noise Guidelines for Europe.

and can contribute to elevated blood pressures and levels of stress-induced hormones[97]. It has also been postulated that high noise levels can aggravate existing mental health conditions, suggesting those with such a condition may also be differentially affected by this impact. However, the evidence-base to support this is currently under-developed[98] and so it is not possible to conclude with confidence that this would be an equality effect arising out of the preferred options.

6.4 Biodiversity

6.4.1 Nature of potential impact

Biological diversity, or 'biodiversity', is the term given to the variety of life on Earth. It is the variety within and between all species of plants, animals and micro-organisms and the ecosystems within which they live and interact. It performs a number of important roles, from maintaining the function of the biosphere as a whole, to providing food and medicine ingredients and enhancing health and well-being.

New building work would be undertaken at both hospital sites under each of the preferred options and this may have an impact on local biodiversity in or around the sites. This impact could potentially be negative or positive.

> *"[The] built environment has the potential to have major negative impacts on biodiversity. However, if done sensitively, the development and refurbishment of buildings can in fact increase the ecological value of a site."* UK Green Building Council (2009) Biodiversity and the built environment.

It is also conceivable that other impacts of the preferred options (on greenhouse gas emissions, air pollution and noise pollution) could have knock-on impacts on local biodiversity. However, the scale of these impacts is either uncertain or expected to be small (see sections 6.1, 6.2, and 6.3 of this report respectively), and so the focus here is on potential impacts on biodiversity arising about of new build under the preferred options.

6.4.2 Baseline in a "do minimum" scenario

The Shropshire Environmental Network maintains an online map of local areas that have been formally recognised as having a high biodiversity value[99], drawing on data from Natural England, the Environment Agency, the Forestry Commission and Shropshire Wildlife Trust.

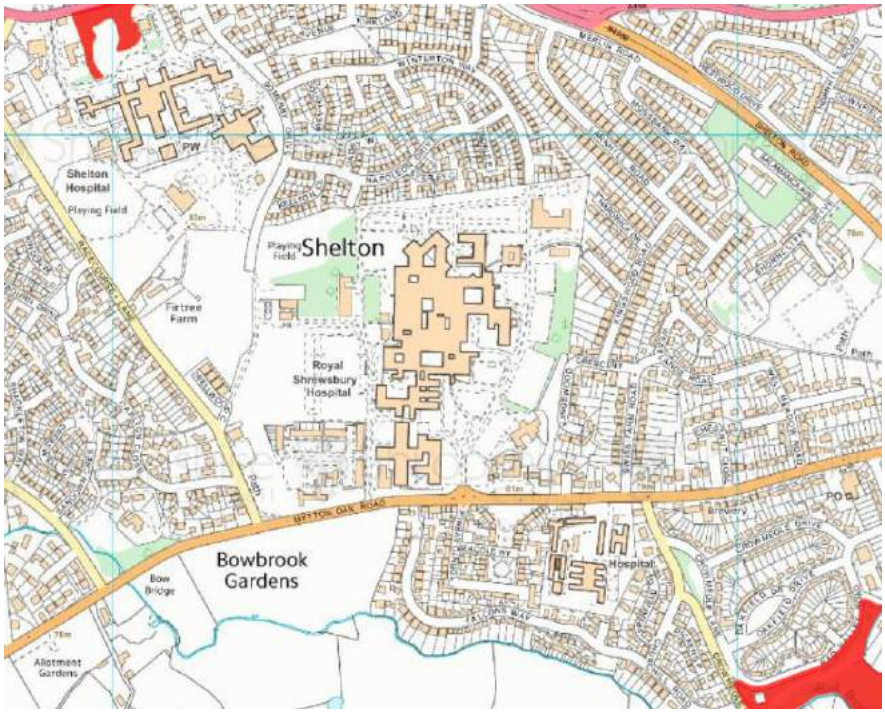
As illustrated in figure 6.4, the RSH site does not contain any formally recognised areas of high biodiversity value, although there are some (highlighted in red) in the wider vicinity.

[97] Babisch W (2005) Noise and Health. Environmental Health Perspectives 113: A14-15; Evans GW, Lepore SJ (1993) Non-auditory effects of noise on children; a critical review. Children's Environments10:42-72.

[98] Goines LRN and Hagler LMD (2007) Noise Pollution: A Modern Plague. South Med J. 2007;100(3):287-294.

[99] This includes: ancient and semi-natural woodland, ancient replanted woodland, local and national nature reserves, priority habitats, RAMSAR European protected wetland sites, special areas of conservation and sites of special scientific interest.

Figure 6.4 Areas of high biodiversity value in/around the RSH site



Shropshire Environmental Network Online Map (retrieved: 20 08 2016)

However, there is a wildlife garden within the RSH site and in 2015 SaTH reported that "We worked with the “Praise Bee” Charity to introduce the Red Mason bees into this area; a declining native solitary non-stinging species"[100].

The PRH site is located just south of Apley Castle Park and Woods, which is designated as a local wildlife site[101] and is reported to be home to some endangered species[102]. In addition, there are two sections of deciduous woodland, classified as a priority habitat by Natural England, to the immediate south of the hospital site. SaTH also reported the launch of a community garden project and the introduction of nest of Red Mason bees at the PRH site in 2015[103].

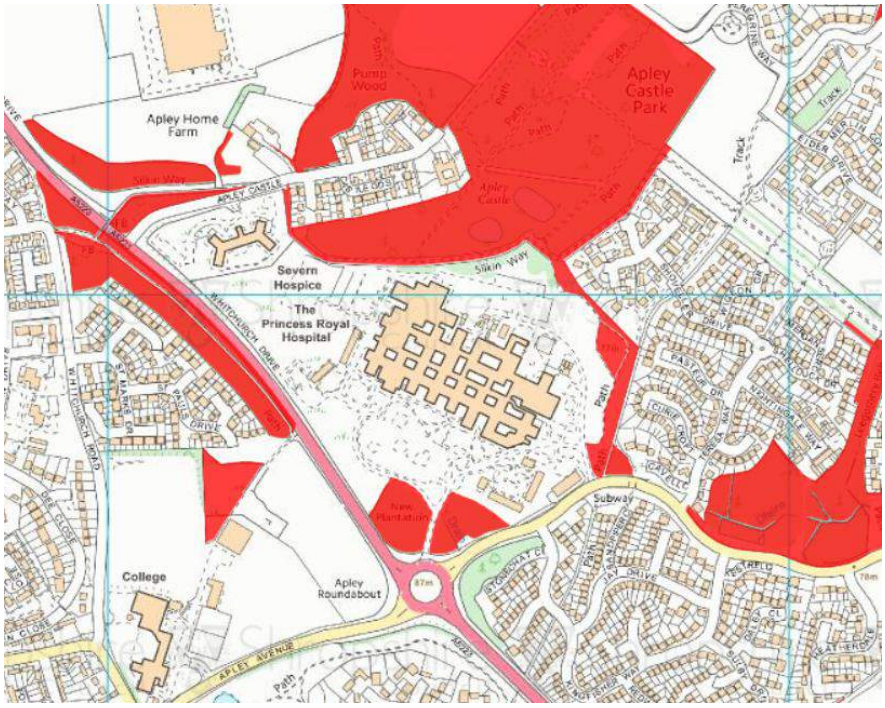
[100] SaTH (2015) SaTH Trust Board – 3 December 2015, Sustainability Update.

[101] Telford and Wrekin Council (2016) Telford and Wrekin Local Plan.

[102] Retrieved 20 08 2016: http://apley-castle-park.info/.

[103] SaTH (2015) SaTH Trust Board – 3 December 2015, Sustainability Update.

Figure 6.5 Areas of high biodiversity value in/around the PRH site



Shropshire Environmental Network Online Map (retrieved: 20 08 2016)

6.4.3 Likelihood and timescale of impact

At the time of writing, the likelihood and timescale of this impact is uncertain. Detailed architectural plans for the two hospital sites under each preferred option have not been completed, although some provisional outline plans are included in the appendices to the March 2016 Future Fit Strategic Outline Case. None of the provisional plans indicate that the hospital sites would be extended beyond their current boundaries, which suggests the nearby areas of high biodiversity value would not be directly affected. The provisional plans do not indicate what would happen to the existing gardens and bee nests within each site or whether additional provision would be made for increasing biodiversity as part of the new build. It is recommended that ecological surveys are undertaken at both hospital sites before any architectural plans are finalised.

6.4.4 Direction and scale of impact - overall

This is uncertain at the time of writing. Any impact on biodiversity is likely to be small from the perspective of the catchment area as a whole.

6.4.5 Direction and scale of impact - by area

This is uncertain at the time of writing. Any impact on biodiversity is likely to be concentrated within or nearby to the two hospital sites in Shrewsbury and Telford.

6.4.6 Potential equality effects

This is uncertain at the time of writing, but there are unlikely to be any equality effects for specific groups in the catchment area population.

6.5 Cultural heritage

6.5.1 Nature of potential impact

The preferred options could have an impact on cultural heritage if the new building work planned at the hospitals under each option affected any nearby physical features deemed to be heritage assets. Heritage assets include world heritage sites, protected wrecks,

battlefields, listed buildings, and scheduled monuments. The National Planning Policy Framework defines a heritage asset as: "*A building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. Heritage assets include designated heritage assets and assets identified by the local planning authority*"[104].

6.5.2 Baseline in a "do minimum" scenario

Neither hospital site currently contains a nationally or locally designated heritage asset. However there is a grade II listed building, Mytton Villa, located close to the south east corner of the RSH site (see figure 6.6).

Figure 6.6 The RSH site and nearby listed building



© OpenStreetMap contributors, licenced under the Open Data Commons Open Database Licence

The listing for Mytton Villa describes it as *"[A] house, now subdivided. Late C18. Brick with Welsh slate roof. 3 storeys, 3-window range with central entrance. Portico with triglyph frieze in entablature flanked by later canted bays. Upper windows are 4-pane sashes, renewed in original openings. Plain parapet with ball finials. Lower 2-storeyed hipped roof pavilions each side, with round-arched panels containing tripartite windows also renewed. End wall stacks*"[105].

6.5.3 Likelihood and timescale of impact

At the time of writing, the likelihood and timescale of this impact is uncertain. Detailed architectural plans for the two hospital sites under each preferred option have not been published, although some provisional outline plans were included in the appendices to the March 2016 Future Fit Strategic Outline Case. However, based on these provisional plans and considering the location of Mytton Villa outside the RSH site, it appears the preferred

[104] Department for Communities and Local Government (2012) National Planning Policy Framework, Annex 2: Glossary.

[105] Retrieved 01 08 2016: http://www.britishlistedbuildings.co.uk/en-456181-mytton-villa-shrewsbury-#.V7x8dU1TGos

options are unlikely to have any impact on cultural heritage. None of the provisional plans indicate that the RSH site would be extended beyond its current boundaries and no modifications are indicated under any of the options to the Mytton Oak Unit and carpark that are closest to Mytton Villa. For the avoidance of doubt, it is still recommended that the local planning authority is consulted once detailed architectural plans have been completed and before the commencement of any formal planning application.

6.5.4 Direction and scale of impact - overall

This is uncertain at the time of writing, but is likely to be neutral overall.

6.5.5 Direction and scale of impact - by area

This is uncertain at the time of writing, but is likely to be neutral across all localities in the catchment area.

6.5.6 Potential equality effects

This is uncertain at the time of writing, but there are unlikely to be any equality effects for specific groups in the catchment area population.

7 Conclusions and Recommendations

This chapter provides our conclusions, strategies for mitigation and enhancement, and priorities for further investigation.

Key findings on impacts

- A summative assessment of all the projected impacts is provided for the area as a whole. This illustrates that the projected positive health impacts under Option B and C1 are the most significant of all the impacts assessed, although these are partly offset under Option B by projected negative impacts on access to urgent and emergency care of a similar scale.
- The projected economic impacts are small, with some limited variation between the preferred options which largely reflect the number of staff SaTH estimate there will be under each.
- The projected social and environmental impacts are also small, neutral or uncertain at the time of writing, although it is important to note that this is at the scale of the whole catchment area.

Impacts on localities within the catchment area

- A summative assessment of the impacts of the preferred options on the population in Shropshire, Telford and Wrekin, and the affected parts of Powys is provided. Overall this illustrates that the projected positive health impacts are consistent across the three areas and under each option.
- In contrast, the projected access impacts vary quite widely, reflecting the location of the emergency centre and non-complex planned care provision at one or other of the hospitals under each option.
- There are not differences in the projected social impacts by area but some differences in the projected environmental impacts, reflecting changes to travel patterns.

Key findings on equality effects

- The potential equality effects arising out of each impact have been assessed for all the protected characteristic groups defined under the 2010 Equality Act and for deprived groups in the catchment area.
- In practice there was little variation in the projected equality effects between the three preferred options. The projected positive health impacts would have a positive equality effect on several groups. Equally, these groups would potentially experience a negative equality effect arising out of the project impact on access to urgent and emergency care.
- The one key point of difference between the preferred options concerns young children, women, and the pregnancy/maternity group, who may experience a negative equality effect under Option C1 arising from the relocation of Women & Children care from PRH to RSH.
- There are far fewer equality effects across the projected economic, social and environmental impacts. No single group emerges from the assessment as being significantly more disadvantaged than another.

Priorities for further investigation

- This assessment was not exhaustive. Some impacts could not be fully assessed and some were not assessed in detail because (in consultation with the Future Fit Impact Assessment Group) they were not deemed to as high a priority as other impacts or because they were outside the immediate scope of the assessment.
- Health and access: Further work on health and access impacts is required as plans for acute and community become clearer. A cross-cutting constraint in this assessment was the extent to which potential “secondary” health impacts, arising as a consequence of other impacts, could be assessed. The implications of using current hospital activity data to model future healthcare utilisation should be explored further going forward.

- Economic: the potential impact of the preferred options on local tourism was considered in the initial scoping phase of this assessment but not prioritised for more detailed assessment.
- Social: the impacts of the preferred options on congestion could not be fully assessed because of a lack of data on current congestion levels on the roads that service each hospital and a lack of road-specific projections for increased travel under the preferred options.
- Environmental: the assessment of some of the prioritised environmental impacts (air pollution and noise pollution) was constrained for similar reasons to the assessment of impacts on local road congestion above.

This chapter provides our conclusions, strategies for mitigation and enhancement, and priorities for further investigation.

7.1 Key findings on impacts

This section provides a summative assessment of all the projected impacts of the preferred options – firstly on the catchment area as a whole, and secondly on the three localities within it: Shropshire, Telford and Wrekin, and the affected parts of Powys.

7.1.1 Impacts on the catchment area as a whole

Each impact has been assessed on a common seven-point scale:

+++ Significant positive
++ Moderate positive
+ Minimal positive
o Neutral
- Minimal negative
- - Moderate negative
- - - Significant negative

Instances where it has not been to assess an impact with certainty at the time of writing are denoted as follows:

? Uncertain

The assessments of each impact are based on the detailed evidence presented in chapters 3, 4, 5 and 6 of this report, and consideration of the following key factors: the likelihood and timescale of the impact, its magnitude, and the number of patients and residents affected.

Table 7.1 provides an overview of the impacts of the preferred options on the population of the catchment area as a whole.

Table 7.1 Impacts on catchment area as a whole

	Option B	Option C1	Option C2
Health & Access			
clinical effectiveness	++	++	-
patient safety	++	++	-
patient experience	++	++	-
workforce recruitment and retention	++	++	+
services delivered in local community	+	+	+
travel times to access emergency care	- -	-	-
travel times to access urgent care	o	o	o
travel times to access non-complex planned care	-	-	-
convenience of access to non-complex planned care by public transport	-		-
Economic			

	Option B	Option C1	Option C2
local employment	-	-	-
local businesses	-	-	-
local education/training opportunities	?	?	?
local economy	-	-	-
local house prices	-	-	-
Social			
local well-being	+	+	+
local community cohesion	?	?	?
local deprivation	-	-	-
local traffic/congestion levels	-	-	-
Environmental			
greenhouse gas emissions	?	?	?
air pollution	-	-	-
noise pollution	o	o	o
biodiversity	o	o	o
cultural heritage	o	o	o

Overall this illustrates that the projected positive health impacts under Option B and C1 are the most significant of all the impacts assessed, although these are partly offset under Option B by projected negative impacts on access to urgent and emergency care of a similar scale. This very much echoes the qualitative findings from interviews conducted with local stakeholders, in which the potential health and access impacts were recurrently raised as key areas of concern, and ones which may affect all parts of the local population. The health and access impacts are also the main point of difference between the three preferred options at the scale of the catchment area as a whole.

The projected economic impacts are small, with some limited variation between the preferred options which largely reflect the number of staff SaTH estimate there will be under each. Although both hospitals are important local employers, the estimated changes in staff numbers are modest, and at the scale of the whole catchment area (which contains over 30,000 employers and 300,000 employees) they would not radically change the fortunes of the local economy.

The projected social and environmental impacts are also small, neutral or uncertain at the time of writing, although it is important to note that this is at the scale of the whole catchment area. Some of these impacts would be quite localised and there are differences by area, highlighted below.

7.1.2 Impacts on areas within the catchment area

Table 7.2 provides a summative assessment of the impacts of the preferred options on the population in Shropshire, Telford and Wrekin, and the affected parts of Powys.

Table 7.2 Impacts by area

	Option B			Option C1			Option C2		
	TW	Sh	Po	TW	Sh	Po	TW	Sh	Po
Health & Access									
clinical effectiveness	++	++	++	++	++	++	-	-	-
patient safety	++	++	++	++	++	++	-	+	+
patient experience	++	++	++	++	++	++	+	-	-
workforce recruitment and retention	++	++	++	++	++	++	-	-	-
services delivered in local community	+	+	+	+	+	+	+	+	+
travel times to access urgent and emergency care	o	- -	- -	- -	o	o	- -	-	o

	Option B			Option C1			Option C2		
	TW	Sh	Po	TW	Sh	Po	TW	Sh	Po
travel times to access non-complex planned care	-	o	o	o	-	-	o	-	-
convenience of access to non-complex planned care by public transport	-	o	o	o	-	-	o	-	-
Economic									
local employment	-	-	o	-	+	o	o	-	o
local businesses	-	-	o	-	+	o	o	-	o
local education/training opportunities	?	?	?	?	?	?	?	?	?
local economy	-	-	o	-	+	o	o	-	o
local house prices	-	-	o	-	+	o	o	-	o
Social									
local well-being	+	+	+	+	+	+	+	+	+
local community cohesion	?	?	?	?	?	?	?	?	?
local deprivation	-	-	-	-	-	-	-	-	-
local traffic/congestion levels	-	-	-	-	-	-	-	-	-
Environmental									
greenhouse gas emissions	?	?	?	?	?	?	?	?	?
air pollution	-	o	o	o	o	o	-	o	o
noise pollution	-	+	o	+	-	o	+	-	o
biodiversity	o	o	o	o	o	o	o	o	o
cultural heritage	o	o	o	o	o	o	o	o	o

With the exception of elements of the C2 option, this illustrates that the projected positive health impacts are relatively consistent across the three areas and under each option.

In contrast, the projected access impacts vary quite widely, reflecting the location of the emergency centre and non-complex planned care provision at one or other of the hospitals under each option. Most notably, the location of emergency care provision at RSH or PRH has implications for levels of access in all three areas.

The projected economic impacts also vary by area, reflecting the estimated staff numbers at each hospital under each option, although these differences are small and should be treated with caution for the reasons set out in chapter 4.

There are not differences in the projected social impacts by area but some differences in the projected environmental impacts, reflecting changes to travel patterns in the areas immediately surrounding the two hospitals.

7.2 Key findings on equality effects

The potential equality effects arising out of each impact have been assessed for all the protected characteristic groups defined under the 2010 Equality Act and for deprived groups in the catchment area. A simple scale has been used to denote whether there is a positive or negative equality effect arising from each impact for each group:

- **+** Positive – i.e. the impact would have a more positive affect on this group than it would for the population in general
- **o** Neutral – i.e. the impact would affect this group in the same way and to the same extent as it would the population in general
- **-** Negative – i.e. the impact would have a more negative affect on this group than it would for the population in general
- **?** Uncertain

This assessment is again based on the evidence presented in chapters 3, 4, 5 and 6, and consideration of whether groups would experience either a disproportionate or differential

effect arising from each impact. In practice there was little variation in the projected equality effects between the three preferred options. Table 7.3 presents an overview of the potential equality effects for all three options combined. Individual tables for each option are also provided in the annex at the end of this report.

Table 7.3 Overview of equality effects

	Young children	Young adults	Older people	Disabled	Transgender	Pregnant/maternity	BAME groups	Religion/belief	Male	Female	LGB groups	Married/Civil partner	Deprived
Health & Access													
clinical effectiveness	+/-	+	+	+	+	o/-	+	o	o	o/-	+	o	+
patient safety	+/-	+	+	+	+	o/-	+	o	o	o/-	+	o	+
patient experience	+/-	+	+	+	+	o/-	+	o	o	o/-	+	o	+
workforce recruitment and retention	o	o	o	o	o	o	o	o	o	o	o	o	o
services delivered in local community	o	o	o	o	o	o	o	o	o	o	o	o	o
travel times to access urgent and emergency care	-	-	-	-	-	o	-	o	o	o	-	o	-
travel times to access non-complex planned care	o	o	o/-	o	o	o	o/-	o	o	o	o	o	o/-
convenience of access to non-complex planned care by public transport	o	-	-	-	o	o	-	o	o	-	o	o	-
Economic													
local employment	o	o	o	o	o	o	o	o	o	o	o	o	o
local businesses	o	o	o	o	o	o	o	o	o	o	o	o	o
local education/training opportunities	?	?	?	?	?	?	?	?	?	?	?	?	?
local economy	o	o	o	o	o	o	o	o	o	o	o	o	o
local house prices	o	o	o	o	o	o	o	o	o	o	o	o	o
Social													
local well-being	o	o	o	o	o	o	o	o	o	o	o	o	o
local community cohesion	?	?	?	?	?	?	?	?	?	?	?	?	?
local deprivation	o	o	o	o	o	o	o	o	o	o	o	o	-
local traffic/congestion levels	o	o	o	o	o	o	o	o	-	o	o	o	o
Environmental													
greenhouse gas emissions	?	?	?	?	?	?	?	?	?	?	?	?	?
air pollution	-	-	-	-	o	o	-	o	o	o	o	o	-
noise pollution	-	-	o	o	o	o	-	o	o	o	o	o	-
biodiversity	o	o	o	o	o	o	o	o	o	o	o	o	o
cultural heritage	o	o	o	o	o	o	o	o	o	o	o	o	o

Overall this illustrates that the projected positive health impacts would have a positive equality effect on several groups. This is on account of these groups being disproportionately more likely to need to use the acute services affected by Future Fit than the population in general, meaning they are also more likely to experience these projected positive impacts. Equally, these groups would potentially experience a negative equality effect arising out of the project impact on access to urgent and emergency care for the same reason.

The one key point of difference between the preferred options concerns young children, women, and the pregnancy/maternity group, some of whom may experience a negative equality effect under Option C1 arising from the relocation of Women & Children care from PRH to RSH. The equality effects highlighted for convenience of access to non-complex

planned care reflect the disproportionately high reliance on public transport and the additional barriers that certain groups face to using public transport.

There are far fewer equality effects across the projected economic, social and environmental impacts, and this tallies with the comments of the representatives of different equality groups that were interviewed. Their concerns typically centred round the potential equality effects associated with access impacts, and generally foresaw few further equality effects arising from these other impacts.

No single group emerges from the assessment as being significantly more disadvantaged than another. However, given the relative scale and perceived importance of the projected health and access impacts, it is suggested that all those groups that may experience a negative equality effect arising out of these impacts should be viewed as a priority.

7.3 Mitigation and enhancement

Table 7.4 provides suggested strategies for mitigating the potential negative impacts and effects of the preferred options, and for enhancing their potential positive impacts and effects. The strategies for Health and Access impacts have been provided by the Strategy Unit and representatives of the Future Fit Impact Assessment group.

Table 7.4 Strategies for mitigation and enhancement

	Mitigation and Enhancement
Health & Access	
clinical effectiveness	Clinicians believe that the reconfigured hospital model with a single purpose built Emergency Centre will lead to: • Better clinical outcomes with reduced morbidity and mortality • Bringing specialists together treating a higher volume of critical cases to maintain and grow skills • Ensure greater degree of consultant delivered decision making and care • Improved clinical adjacencies through focused redesign • Improved access to multi-disciplinary teams • Delivery of care in environment for specialist care • Improved recruitment and retention of specialists [The new model would see critical care on one site only and emergencies would only be admitted via the Emergency Centre.] As more detailed plans become available, it will be helpful to continue to test these with health and care professionals across all the affected geographies.
patient safety	There is evidence to suggest that the balanced site design will enhance patient safety through: • Enabling patients to be cared for in their nearest hospital as much as possible for their acute service needs – Urgent Care, Outpatients, Diagnostics and some inpatient specialties • Receiving planned care within a defined service separate from emergency care • Improved pathways between primary and secondary care providers delivering a seamless patient pathway. • Timely access to care through the achievement of national standards • Improved access to an enhanced range of services within the county i.e. Cardiology However, it must be acknowledged that further work is required to address concerns raised by primary and secondary care professionals including: 1. Unplanned medical patients being admitted directly to the planned care site 2. The resultant need to provide 'critical care cover' across two sites 3. Safety and sustainability of Option C2 Evidence suggests that the probability of achieving and sustaining a clinical

	Mitigation and Enhancement
	workforce to support Option C2 would be very challenging. As more detailed plans become available, it will be helpful to continue to test these with health and care professionals across all the affected geographies.
patient experience	Overall improvements in access and quality of care through delivery of the reconfiguration plans should result in improved patient experience, although on reported measures this is already high. There may be benefit from further work with specific groups of patients, e.g. those with dementia, a learning disability, and the LGBT community, who may be disproportionately affected and this is already part of the draft consultation and engagement plan.
workforce recruitment and retention	Workforce has been a significant driver of the reconfiguration plans we have seen a number of initiatives aimed at strengthening the workforce. Strengthen links between proposed service transformations and workforce development plans currently under development. Exploit opportunities to join up approaches within and between health, social care and voluntary organisations. A shared approach to the definition of workforce, and a strategy that encompasses the private, independent and voluntary sector contribution should be explored through subsequent phases of work.
services delivered in local community	The work to develop the Neighbourhood component across Shropshire, Telford and Wrekin and the parallel work to develop the integrated community service offer in Powys is still under development. This highlights the need, through subsequent phases of engagement, to explore the voluntary and charitable contributions to health and care services and the potential effects on those from reconfiguration plans. It is acknowledged that the effects may not be limited to those suggested and additional effects on social care, home care, care homes etc. will need to be explored in subsequent phases of work.
travel times by ambulance/car	Further work is required to understand particular difficulties that may be experienced by people needing to attend early in the morning / late in the afternoon for appointments when public transport is not available. Further work is required to understand the extent to which car ownership does not equate to ability / willingness to drive longer distances. Currently there is very limited public transport infrastructure to support out of hours and early morning / late evening appointments. Alternatives should also be explored through engagement with service users and voluntary groups in next phases of work. Where services in the community are being considered, this may offer opportunities for more convenient and timely access and will need to be considered as these plans become more concrete.
travel times by public transport	
convenience of access by public transport	
Powys	Further close working throughout subsequent phases with Powys to ensure that they are enable to deliver on their IIA duties as part of Future Fit. Greater efforts to integrate the Powys Community offer with proposed changes in Shropshire to enable Powys patients to understand the likely impact on the way they access and receive services.
Economic	
local employment	Reductions in the overall headcount employed by the two hospitals are an important means by which the preferred options would ensure the financial sustainability of the local health economy. In addition, as these would be achieved gradually and with a critical mass of staff and services being retained at both hospitals under each option, no further mitigation may be necessary or appropriate. The potential differences in the impact on headcount at each hospital could potentially be mitigated further by configuring services in such a way that each hospital retained exactly the same proportion of the overall headcount as it does now. However, this is unlikely to justify the splitting of specific services between sites, which could have significant negative effects on health outcomes and/or efficiency.

	Mitigation and Enhancement
local businesses	The impact of the preferred options on local businesses would largely be a product of the impacts on local employment, and as such subject to the same limits on further mitigation. However, on a small scale, opportunities could be explored for creating additional commercial units at the hospitals as part of the new build planned under the preferred options. This would potentially provide some local businesses with new or additional commercial opportunities.
local economy	As above.
local education / training opportunities	This impact is currently uncertain but could potentially be negative if any existing education and training opportunities at either hospital were lost. Equally, most services would be retained or transferred from one hospital to the other under the preferred options, meaning that the scale of any negative impact is likely to be small. Additional education and training opportunities would also potentially be created as a result of one or the other hospital gaining additional or expanded services. If this has not been initiated already, then dialogue should be sought with local education and training providers to discuss the implications of the preferred options for future provision.
Social	
local well-being	Long term impacts on well-being will strongly reflect the impacts of the preferred options on health (discussed above). In the shorter term, there is an evident need for the Future Fit public consultation to help to reduce current concerns and anxiety over the preferred options. Specifically, local stakeholders reported that there was currently limited public awareness that each option would entail the opening of 24 hour Urgent Care Centres at both hospitals. They thought that clearly articulating this would go at least part way to reduce current anxieties over the closure of A&E at one of the hospitals.
local community cohesion	Both hospitals currently play a role in supporting local community cohesion - not least through the extensive volunteering activities each are home to. If it has not already, dialogue should be initiated with the Friends of RSH and Friends of PRH to consider the potential impacts of the preferred options on the nature and scale of volunteering activities at each hospital, and identify strategies for mitigating any that are negative. For example, if volunteering activities are associated with a hospital service that is relocated under the preferred options, car-sharing and/or travel voucher initiatives would potentially enable volunteers to continue these activities at their new location.
local deprivation	The impact of the preferred options on deprivation will largely be determined by their impacts on the local economy (discussed above), access (discussed above), and the local environment (discussed below). In addition to the mitigating actions suggested for each of these impacts, there would also be scope to mitigate the contributory effect that increased travel costs of journeys to hospital may have on some residents. Eligible patients can already claim a refund for the costs of certain types of journey to hospital under the national Healthcare Travel Costs Scheme[106], and this is highlighted on both hospitals' websites and the SaTH website. Equally, none of the local stakeholders interviewed for this assessment made reference to the scheme, suggesting there may be scope to increase awareness of it locally. Local GPs may be a valuable intermediary in increasing awareness. For example, recent research by Healthwatch Islington found that GP practices were not routinely informing patients of the scheme, and recommended that the local CCG briefed GP practices to help address this[107]. Additional help with travel costs could also be provided by SaTH and/or other local partners, particularly for low income groups that are not eligible for the

[106] Retrieved 28 08 2016: http://www.nhs.uk/NHSEngland/Healthcosts/Pages/Travelcosts.aspx

[107] Healthwatch Islington (2015) Mystery shopping Healthcare Travel Costs Scheme

	Mitigation and Enhancement
	Healthcare Travel Costs Scheme. For example, the scheme does not currently make any provision for family members to visit relatives at hospital, apart from some benefit claimants can apply to Jobcentre Plus for a Social Fund payment to meet such costs.
local traffic/congestion levels	The preferred options could impact on traffic levels on roads serving either PRH (under Option B) or RSH (under Option C1 and C2) but further investigation would be required to project the scale of this. It is recommended that the transport departments in the respective local authorities are consulted to initiate this. For example, the Telford and Wrekin Transport Plan 2011-2026 makes reference to modelling of future traffic flows which could, in combination with the analysis of future patient journeys undertaken for the Future Fit options appraisal, be used as the basis for projecting future levels of congestion on the affected roads. Any subsequent mitigation would also require close working with the relevant local authority. Although SaTH is already taking certain actions to reduce unnecessary car journeys by staff at both sites (including improved cycle parking and car share schemes) to reduce CO2[108], there are wider options (e.g. modifications to road infrastructure and traffic management strategies) at the disposal of local authorities.
Environmental	
greenhouse gas emissions	The impact of the preferred options on CO2 is currently uncertain and will depend on whether any reduction in emissions arising out of new build at the hospitals outweigh the projected increase in emissions arising from additional travel. The proposed new build would create opportunities for reducing emissions that could be built upon and enhanced. It is already proposed that all new build would be undertaken to meet higher environmental standards and there are examples from other parts of the NHS estate where innovative approaches have also been adopted to achieve further CO2 reductions. For example, the Princess Alexandra Hospital in Harlow has reduced its carbon footprint by 16 tonnes per year by introducing roof-mounted solar thermal panels, and with a financial payback period of 10-12 years[109].
air pollution	Any localised impacts arising from the preferred options on air quality will primarily result from increased emergency journeys to EC at one of the hospitals by ambulance and car. The use of less polluting ambulances and cars to undertake such journeys would the most effective means of mitigation. This is beyond the immediate influence of SaTH. However, there are other strategies that could be adopted to reduce overall air pollution levels. For example, Great Ormond Street hospital report that they effectively reduced idling by ambulances outside the hospital by 100% by giving an informative presentation about how air pollution affects children's health – and their own health – to drivers. They also introduced other behaviour change measures to reduce the air pollution arising from non-emergency travel by patients, visitors, and staff[110]. In addition, Barts Health NHS Foundation and its local partners have recently introduced a wide-ranging programme to reduce air pollution[111]. Several measures from these best-practice examples could feasibly be adopted by SaTH.
noise pollution	Mitigating any increase in local levels arising from additional ambulance journeys to either hospital would be challenging. Emergency services are exempt from statutory legal restrictions on noise levels and it would be beyond the scope of SaTH to seek to enforce any restrictions on the use of

[108] SaTH (2014) Trust Board June 2014, Travel and Transport Plan.

[109] Sustainable Development Unit (undated) Case study: Princess Alexandra Hospital - Harlow, Solar Panels

[110] Sustainable Development Unit (undated) Case study: Cleaner Air for Great Ormond Street Hospital

[111] Barts Health NHS Foundation (2016) Action on Air Pollution: Collaboration and Public Health at Scale

	Mitigation and Enhancement
	sirens by local ambulances. Equally, intelligence could usefully be shared between SaTH and the West Midlands Ambulance Service to: a) establish current siren usage (particularly at night-time); and b) explore any scope for minimising this without compromising patient safety. Noise surveys could also be undertaken to measure current and projected noise levels in residential areas nearby the two hospitals. At the most extreme, roadside noise buffers could be introduced, although the potential disruption and expenditure this would entail would be significant.
biodiversity	If these have not been undertaken already, it is recommended that ecological surveys are undertaken at both hospital sites prior to any architectural plans being finalised. It is also recommended that provision is made for the conservation and/or enhancement of the existing gardens and bee nests at each site (plus any other features of biodiversity value found through the ecological surveys).
cultural heritage	Based on the information available at the time of writing, the preferred options should not negatively impact on local cultural heritage. However, it is recommended for the avoidance of doubt that early confirmation of this is sought from the local planning authority.

7.4 Priorities for further investigation

This assessment was not exhaustive. Some impacts could not be fully assessed, either due to elements of the preferred options not having been finalised at the time of writing or because substantial additional data collection and analysis would have been required in order to do so. In addition, some impacts were not assessed in detail because (in consultation with the Future Fit Impact Assessment group) they were not deemed to as high a priority as other impacts or because they were outside the immediate scope of the assessment. The following sections detail these impacts, and provide recommendations for further investigation.

7.4.1 Health and access

A cross-cutting constraint in this assessment was the extent to which potential “secondary” health impacts, arising as a consequence of other impacts, could be assessed. For example, if the preferred options impact on the convenience of accessing care by public transport, congestion or noise pollution how would this then impact on peoples’ health? A group thought to be particularly potentially vulnerable by local stakeholders in this regard were those with a mental health condition. Some evidence on the potential secondary health impacts on this group has been presented in the discussion of equality effects for the convenience, congestion and noise pollution impacts. This does potentially merit more comprehensive further investigation (potentially encompassing secondary health impacts on other groups, and across more impacts) than was possible within the timetable and budget for this assessment.

The focus of the IIA was on impacts arising from the proposed changes to Acute Hospital Services under the preferred options. Potential changes to Woman & Children care were not directly in scope of the IIA and would merit consideration in further assessment.

The potential impacts of the preferred options on other non-acute health provision (e.g. primary and social care, nursing homes and residential care homes) in the catchment area have not been assessed in this IIA and this would also merit further consideration as the programme develops. In addition, proposals to deliver more care in the community as part of the wider Future Fit programme have not been explored in great detail as these models are still under development. When the Neighbourhoods work is more complete, parallel IIA work will need to be undertaken to support this.

7.4.2 Economic

The potential impact of the preferred options on local tourism was considered in the initial scoping phase of this assessment but not prioritised for more detailed assessment. Some local stakeholders suggested that tourism would be negatively affected if, for example, there was a tourist fatality that was linked in the media to service changes made under Future Fit. Shropshire, Powys, and to a lesser extent Telford and Wrekin, do currently have large and growing tourism industries that contribute to their local economies. However, no precedent or evidence was found of a health transformation programme having impacted on tourism in the evidence review that was undertaken in the scoping phase. This could potentially be further investigated through a more substantial evidence review, incorporating national and international evidence sources, than was possible in the scoping phase.

7.4.3 Social

The impacts of the preferred options on congestion could not be fully assessed because of a lack of data on current congestion levels on the roads that service each hospital and a lack of road-specific projections for increased travel under the preferred options. Further investigation of this would require substantial additional data collection and/or analysis for what would be quite a localised impact, which may also have a seasonal dimension owing to increased tourist traffic at certain times of the year. If it were pursued then it is recommended that this is done in consultation with the transport departments within each local authority.

The potential impact of the preferred options on local crime levels was considered in the initial scoping phase of this assessment but not prioritised for more detailed assessment. This was on the basis that there was no direct causal link between the changes proposed under the options and crime. Nonetheless, it is possible that having to police an expanded single Emergency Centre at either PRH or RSH could place additional resource pressures on the local police service. Indirectly this could have a knock-on impact on local crime levels. This could be investigated further through consultation with the local police service and analysis of current and projected future resources taken up by policing A&E.

7.4.4 Environmental

The assessment of some of the prioritised environmental impacts (air pollution and noise pollution) was constrained for similar reasons to the assessment of impacts on local road congestion, discussed above. This was namely the lack of baseline data on the roads immediately serving the hospitals and of road-specific projections for increased travel under the preferred options. Current road usage and levels of usage of sirens by ambulances travelling to/from the hospital is also an evidence gap. Of the two, noise pollution may be most deserving of further investigation. The potential changes to overall travel to/from each hospital (most relevant to air pollution) are comparatively small whereas the potential changes to emergency journeys specifically by ambulance (most relevant to noise pollution) are more significant.

The assessment of some prioritised environmental impacts (greenhouse gas emissions, biodiversity and cultural heritage) was also constrained by the lack of finalised architectural plans at the time of writing. However, this should be relatively easily remedied once these plans are finalised, ecological surveys have been undertaken of each hospital site, and the local planning authority consulted for the avoidance of any doubt.

Other potential environmental impacts (on waste and water pollution) were considered at the initial scoping phase of this assessment but not prioritised for more detailed assessment. This was on the basis that any such impacts were not expected to be significant. Equally, the new build proposed at each hospital site under the preferred options could feasibly have some negative or positive impact – for example by facilitating more waste to be safely disposed of on-site. This should also be relatively easily assessed once architectural plans are finalised and due process has been followed in preparation for any subsequent planning application.

ANNEXES

Table A1.1 Overview of equality effects: Option B

	Young children	Young adults	Older people	Disabled	Transgender	Pregnant/maternity	BAME groups	Religion/belief	Male	Female	LGB groups	Married/Civil partner	Deprived
Health & Access													
clinical effectiveness	+	+	+	+	+	o	+	o	o	o	+	o	+
patient safety	+	+	+	+	+	o	+	o	o	o	+	o	+
patient experience	+	+	+	+	+	o	+	o	o	o	+	o	+
workforce recruitment and retention	o	o	o	o	o	o	o	o	o	o	o	o	o
services delivered in local community	o	o	o	o	o	o	o	o	o	o	o	o	o
travel times to access urgent and emergency care	-	-	-	-	-	o	-	o	o	o	-	o	-
travel times to access non-complex planned care	o	o	o	o	o	o	o	o	o	o	o	o	o
convenience of access to non-complex planned care by public transport	o	-	-	-	o	o	-	o	o	-	o	o	-
Economic													
local employment	o	o	o	o	o	o	o	o	o	o	o	o	o
local businesses	o	o	o	o	o	o	o	o	o	o	o	o	o
local education/training opportunities	?	?	?	?	?	?	?	?	?	?	?	?	?
local economy	o	o	o	o	o	o	o	o	o	o	o	o	o
local house prices	o	o	o	o	o	o	o	o	o	o	o	o	o
Social													
local well-being	o	o	o	o	o	o	o	o	o	o	o	o	o
local community cohesion	?	?	?	?	?	?	?	?	?	?	?	?	?
local deprivation	o	o	o	o	o	o	o	o	o	o	o	o	-
local traffic/congestion levels	o	o	o	o	o	o	o	o	-	o	o	o	o
Environmental													
greenhouse gas emissions	?	?	?	?	?	?	?	?	?	?	?	?	?
air pollution	-	-	-	-	o	o	-	o	o	o	o	o	-
noise pollution	-	-	o	o	o	o	-	o	o	o	o	o	-
biodiversity	o	o	o	o	o	o	o	o	o	o	o	o	o
cultural heritage	o	o	o	o	o	o	o	o	o	o	o	o	o

Table A1.2 Overview of equality effects: Option C1

	Young children	Young adults	Older people	Disabled	Transgender	Pregnant/maternity	BAME groups	Religion/belief	Male	Female	LGB groups	Married/Civil partner	Deprived
Health & Access													
clinical effectiveness	+	+	+	+	+	o	+	o	o	o	+	o	+
patient safety	+	+	+	+	+	o	+	o	o	o	+	o	+
patient experience	+	+	+	+	+	o	+	o	o	o	+	o	+
workforce recruitment and retention	o	o	o	o	o	o	o	o	o	o	o	o	o
services delivered in local community	o	o	o	o	o	o	o	o	o	o	o	o	o
travel times to access urgent and emergency care	-	-	-	-	-	o	-	o	o	o	-	o	-
travel times to access non-complex planned care	o	o	-	o	o	o	-	o	o	o	o	o	-
convenience of access to non-complex planned care by public transport	o	-	-	-	o	o	-	o	o	-	o	o	-
Economic													
local employment	o	o	o	o	o	o	o	o	o	o	o	o	o
local businesses	o	o	o	o	o	o	o	o	o	o	o	o	o
local education/training opportunities	?	?	?	?	?	?	?	?	?	?	?	?	?
local economy	o	o	o	o	o	o	o	o	o	o	o	o	o
local house prices	o	o	o	o	o	o	o	o	o	o	o	o	o
Social													
local well-being	o	o	o	o	o	o	o	o	o	o	o	o	o
local community cohesion	?	?	?	?	?	?	?	?	?	?	?	?	?
local deprivation	o	o	o	o	o	o	o	o	o	o	o	o	-
local traffic/congestion levels	o	o	o	o	o	o	o	o	-	o	o	o	o
Environmental													
greenhouse gas emissions	?	?	?	?	?	?	?	?	?	?	?	?	?
air pollution	-	-	-	-	o	o	-	o	o	o	o	o	-
noise pollution	-	-	o	o	o	o	-	o	o	o	o	o	-
biodiversity	o	o	o	o	o	o	o	o	o	o	o	o	o
cultural heritage	o	o	o	o	o	o	o	o	o	o	o	o	o

Table A1.3 Overview of equality effects: Option C2

	Young children	Young adults	Older people	Disabled	Transgender	Pregnant/maternity	BAME groups	Religion/belief	Male	Female	LGB groups	Married/Civil partner	Deprived
Health & Access													
clinical effectiveness	-	+	+	+	+	-	+	o	o	-	+	o	+
patient safety	-	+	+	+	+	-	+	o	o	-	+	o	+
patient experience	-	+	+	+	+	-	+	o	o	-	+	o	+
workforce recruitment and retention	o	o	o	o	o	o	o	o	o	o	o	o	o
services delivered in local community	o	o	o	o	o	o	o	o	o	o	o	o	o
travel times to access urgent and emergency care	-	-	-	-	-	o	-	o	o	o	-	o	-
travel times to access non-complex planned care	o	o	-	o	o	o	-	o	o	o	o	o	-
convenience of access to non-complex planned care by public transport	o	-	-	-	o	o	-	o	o	-	o	o	-
Economic													
local employment	o	o	o	o	o	o	o	o	o	o	o	o	o
local businesses	o	o	o	o	o	o	o	o	o	o	o	o	o
local education/training opportunities	?	?	?	?	?	?	?	?	?	?	?	?	?
local economy	o	o	o	o	o	o	o	o	o	o	o	o	o
local house prices	o	o	o	o	o	o	o	o	o	o	o	o	o
Social													
local well-being	o	o	o	o	o	o	o	o	o	o	o	o	o
local community cohesion	?	?	?	?	?	?	?	?	?	?	?	?	?
local deprivation	o	o	o	o	o	o	o	o	o	o	o	o	-
local traffic/congestion levels	o	o	o	o	o	o	o	o	-	o	o	o	o
Environmental													
greenhouse gas emissions	?	?	?	?	?	?	?	?	?	?	?	?	?
air pollution	-	-	-	-	o	o	-	o	o	o	o	o	-
noise pollution	-	-	o	o	o	o	-	o	o	o	o	o	-
biodiversity	o	o	o	o	o	o	o	o	o	o	o	o	o
cultural heritage	o	o	o	o	o	o	o	o	o	o	o	o	o

Annexe 2 How Powys Teaching Health Board is considering Equality

This annexe provides supplementary information from PTHB to be taken forward as part of the further development of the equality impact assessment.

Powys Teaching Health Board is part of NHS Wales. Equality is a core principle of NHS Wales. It is one of our values to treat others fairly and with dignity and respect. Future Fit is a major review of services accessed by Powys residents so it is essential the people who use these services, our staff and the public have the opportunity to tell us how they feel about any changes.

In Wales there is a Specific Equality Duty to undertake an Equality Impact Assessment of service change. This duty cannot be passed on to any other organisation. Gathering relevant evidence and assessing how the changes may affect people differently will help us to make the best decision. We want to make sure that as far as possible, any potential negative impacts are eliminated or minimised. This also gives us the opportunity to ensure the promotion of equality and human rights for everyone and to make a real difference for people who already experience significant barriers when accessing services.

Equality is about making sure people are treated fairly. It is not about treating everyone the same, but recognising that everyone's needs are met in different ways. Our age, disability, faith or belief, gender, race, sexual orientation, being married or in a civil partnership, being transgender or being pregnant should not disadvantage us. These different characteristics are protected under the Equality Act 2010.

From the beginning of our discussions we recognised the need to engage with people from different groups to help identify the impact of any potential changes on them.

Having analysed the evidence received so far, we appreciate there are information gaps and groups whose views we still need to hear. This will be addressed by continuous engagement and information-gathering during the consultation and this period leading up to consultation.

Our framework for undertaking equality impact assessments requires us to work in partnership. This includes the Future Fit team, the Welsh Ambulance Services, NHS Trusts, the communities we serve and especially those groups who will be affected by the changes; our trade union colleagues; community health councils, the third sector and local authorities. Our overall approach is based on the principles of a sound evidence base, transparency, engagement and leadership. This provides a platform for partnership working which fosters good relations.

The Equality Impact Assessment requires the Health Board to engage with affected groups of people to find out what their concerns are and to mitigate (find ways to eliminate or reduce those concerns). The Future Fit programme gives us the opportunity to explore how we provide services for Powys residents, particularly in Mid and North Powys. Also, how any proposals to re-configure services in Shropshire might affect certain groups. Issues such as the time taken to travel to hospitals and mode of transport, will affect some groups of people more than others. This process will also highlight any difficulties experienced by Powys people attending appointments or admitted to Shropshire Hospitals. These difficulties can vary from the availability and cost of public transport, to the problems experienced by family members and friends wanting to visit and lend their support to loved ones. The Equality Impact Assessment will set out these concerns and the organisation's response. Similarly, any benefits identified will be included.

During the pre-consultation phase the Future Fit Team have included Powys in their engagement activities. They have run roadshows and exhibitions in varying locations and times including the National Eisteddfod in Meifod, Powys in 2015. they have been working with Powys Association of Voluntary Organisations to reach third sector groups. They have commissioned a research company who have spoken to a cross section of stake holders to find out what the issues are. They have also as part of an integrated impact assessment undertaken comprehensive analysis of patient flows, travel times etc. This work comprises much of the Teaching Health Board's Equality Impact Assessment.

Whilst the issues emerging from the pre-consultation evidence gathering and engagement phase will not be surprising, eg travel times, there needs to be more focussed engagement with Powys residents in terms of Equality and Human Rights. An engagement plan for Powys designed to target specific equality groups will be part of the consultation arrangements.