



Prison Population Projections 2021 to 2026, England and Wales

This bulletin presents prison population projections for England and Wales from July 2021 to March 2026. It is produced to aid policy development, capacity planning and resource allocation within the Ministry of Justice (MoJ) and Her Majesty's Prison and Probation Service (HMPPS).

Main points

Long term prison population is expected to increase particularly because of the recruitment of an extra 23,400 police officers

The prison population is projected to increase to 98,500 by March 2026. This is largely a result of the recruitment of an extra 23,400 police officers, which is likely to increase charge volumes and therefore increase the future prison population.

There is considerable uncertainty around the presented central projection

Projections account for best available evidence, but there is considerable uncertainty around how the courts will recover from COVID-19, and the impact of the additional 23,400 police officers. Any differences in assumptions for upstream factors such as crime, sentencing and future policies will all result in variation from these projections.

The projected future population is similar to that in the 2020 published projection

The total population estimate for March 2026 is consistent with the long-term projection in the 2020 publication. This year's projection reflects the most recent assumptions around how quickly the criminal justice system could recover from the effects of the COVID-19 pandemic, which have been informed by the latest available operational data.

Populations of adult males, adult females and children are all projected to increase

The prison population of adult males, adult females and children (15-17 year olds) are all expected to increase over the projection horizon, in line with total prison population.

50 year-old and over population is projected to increase

The prison population aged 50 years and over is expected to increase over the projection horizon, in line with total prison projection.

Introduction

This bulletin presents prison population projections for England and Wales from July 2021 to March 2026. It is produced to aid policy development, capacity planning and resource allocation within the Ministry of Justice (MoJ) and the HM Prison and Probation Service (HMPPS). The latest published useable operational capacity¹ (19th November 2021) is 80,904².

The projection is produced using a model of flows of offenders into and out of prison which estimates the resulting prison population each month. The COVID-19 pandemic and subsequent lockdowns have affected the mix of cases brought to criminal courts and restricted the courts' ability to process cases over the last 18 months. Assumptions have had to be made about how the courts will recover and there is considerable uncertainty around these assumptions. The prison population is likely to differ from what has been projected, as illustrated in section 2, where there is a discussion about uncertainty.

The projections include the anticipated impacts of agreed policies, such as the recruitment of the additional 23,400 police officers³. They also incorporate the estimated impact of policies in the Police, Crime, Sentencing and Courts Bill⁴, including provisions for changing the automatic release point for violent and sexual offenders sentenced to a standard determinate sentence of 4-7 years.

The latest statistics and commentary on the current and historic prison population are published in the Offender Management Statistics Quarterly publication. This is available online on GOV.UK at: www.gov.uk/government/collections/offender-management-statistics-quarterly

The Story of the Prison Population provides a summary of what happened to the prison population between 1993 and 2020 and the major factors contributing to these changes: <https://www.gov.uk/government/statistics/story-of-the-prison-population-1993-to-2020>

¹ The Operational Capacity of a prison is the total number of prisoners that an establishment can hold, considering control, security and the proper operation of the planned regime. It is determined by Prison Group Directors based on operational judgement and experience.

² www.gov.uk/government/collections/prison-population-statistics

³ This analysis includes the impact of an additional 3,400 officers already recruited through precept funding, alongside the 20,000 police officer uplift programme.

⁴ <https://bills.parliament.uk/bills/2839>

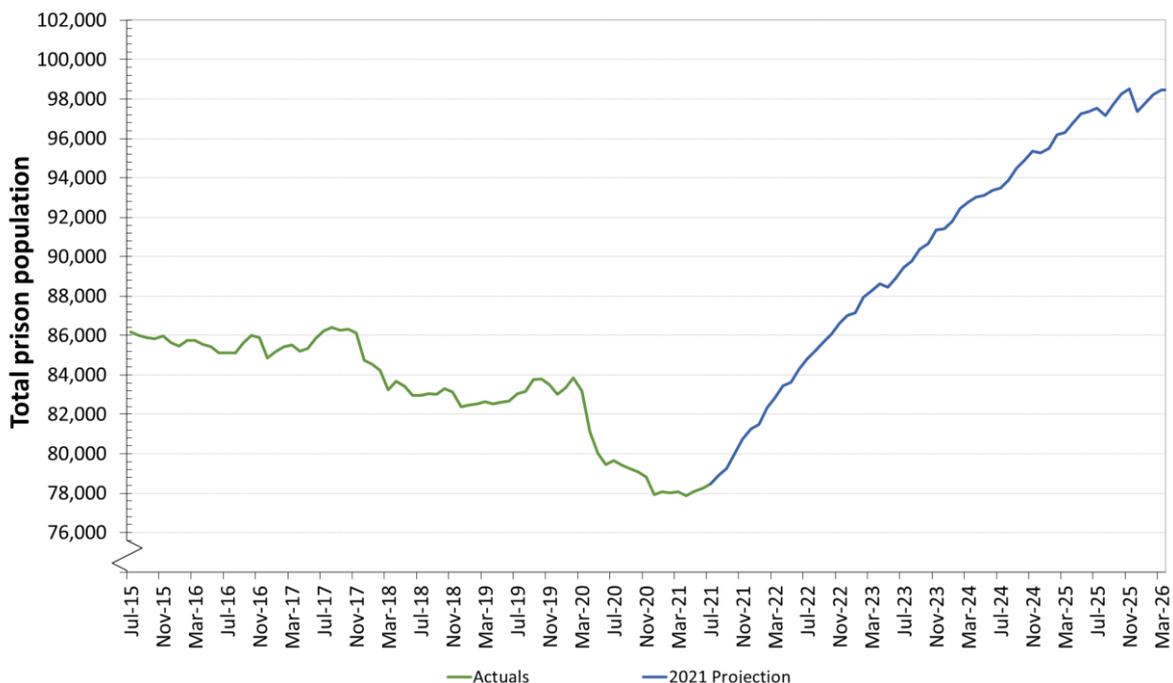
1. Total prison population projection and custody type breakdown

The prison population in England and Wales was 79,580 as of Friday 19th November 2021. It is projected to increase in the short term, rising to pre-COVID (February 2020) population by July 2022, then keep increasing steadily to reach 97,500 prisoners by July 2025.

In the first few years of the projection period, the projected rise in the prison population is primarily due to an increase in receptions of determinate sentenced offenders. This is because courts are assumed to build up capacity in order to clear the additional trial backlog that arose when trials could not take place because of COVID-19 restrictions.

The total prison population is projected to continue to increase over the full projection horizon. This is predominantly because of the recruitment of 20,000 additional police officers, which is likely to increase charge volumes and therefore increase the future prison population. Also included is the likely impact of the additional 3,400 officers already recruited through precept funding⁵. It is estimated that the additional police officers started to affect the prison population from March 2021. The impact on prison places is expected to increase continuously up until the end of the projection period.

Figure 1.1: Total prison population projection, July 2021 to March 2026⁶ (Source: Table A5).



⁵https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/882076/police-officer-uplift-quarterly-update-to-march-2020.pdf

⁶ The chart shows our central projection, however the uncertainty around this projection is large. See section 2 for more information about the sources of uncertainty.

Figure 1.1 presents the actual prison population between July 2015 and July 2021, with the population projection from July 2021 to March 2026.

Table 1.1 presents the prison population projection at a sub-population level, measured at an end of July position.

Table 1.1: Total prison population by type of custody at end July 2021 and projections for July 2022 to July 2025⁷

	Total	Remand	Determinate	Indeterminate	Recall	Non-Criminal	Fine Defaulters
July 2021	78,318	12,753	46,795	8,676	9,127	933	34
July 2022	84,800	13,300	52,400	8,500	9,800	800	0
July 2023	89,500	13,800	56,000	8,400	10,600	800	0
July 2024	93,500	13,400	59,900	8,300	11,200	800	0
July 2025	97,500	13,000	63,700	8,200	11,800	800	0

All projections are rounded to the nearest hundred, numbers below a hundred have been rounded to the nearest 50. Components may not sum due to rounding.

The indeterminate population is forecast to continue to decline over the period. This population consists of offenders who serve Imprisonment for Public Protection⁸ (IPP) and life sentences. Offenders can no longer receive an IPP sentence due to its abolition in 2012, with current IPP offenders being released by the Parole Board. Any such released offenders subsequently recalled will be counted in the recall projection.

The remand population is projected to increase for the first 2 years of the projection due to the impact of the additional 23,400⁹ police officers, coupled with high volumes of outstanding cases awaiting trial in the Crown Court. Trial capacity is expected to increase in the next year as the court system recovers from COVID-19, so the size of the remand population is forecast to slowly decrease after July 2023 as prisoners flow out of the remand population.

The recall population¹⁰ is projected to increase above current levels, in part because of the impact of the additional 23,400¹¹ police officers, but also because of growth in the indeterminate sentenced recall population. This latter impact is due to an expected increase in the pool of offenders on licence, particularly as further IPP offenders are released, a proportion of which will be recalled to custody. The rate at which offenders from determinate sentences are recalled to prison is assumed to remain constant.

The non-criminal¹² population includes prisoners held for civil offences and immigration detainees held in prisons. This sub-population is projected to decrease through 2022 as we expect a small drop in the number of immigration detainees held in prisons, which is

⁷ The table shows our central projection, however the uncertainty around this projection is large. See section 2 for more information about the sources of uncertainty.

⁸ Sentences of Imprisonment for Public Protection (IPPs) were created by the Criminal Justice Act 2003 and started to be used in April 2005. Offenders sentenced to an IPP are set a minimum term (tariff) which they must spend in prison. After they have completed their tariff, they can apply to the Parole Board for release. The Parole Board will release an offender only if it is satisfied that it is no longer necessary for the protection of the public for the offender to be confined.

⁹ This includes the planned recruitment of an additional 20,000 police officers, as well as the additional 3,400 officers already recruited through precept funding.

¹⁰ Offenders are released from custody under licenced supervision, subject to a set of conditions such as living at an approved address. If the offender breaches the conditions of their licence they may be recalled into prison

¹¹ This includes the planned recruitment of an additional 20,000 police officers, as well as the additional 3,400 officers already recruited through precept funding.

¹² Non-criminal prisoners are held for civil offences or under the Immigration Act. A civil non-criminal prisoner is someone held in prison because of a non-criminal matter, for example, non-payment of council tax or contempt of court. The non-criminal population also includes immigration detainees that have finished serving their sentence and are being kept in prison by immigration authorities.

currently at a higher level than usual due to delays with travel and deportations during the pandemic.

Changes in the prison population are expected as the result of a range of policies, including those already in effect but not yet fully represented in the population and those expected to commence over the projection horizon. In addition to the impacts from the additional 23,400¹³ police officers, estimates of the following are also factored into the central projections:

- The impacts of the proposals in the Police, Crime, Sentencing and Courts Bill¹⁴, which includes provisions for changing the automatic release point for violent and sexual offenders sentenced to a standard determinate sentence of 4-7 years;
- The impacts of the Statutory Instrument to increase custodial sentences for serious offenders with a custodial sentence of 7 years or more¹⁵; and
- The impacts of the Domestic Abuse Act 2021¹⁶, including extending extraterritorial jurisdiction over specified offences (necessary for ratification of the Istanbul Convention).

¹³ This includes the planned recruitment of an additional 20,000 police officers, as well as the additional 3,400 officers already recruited through precept funding.

¹⁴ <https://bills.parliament.uk/bills/2839>

¹⁵ https://www.legislation.gov.uk/ukia/2019/155/pdfs/ukia_20190155_en.pdf

¹⁶ <https://www.legislation.gov.uk/ukpga/2021/17/contents/enacted>

2. Uncertainty in the projection

The COVID-19 pandemic, planned recruitment of an additional 20,000 police officers and the impact of an additional 3,400 officers recruited through precept funding¹⁷ has all resulted in considerable uncertainty in these projections. As with last year's publication, it is therefore not possible to use historic deviations between projections and out-turn to estimate likely ranges of the future prison population relative to the central estimate (as was presented in publications prior to 2020).

The prison population projections are informed by the latest available published data. They also reflect assumptions – accounting for the best available evidence at the time – as to future demand levels in the criminal justice system such as crime types, charges, sentencing outcomes and uncertain policy impacts yet to come into effect. Unanticipated changes to Government policy, as well as offender, police and sentencing behaviours, will inevitably mean the actual prison population in future years will differ to some degree from projections.

Uncertainty around the recovery of the criminal justice system

The COVID-19 pandemic has restricted the courts' ability to process cases and led to an increase in the volume of outstanding criminal cases waiting for trial or sentencing in the Crown Court. Recent published statistics¹⁸ show a reduction in average custodial sentence lengths for the 12 months to March 2021 and a decrease in the volume of custodial sentences per conviction compared to pre-COVID levels. The types of cases prioritised during the pandemic and pleas associated with these are likely to have contributed to these short-term fluctuations. Defendants have also spent more time on remand awaiting their court appearance.

Published data¹⁸ also show changes in the mix of offence types for custodial sentences in the 12 months to March 2021, relative to the previous year – the proportions of violence against the person and drug offences increased, while the proportions of theft and fraud offences decreased in the year to March 2021. Again, these are likely to be short-term changes resulting from courts prioritising different types of cases during the pandemic. Extreme variations in the proportions of different offence types being dealt with by the courts can have a substantial impact on the volume of prison receptions.

Assumptions have had to be made around how the courts will recover from the COVID-19 pandemic to rebuild capacity and work through the additional outstanding caseloads that have developed. Additional assumptions have been made about how long it may be before the other key drivers of prison population (average custodial sentence lengths, custody rates¹⁹ and case mix) return to pre-COVID levels. As a result, there is a lot of uncertainty around these projections, and the reality will likely differ in some way from the assumptions made for this projection.

The projection presented here shows what the prison population could look like if

- custody rates gradually return to 2019 levels as outstanding caseloads in courts decrease; and

¹⁷ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/882076/police-officer-uplift-quarterly-update-to-march-2020.pdf

¹⁸ <https://www.gov.uk/government/statistics/criminal-justice-system-statistics-quarterly-march-2021>

¹⁹ Custody rate is calculated as the proportion of court disposals which result in a prisoner entering custody with a determinate sentence. Note that this definition may be different to that used in other published statistics.

- the mix of offence types and average custodial sentence lengths immediately return to 2019 trends.

Uncertainty due to additional police officers

The Government's commitment to the recruitment of 20,000 new police officers in addition to increases from the police precept is likely to increase the future prison population. It is not possible to predict exactly what the impact on charge volumes and case mix will be, and there is additional uncertainty because charges per police officer and case types have changed since the start of the COVID pandemic.

This projection assumes the ratio of police officers to charge volumes will recover to pre-COVID levels by December 2021. For future case mix, it is assumed that 2018/19 trends will continue, though with an increase in sexual offence cases to reflect the renewed focus on rape and serious sexual offences.

Any change to either of these assumptions could lead to very different impacts on the prison population. In particular, the scale and profile of the prison population impact would be different if the extra police officers focussed on more high harm crimes (e.g. trafficking of drugs, robbery, rape and other sexual offences) or on visible policing related offences (e.g. theft, criminal damage, possession of weapons and possession of drugs):

Although convictions for low harm crimes would incur relatively short custodial sentences, a high volume of these types of additional cases would lead to an increase in the prison population. Conversely, high harm crimes result in relatively longer custodial sentences, so a relatively small number of additional cases of this type could cause a large and sustained rise in the prison population.

Uncertainty due to modelling effects

Another source of uncertainty comes from the modelling approach. An example of this is the determinate modelling, which estimates characteristics such as proportion of sentence served for each offender based on distributions of historical prison leavers – this approach provides the best available estimate.

Using different random choices in the simulation process can cause small local differences in the profile of the prison population trajectory. Unlike the uncertainties due to assumptions around court recovery and the additional police officers, the modelling uncertainty is not large enough to significantly change the long-term profile of the projection.

3. Comparison against 2020 total population projection

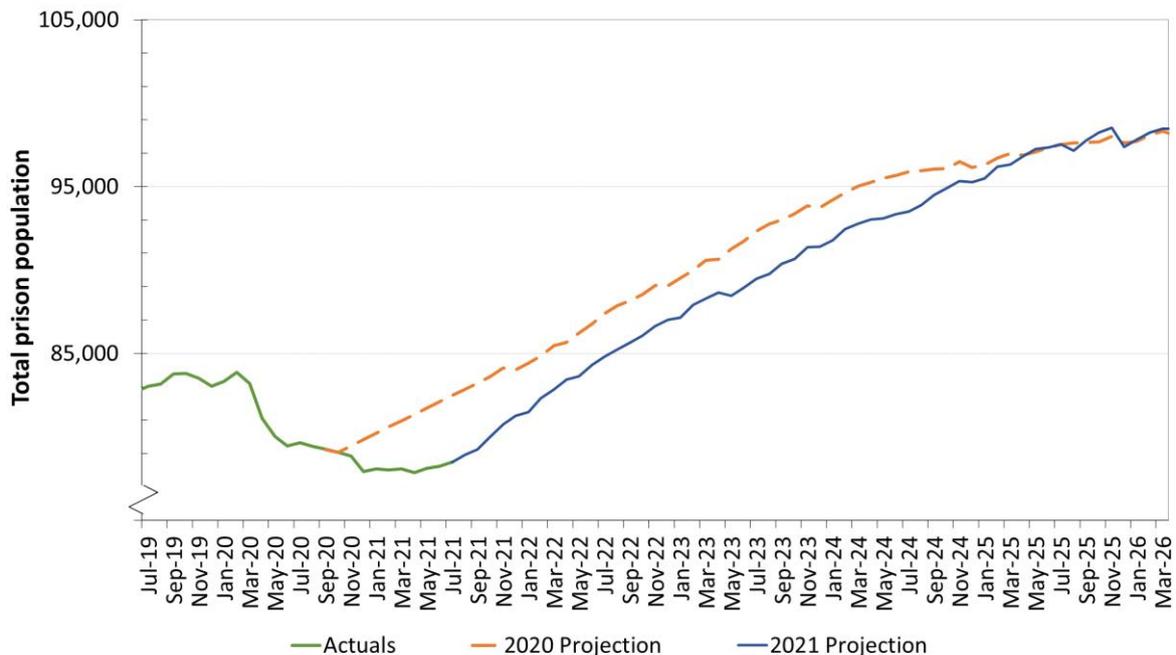
As of July 2021, the prison population was 4,000 places below the previous 2020 projection.

The July 2021 prison population is lower than previously projected because of the continued impact of the COVID-19 pandemic. Additional lockdowns and extended social distancing measures restricted the courts' ability to process cases which means the criminal justice system has not recovered as quickly as previously forecast.

The long-term population estimates (from 2025 onwards) are similar in the 2020 and 2021 projections.

A comparison of the 2020 projection against actuals to date and the latest 2021 projection is presented in Figure 3.1.

Figure 3.1 Comparison of November 2020 total prison population projection against actuals and latest November 2021 projection²⁰ (Source: Tables A5 and A6)



Both projections have assumptions about the speed at which the court system would be able to build up capacity and clear the backlog of cases that built up when trials could not take place because of COVID-19 restrictions. Additional lockdowns and extended social distancing restrictions slowed Crown Court recovery through the end of 2020 and first half of 2021, which meant that the increasing prison population has not been realised as quickly as 2020 projections suggested.

The 2021 projection reflects more recent data available on court receipts, the prison population, prison receptions and discharges²¹. Although the starting points are different, the

²⁰ The chart shows our central projection, however the uncertainty around this projection is large. See section 2 for more information about the sources of uncertainty.

²¹ Details of the data which has been used are described in Annex TG3.

overall trajectory of increase and long-term population estimates are similar in the two projections.

The determinate population has decreased from 48,000 offenders at the end of September 2020 to 46,800 at the end of July 2021 and therefore the 2021 projection for this sub-population starts from a lower baseline compared to 2020. The 2021 projection has a sharper increase in the determinate population due to changes to the assumptions about how the criminal justice system will recover from COVID-19.

The 2021 projection estimates a recall population of 11,800 in July 2025 (compared to 12,100 by July 2025 in the 2020 projection).

The number of people currently remanded in custody has increased from 12,300 in September 2020 to 12,800 in July 2021, mostly because of the delays in court trials as a result of the COVID-19 pandemic. Although this is only expected to be a short-term effect until courts recover, the long-term remand population will also increase due to the impact of the additional 23,400²² police officers. The sub-population is expected to decrease from a peak of 13,800 in July 2023 to 13,000 at the end of July 2025 (compared to 12,800 at July 2025 in the 2020 projection).

The indeterminate population has decreased by about 200 between September 2020 and July 2021. Since the 2021 projection for this sub-population starts from a lower baseline compared to 2020, the 2021 projection for the indeterminate population is consistently lower by about 200 places.

²² This includes the planned recruitment of an additional 20,000 police officers, as well as the additional 3,400 officers already recruited through precept funding.

Table 3.1 Comparisons between 2020 and 2021 prison population projections, by type of custody^{23 24}

	Remand			Determinate		
	2020	2021	Difference	2020	2021	Difference
July 2021	11,540	12,753	11%	51,521	46,795	-9%
July 2022	12,000	13,300	11%	55,400	52,400	-5%
July 2023	12,500	13,800	10%	59,400	56,000	-6%
July 2024	12,800	13,400	5%	62,200	59,900	-4%
July 2025	12,800	13,000	1%	63,400	63,700	1%
	Indeterminate			Recall		
	2020	2021	Difference	2020	2021	Difference
July 2021	8,808	8,676	-1%	9,849	9,127	-7%
July 2022	8,700	8,500	-2%	10,500	9,800	-6%
July 2023	8,600	8,400	-3%	11,100	10,600	-5%
July 2024	8,500	8,300	-3%	11,700	11,200	-4%
July 2025	8,400	8,200	-3%	12,100	11,800	-3%
	Non-Criminal			Fine Defaulters		
	2020	2021	Difference	2020	2021	Difference
July 2021	725	933	29%	39	34	-13%
July 2022	700	800	12%	50	0	-51%
July 2023	700	800	11%	50	0	-54%
July 2024	700	800	11%	50	0	-54%
July 2025	700	800	11%	50	0	-54%
	Total					
	2020	2021	Difference			
July 2021	82,481	78,318	-5%			
July 2022	87,400	84,800	-3%			
July 2023	92,300	89,500	-3%			
July 2024	95,900	93,500	-2%			
July 2025	97,500	97,500	0%			

All projections are rounded to the nearest hundred, numbers below a hundred have been rounded to the nearest 50. Components may not sum due to rounding.

²³ Non-criminal prisoners are held for civil offences or under the immigration act. A civil non-criminal prisoner is someone held in prison because of a non-criminal matter, for example, non-payment of council tax or contempt of court. The non-criminal population also includes immigration detainees that have finished serving their sentence and are being kept in prison by immigration authorities.

²⁴ The table shows our central projection, however the uncertainty around this projection is large. See section 2 for more information about the sources of uncertainty.

4. Projection of over 50, 60 and over 70 year-old populations

The population of over 50, over 60 and over 70 year-olds in prison are projected to increase over the projection horizon, in line with the increasing overall prison population.

Table 4.1 shows projections of prison population aged 50-59, 60-69 and over 70 years old. The overall prison population is projected to increase from July 2021 to July 2025 and the same trend is expected for these age groups. The 50 year-old and over population is projected to increase from 13,231 as at July 2021 to 14,800 in July 2025.

The 60-69 and over 70 year old sub-populations are estimated to remain constant as proportions of the total prison population (at 4% and 2%, respectively). The population of 50-59 year-old prisoners is projected to decrease slightly as a proportion of the total, dropping from 10% to 9% of the total prison population over the projection horizon.

Table 4.1: Prison population aged over 50, 60 and 70 years old, July 2021 actuals and projected July 2022 to July 2025²⁵

	Total (all ages)	50 and over	50 to 59	60 to 69	70 and over
July 2021	78,318	13,231	8,192	3,365	1,674
July 2022	84,800	13,300	8,300	3,300	1,700
July 2023	89,500	13,800	8,600	3,400	1,800
July 2024	93,500	14,300	8,900	3,500	1,900
July 2025	97,500	14,800	9,200	3,600	2,000

All projections are rounded to the nearest hundred. Components may not sum due to rounding.

This projected increase in the 50 year-old and over prison population is driven by the increasing determinate population and the knock-on impact on the recall population as prisoners released after determinate sentences are recalled. The effect for the recall sub-population is compounded by recalled indeterminate prisoners since IPP and life sentences include a higher proportion of offenders over 50 years old.

²⁵ The table shows our central projection, however the uncertainty around this projection is large. See section 2 for more information about the sources of uncertainty.

5. Projection of age and sex cohorts

The overall prison population is projected to increase over the projection horizon, with the population of children, female adults and male adults all following the trend projected in the overall prison population.

Table 5.1 shows projections of prison population by those aged under 18 and by sex. All sub-populations follow the overall projection trend because assumptions around the impacts of court recovery and 23,400²⁶ police officers affect all age and sex groups.

Table 5.1: Prison population by age group and sex, July 2021 actuals and projected July 2022 to July 2025²⁷

	Total	Juvenile	Female 18+	Male 18+
July 2021	78,318	343	3,170	74,805
July 2022	84,800	500	3,800	80,500
July 2023	89,500	600	4,000	84,800
July 2024	93,500	700	4,100	88,700
July 2025	97,500	700	4,300	92,500

All projections are rounded to the nearest hundred. Components may not sum due to rounding.

The adult male (18 and over) population is projected to increase from 74,805 as at the end of July 2021 to 92,500 by July 2025. Supporting table A3 provides a further breakdown of the young adult population (aged 18-20 inclusive, both male and female), which is also projected to increase from the current population of 3,431 (July 2021) to 5,100 over the projection horizon. The age population categories provided in table A3 are based on the availability of underlying statistics used in the forecasting methodology sourced from across the criminal justice system – covering, for example, court activity and sentencing data inputs.

The juvenile population covers only offenders held in HMPPS estates and includes males in the 15-17 age group. This population has fallen sharply over the last two years but is projected to increase to 700 by July 2025. Note that the projections do not cover those young offenders held in Secure Children's Homes or Secure Training Centres.

The adult female population is projected to increase from 3,170 as at July 2021 to 4,300 by the end of the projection period. The adult female prison population has fallen in recent years (from 3,766 at the end of June 2019). This decrease is likely driven by a drop in prosecutions and sentencing as a result of the COVID-19 pandemic, but the limited time between the publication of the Female Offender Strategy and the start of the pandemic means it is difficult to disentangle any effects of the strategy. Any future impacts of the Female Offender Strategy have therefore been excluded from the baseline projection.

²⁶ This includes the planned recruitment of an additional 20,000 police officers, as well as the additional 3,400 officers already recruited through precept funding.

²⁷ The table shows our central projection, however the uncertainty around this projection is large. See section 2 for more information about the sources of uncertainty.

6. Links to related Ministry of Justice statistics

For further information on:

- The latest statistics on court receipts visit:
www.gov.uk/government/collections/criminal-court-statistics
- The latest statistics on the criminal justice system, including information on sentencing, visit:
www.gov.uk/government/collections/criminal-justice-statistics-quarterly
- The latest statistics and commentary on the prison population visit:
www.gov.uk/government/collections/offender-management-statistics-quarterly
- The Story of the Prison Population 1993-2020 visit:
<https://www.gov.uk/government/statistics/story-of-the-prison-population-1993-to-2020>
- Weekly prison population and capacity figures visit:
www.gov.uk/government/collections/prison-population-statistics

TG1. Modelling methodology

The prison projections modelling is part of wider suite of models within the Ministry of Justice used to model the criminal courts and offender management, driven by common projections of demand for the Ministry of Justice's services. Starting from projected volumes of completed court cases (produced by separate models which are discussed in sections 1 and 2 of TG3), two main components of the modelling suite are used to develop prison population projections – a custodial sentencing model and a prison population projection model.

The custodial sentencing model (discussed in section 3 of TG3) is driven by projections of numbers of defendants convicted or sentenced in the criminal courts. To project volumes of people received into prison, it also considers:

- the case type and court route defendants have come through;
- the sentences which concluded cases attract; and
- the proportion of sentences which lead to a prison reception.

The prison population projection model takes forecasts of prison receptions and then models the amount of time offenders spend in prison to calculate the resulting prison population for each month of the projection period.

The assumptions informing these projections, and therefore the projections themselves, are subject to uncertainty.

The projection model is based on latest available data from various sources including court proceedings and performance data and sentencing data. Latest P-NOMIS extracts, referenced in offender management statistics²⁸, are utilised to model prison receptions and population data.

The method used for generating projections of the prison population in England and Wales for the 2021-2026 projections has changed from the approach used to generate the 2020-2026 projections published on 26 November 2020. The updated methods more accurately reflect the demographics of offenders whilst still taking account of the delays in processing cases through the courts because of the COVID-19 pandemic.

Sections TG2 and TG3 provide further details of the methods used to produce the prison population projections and the assumptions behind them.

²⁸ <https://www.gov.uk/government/collections/offender-management-statistics-quarterly>

TG2. Caveats on prison population projections

The projections presented reflect the impact of the latest trends in sentencing, in the age band, sex, and offence of defendants entering the system and in the flow of defendants through the courts. Estimated impacts of changes to legislation and guidance which took place before August 2021 have been accounted for, along with policies included in the Police, Crime, Sentencing and Courts Bill, future parole hearing frequency and outcomes for indeterminate sentence prisoners.

The COVID-19 pandemic, planned recruitment of an additional 20,000 police officers, and the impact of an additional 3,400 officers recruited through precept funding have all resulted in considerable uncertainty in these projections. Even without these effects, the actual future prison population is impossible to predict precisely. Changes to criminal justice processes could influence the numbers of offenders being brought to the point of sentence or the way that offenders are managed. Changes to sentencing behaviour may also be different from those modelled.

In addition, criminal justice processes, sentencing behaviour and policy decisions can all change in response to a multitude of environmental factors which cannot be anticipated. Such factors could include on-going impacts from COVID-19, high-profile criminal cases, events like the August 2011 public disorder events, and public debate.

Assumptions for modelling were agreed through consultation with policy and operational experts at the Ministry of Justice, Her Majesty's Prison and Probation Service, Home Office and Crown Prosecution Service. The assumptions are based on analysis (where reliable data are available) and on expert judgement from stakeholders. The assumptions are therefore likely to be more robust for those measures and processes that are well defined.

TG3. Detail of models and assumptions

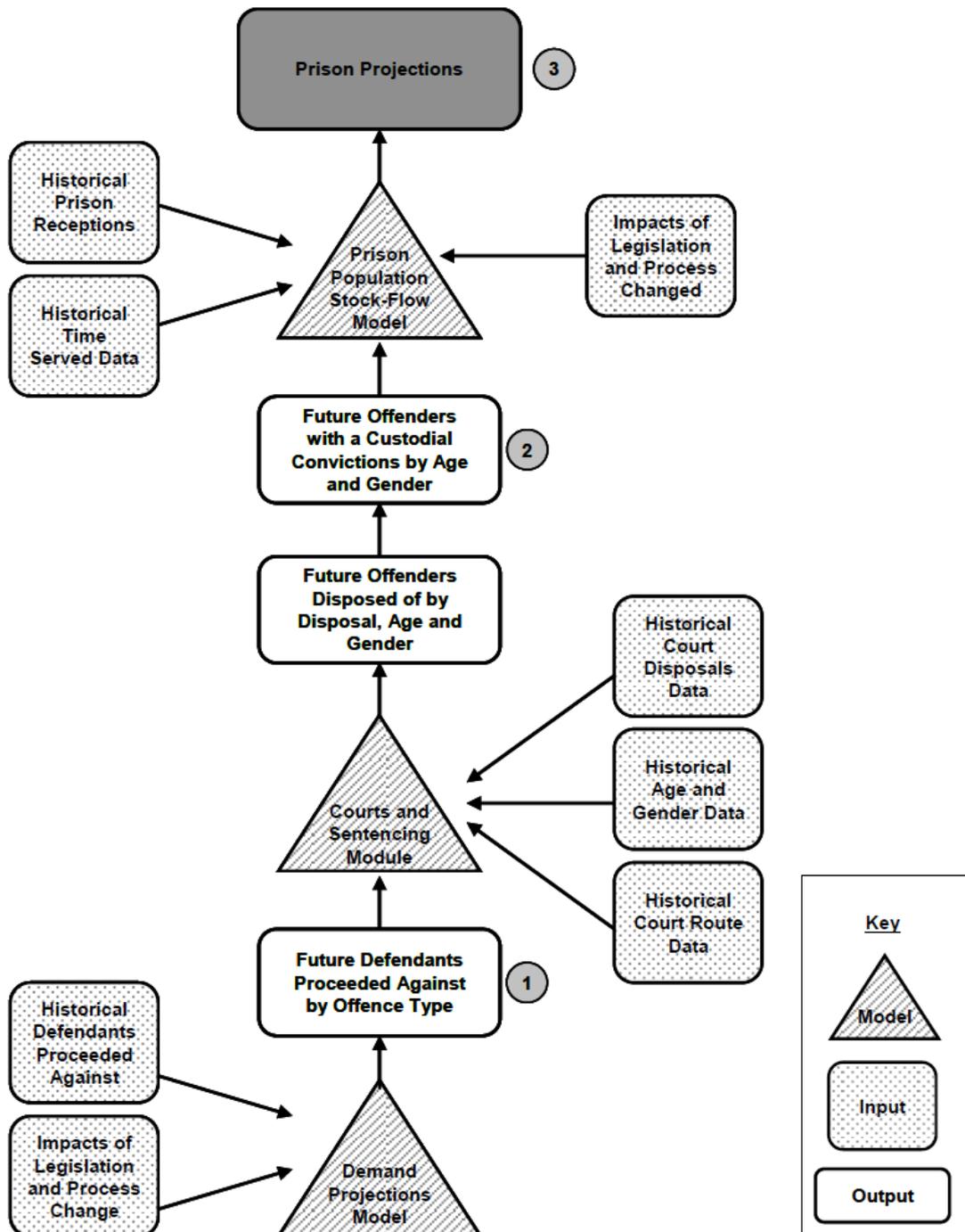
Overview of the modelling approach

Prison population projections are initially produced for separate sub-populations and then combined. In most cases, these population groups are projected by combining reception (inflow) projections over time, discharge (outflow) projections over time and the starting-point population, i.e. a stock-flow model. The reception projections come from modelling the flow of cases of particular types through courts, and then applying calculated ratios of court disposals (closed cases) that become prison receptions. The discharge projections are derived by applying time periods served in prison to the existing prison population and new receptions. The overall structure is shown in Figure TG3.1.

Prison sub-populations that are not modelled in a stock-flow manner are remand, fine defaulters and non-criminal populations, and changes to the prison population resulting from government policies that are being or are expected to be implemented. Remand population is modelled using the projection of Crown Court outstanding case count, and policy impacts are each projected according to the unique aspects of the policy in question.

Note that prison population modelling has been simplified in response to uncertainties introduced by the COVID-19 pandemic. However, the method used for generating this set of projections (of the prison population in England and Wales for the 2021-2026) has changed from the approach used to generate the prior set of projections (2020-2026 projections published on 26 November 2020, i.e. also during the COVID-19 pandemic). The updated methodology used for this 2021 projection aims to more accurately reflect the demographics of offenders, whilst still taking account of the delays in processing cases through the courts because of the COVID-19 pandemic.

Figure TG3.1: Key components of the prison projections modelling system



1) Producing projections of defendants coming into court

Projections of defendants proceeded against at court are chosen as the entry point to the modelling system because this is the entry point of defendants into the Ministry of Justice's area of responsibility.

The volume of defendants proceeded against at court has fallen during the pandemic. In projecting future demand, this volume has been assumed to gradually return to the levels observed in court in the run up to COVID-19 (6 months to February 2020 inclusive) following the ease of restrictions in July 2021.

Projections of Crown Court demand also include the impact of the magistrates' court working through outstanding cases to reduce backlogs built up earlier in the pandemic. The volume of receipts into the Crown court are therefore above the level of demand coming into magistrates' court over this period.

2) Converting the demand projections into volumes of completed court cases

Workload models for the magistrates' court and Crown Court are used to convert the forecasts of court demand into a set of projections of court disposals (completed court cases) by disposal type (including custodial convictions). These projections are a key input for the prison population modelling described in sections 3 and 4 of TG3 below.

The demand projections (section 1 of TG3 above) are used as an input into a magistrates' court workload model, which uses historical data to estimate routes through the court system. These are:

- Those tried and sentenced in the magistrates' court;
- Those tried in the magistrates' court and sentenced in the Crown Court; and
- Those sent to Crown Court for trial.

Cases received (in addition to current outstanding caseload) are then projected to be heard based on broad assumptions to reflect the latest information on available capacity and the prioritisation of hearings in this court. This results in a projection of magistrates' court disposals.

Crown Court workload model takes forecasts of demand and assigns various attributes based on historic actuals to estimate likely hearing times and inform listing priorities. As in the magistrates' court modelling, this demand is combined with current outstanding caseload and projected to be heard using broad assumptions on available capacity and the listing process in courts, which is used to produce estimates of the resulting flow of cases through the system.

3) Converting completed court cases into volumes of prison inflows

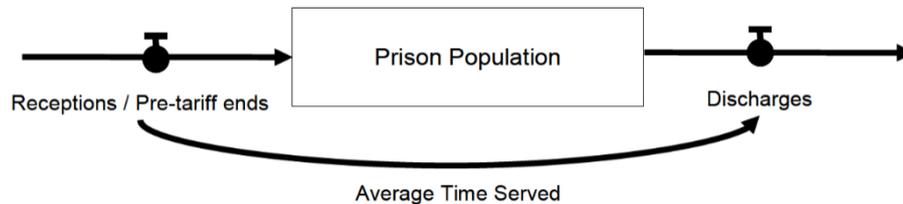
The sentencing module takes projections of court disposals (section 2 of TG3 above) and applies sentencing splits to derive volumes of custodial sentences. These sentencing splits are based on court proceedings data for defendants sentenced in 2019. The projected custodial sentences are then converted into prison receptions using conversion ratios derived from historical proportions. Volumes of custodial sentences and prison receptions between January and June 2021 inclusive are used to calculate the conversion ratio for the initial months of the projection, with the ratio increasing over time to gradually return to the 2019 average ratio.

4a) Producing prison population projections

Prison population projections are produced using separate models for individual sub-populations, combined with the impacts of new policies including 23,400 additional police officers (as referred to in section 1 of TG3 above). The following sub-populations in prison –

determinate sentence, life sentence, imprisonment for public protection (IPP) and recalls – are modelled using stock-flow structures based on the generic structure shown in Figure TG3.2. The stock-flow structures begin with the starting-point prison population, model the flow of offenders into and out of prison and count the resulting prison population at the end of each month.

Figure TG3.2: Generic stock-flow structure in the prison population stock-flow models



For the **determinate population**, the monthly prison receptions (inflows to prison) are estimated in the sentencing module, as described in section 3 of TG3 above. These custodial sentences include offenders that may already be serving a sentence for a previous crime or those who would serve their whole custodial sentence on remand, meaning that they would not be a new reception to prison. Monthly prison discharges (outflows from prison) for the determinate population are based on distributions of time spent in custody observed for all prisoners discharged in 2019.

The **remand population** projection has been changed since previous publications. It is based on the relationship between the number of outstanding triable cases in Crown Court (split by Indictable-Only, IO, and Triable Either Way, TEW) and the remand population from January 2018 to July 2021 inclusive. This relationship is quantified using linear regression. This is then used to produce a remand population projection by applying it to outstanding IO and TEW Crown Court cases that have been projected using the method described in section 2 of TG3 above.

For the **IPP and life sentence (indeterminate) population**, outflows depend on the tariff lengths prisoners receive and on the frequency and outcome of Parole Board hearings. The values of these parameters are set and calibrated to reflect the most recent management information on Parole Board outcomes.

For the **recall population**, indeterminate recalls are treated explicitly based on data and assumptions around future release and recall rates, and conditional on Parole Board capacity as per the indeterminate population. The determinate recalled population is projected by estimating the size of the eligible pool of offenders subject to licence conditions, split by sentence band, and applying a monthly 'rate of recall' to this pool to estimate new recallees. A profile of average time spent recalled into custody is then applied to estimate re-releases, thus simulating the determinate sentenced recall population. The size of the eligible pool of offenders subject to licence conditions, split by sentence band, is calculated from the determinate discharge projections (described earlier).

The **non-criminal population** increased during the COVID-19 pandemic but is projected to return to historic levels. Home Office detainees are assumed to gradually decrease to the historic average of 400 by December 2021. Other non-criminal prisoners are assumed to remain at the average population observed in March to May 2021 inclusive.

The **fine defaulter population** is assumed to remain at the average population observed in October 2020 to March 2021 inclusive.

4b) Accounting for the impacts of policy effects

The impact of policies that are being or are expected to be implemented are mostly projected as population changes, i.e. not according to a stock-flow method. The exception to this is the impact of 23,400 new police officers on the determinate prison population. In this case, the impact on determinate receptions and discharges is modelled and, as such, it is incorporated into the determinate population modelling described above.

In each case, policy impacts are projected according to the unique aspects of the policy in question.

4c) Splitting out projections by age and sex

The determinate population modelling allows age-bands and sex to be modelled explicitly. The sex and exact age of a newly received offender (from the prison receipt projection) is attributed using the distributions of age and sex of offenders entering prison in 2019. The model then ages existing and newly received offenders whilst in prison, which thereby determines movements in/out of age-bands at any point (e.g. offenders moving from 21-49 to 50-59 year olds as they age in prison).

For all other prison sub-populations, the population in prison at the end of each modelled month is sub-divided by age band and sex using historical splits of the prison population by sub population, described as follows.

For the remand population, the age and sex distributions are assumed to revert to pre-COVID values (December 2019 – January 2020 inclusive) over time.

In the case of the non-criminal, fine, recall and life populations, sex and age distributions are assumed to remain at the average observed in January 2021 – March 2021 inclusive.

For the IPP population, sex distribution is assumed to remain at the average observed in January 2021 – March 2021 inclusive. However, because there are no incoming offenders, the aging of existing offenders is sufficient to calculate the population in any given age band.

Further Information

National Statistics Status

National Statistics status means that official statistics meet the highest standards of trustworthiness, quality and public value.

All official statistics should comply with all aspects of the Code of Practice for Official Statistics. They are awarded National Statistics status following an assessment by the Authority's regulatory arm. The Authority considers whether the statistics meet the highest standards of Code compliance, including the value they add to public decisions and debate.

It is the Ministry of Justice's responsibility to maintain compliance with the standards expected for National Statistics. If we become concerned about whether these statistics are still meeting the appropriate standards, we will discuss any concerns with the Authority promptly. National Statistics status can be removed at any point when the highest standards are not maintained and reinstated when standards are restored.

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