

# Justice Sector Projections

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Prison population projections 2017-2027



New Zealand Government

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# Introduction

The Ministry of Justice produces a projection of New Zealand's prison population every year - this report details the results for the 2017 projection. This 10-year prison population projection includes people held in remand and those sentenced to prison. The projections run from November 2017 to June 2027.

The projections are based on the latest available data and a set of underlying assumptions regarding future trends in prosecutions, convictions and sentences. The 2017 projections have been approved by the Justice Sector Leadership Board made up of Justice Sector Agency Chief Executives.

The purpose of developing these projections is to provide an estimate of the future prison population under current legislative settings. They are used to support investment decisions, planning and policy development across the Justice Sector, including prison capacity decisions.

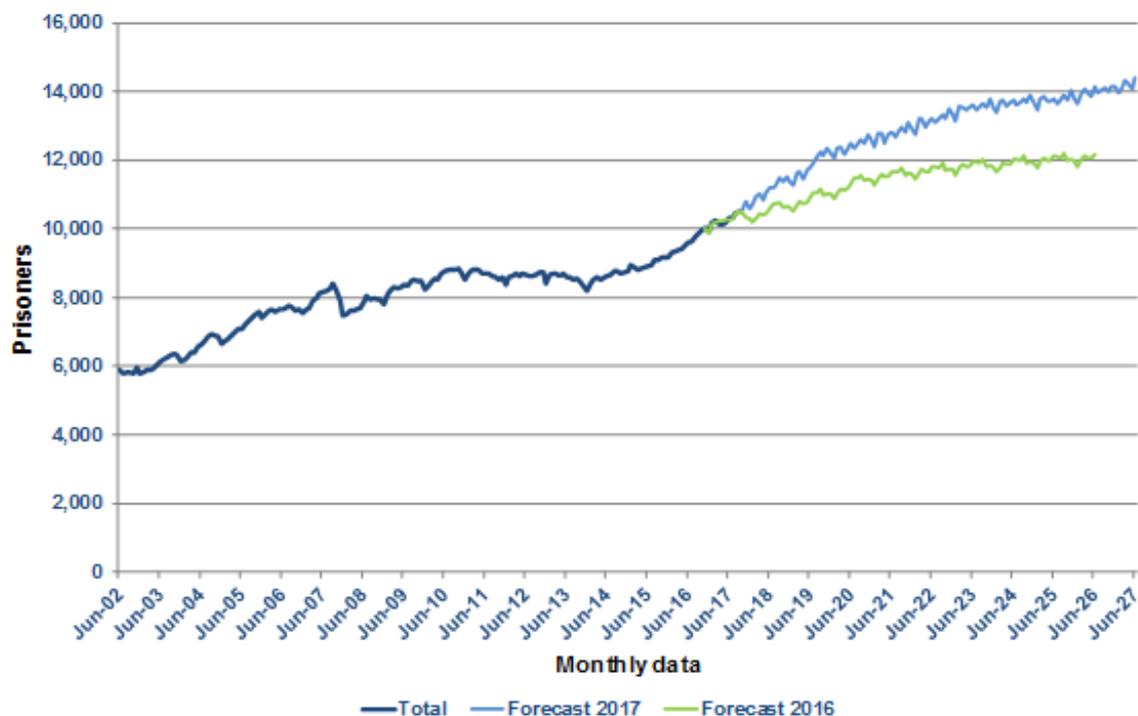
The projections were completed in October 2017. The projections do not try to estimate or accommodate any subsequent policy announcements nor do they attempt to predict unknown future government policies, changes in system or societal behaviour, or other factors that might have an impact on the prison population.

# 2017 Projections Summary

## Total prison population

This projection shows an ongoing increase in the total prison muster over the next 10 years. The overall increase between 2017 and 2027 is expected to be 4,100 places, a rise from 10,300 in June 2017 to 14,400 in June 2027.

Figure 1: Total prison population, actual and projection for 2017 projections

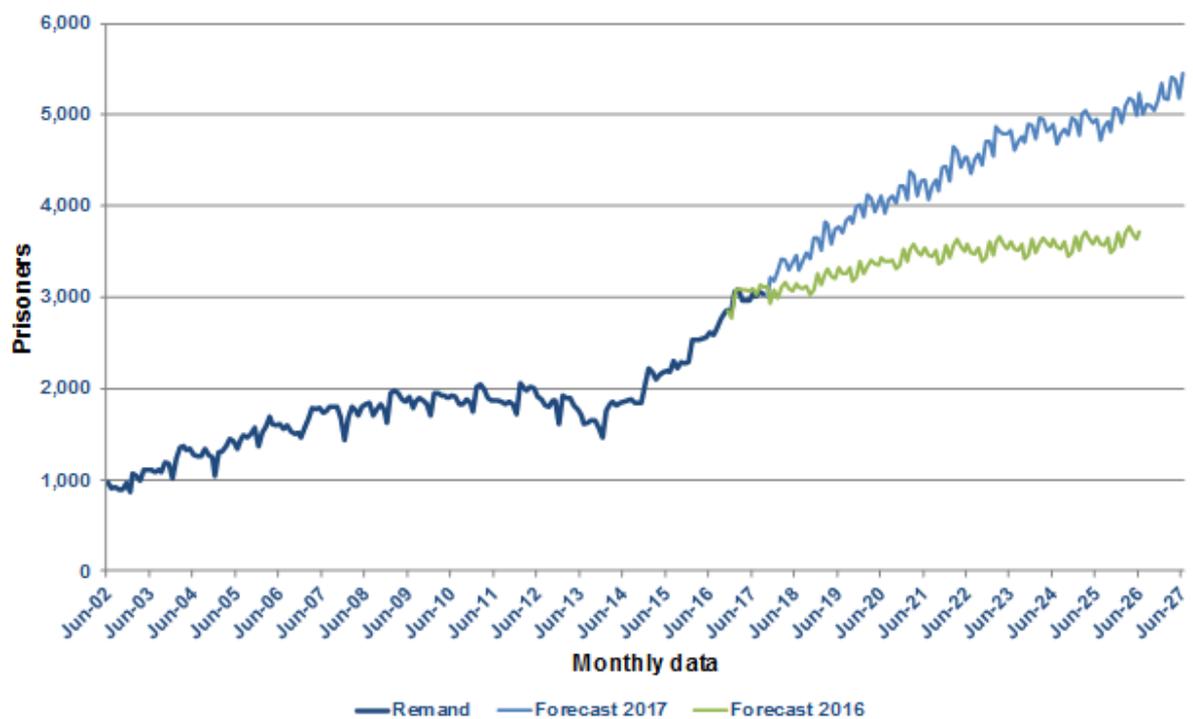


The two components of the prison population are remand and sentenced populations.

## Remand component

This projection shows an ongoing increase in the custodial remand population over the next 10 years. The overall increase between 2017 and 2027 is expected to be 2,400 places, a rise from 3,000 in June 2017 to 5,400 in June 2027. This is driven by a continuation of the increase in inflow as well as a continual increase in the length of time people spend on remand.

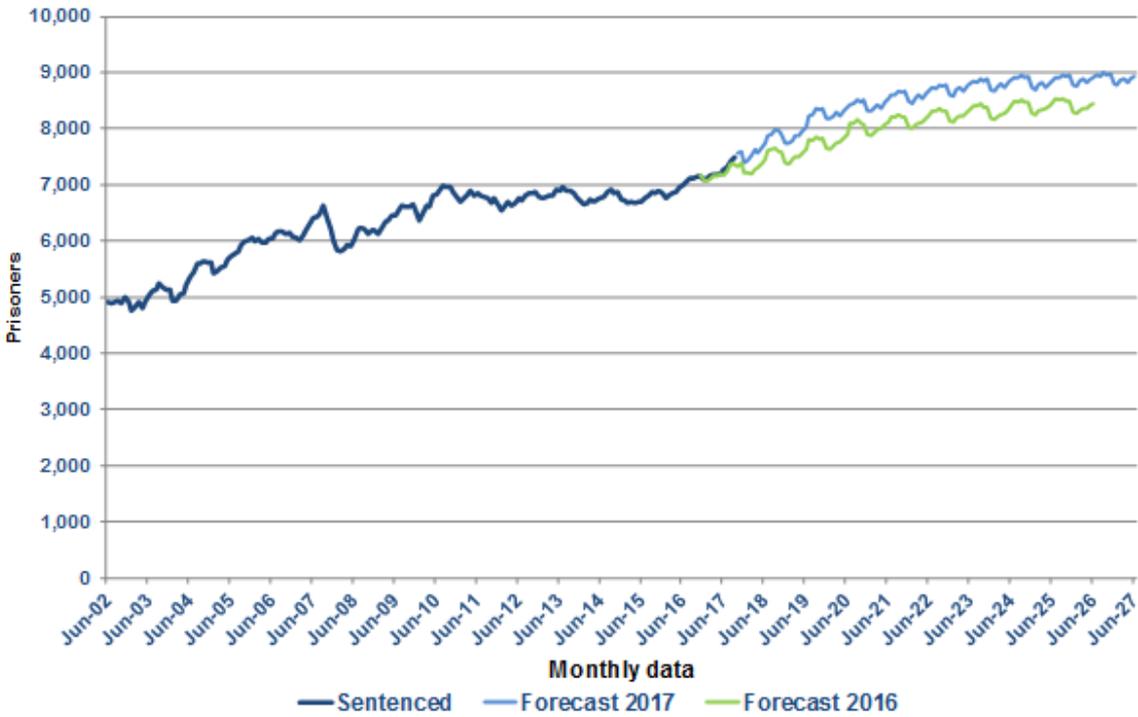
Figure 2: Remand prison population, actual and projected values for 2017 projections



# Sentenced component

This projection shows an ongoing increase in the sentenced population over the next 10 years. The overall increase between 2017 and 2027 is expected to be 1,700 places, a rise from 7,300 in June 2017 to 9,000 in June 2027. This is driven by an expected increase in the number of more serious cases passing through the system as well as people in prison being released on parole at a later point.

Figure 3: Sentenced prison population, actual and projected values for 2017 projections



An annual breakdown of these projections can be found in Appendix A.

# How the projections were derived

## Key assumptions

The prison population projections are informed by the latest available data and reflect assumptions on the future levels and trends in prosecutions, convictions, and sentences.

The assumptions for modelling were agreed through workshops with policy and experts from the Ministry of Justice, the Police, the Judiciary, Corrections, Treasury and Crown Law. The assumptions were based on analysis of past trends as well as expert judgement from Justice Sector decision makers on future trends.

The key assumptions used in the projections are:

- Number of new prosecutions - especially for more serious cases
- Number of people starting custodial remand
- Average time on custodial remand
- Proportion of people convicted
- Mix of sentences
- Length of prison sentences
- Proportion of the sentence served.

During the assumptions workshops, it was clear that there was greater certainty around five of the seven assumptions:

- Number of people starting custodial remand
  - The proportion of people starting custodial remand has been increasing every year for a decade from 5.5% in 2008 to 10.4% in 2017. It was agreed that this proportion will likely continue to increase over the next 10 years, although the rate of increase will gradually decline over time.
- Proportion of people convicted
  - The proportion of people convicted has remained stable for some years at around 76%. It was agreed that this proportion is likely to remain constant over the next 10 years.
- Mix of sentences
  - The proportion of convicted people who receive a prison sentence is increasing. For example, it has increased every year for a decade from 7.6% in 2008 to 12.0% in 2017. It was agreed that this proportion will likely continue to increase over the next 10 years, although the rate of increase will gradually decline over time.

- Length of imposed prison sentences
  - The length of prison sentences has remained stable for some years at around 650 days. It was agreed that this length is likely to remain constant over the next 10 years.
- Proportion of imposed sentence served
  - The proportion of sentence served is increasing. For example, it has increased from 75.1% in 2014 to 77.0% in 2017. (Prior to the Parole Act of 2002 it was 53.3%.) It was agreed that this rate of increase is likely to continue over the next 5 years and then remain constant for the following 5 years.

However, for the assumptions on the number of new prosecutions and average time on custodial remand there was uncertainty about how they would track in the future - particularly in the out years.

- Number of new prosecutions - especially for more serious cases
  - The number of new prosecutions entering the justice system is gradually increasing. For example, since 2014 it has increased by 12.1% (following a decrease of 28.4% from 2009 to 2014). This increase has been concentrated in more serious crimes which are more likely to receive custodial remand and prison sentences. There is uncertainty around how long this increase will continue.
- Average time on custodial remand
  - The average time on custodial remand has been rapidly increasing. For example, since 2014 it has increased from 60.1 days to 71.5 days. There is uncertainty around whether this rate of growth will continue or slow and stabilise.

In previous projections, including the 2016 projection, it had been assumed that the growth observed in these two assumptions would reduce and plateau in the out years based on assumption that the Government would likely take future action to curb the increases.

However, given the continuous growth observed in the data and the workshop participants' uncertainty about how these would track in the future, it was decided to simulate high and low scenarios for each assumption and review the results before determining the most likely projection based on current system settings:

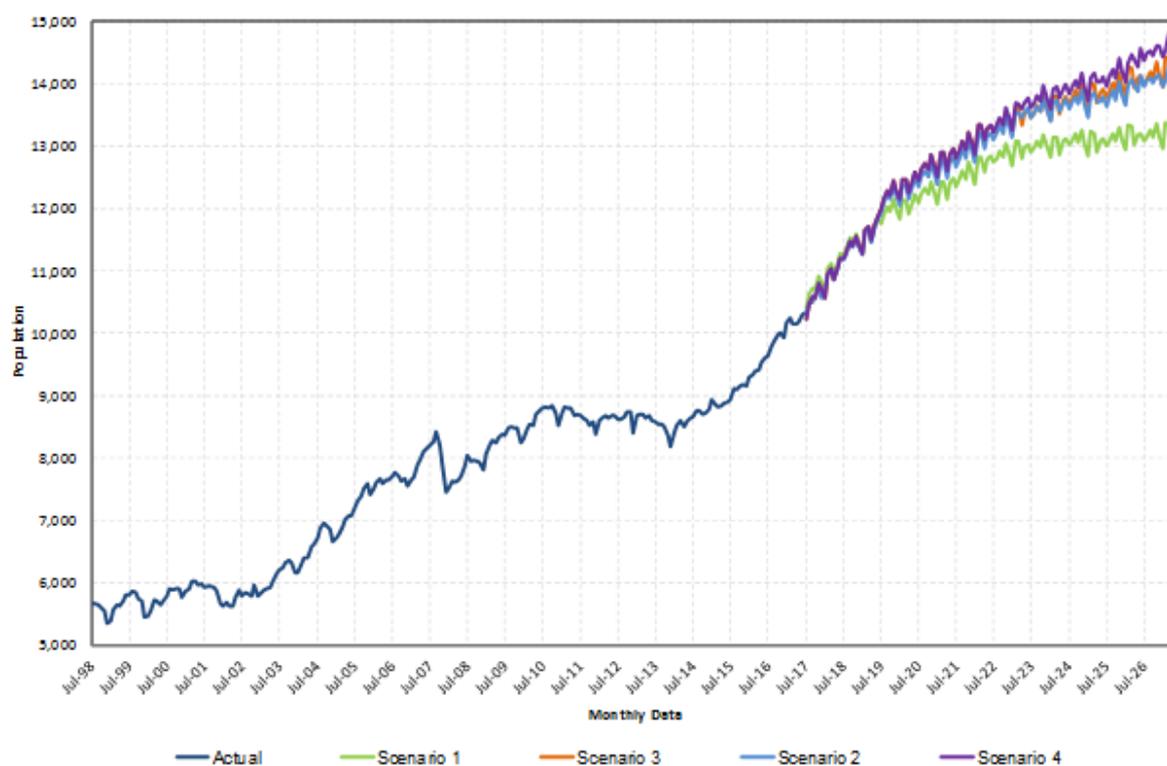
- Number of new prosecutions - especially for more serious cases
  - High setting: increase of more serious cases continues over the next 10 years
  - Low setting: increase stabilises within 7 years.
- Number of people starting custodial remand
  - High setting: average time on custodial remand increases throughout next ten years
  - Low setting: increase slows and time on remand stabilises over the next 10 years.

This change in approach led to four scenarios.

**Table 1: Summary of scenarios and overall results**

Scenario	Settings		Prison population
	Serious cases	Remand time	
1	Low	Low	13,400
2	Low	High	14,400
3	High	Low	14,300
4	High	High	15,000

**Figure 4: Prison population, actual and projected values for the 2017 projections and scenarios**



The specific assumptions used in each of the scenarios can be found in Appendix B.

## Approval of the 2017 projections

The Justice Sector Leadership Board were consulted on the 2017 projection scenarios at their 7 November 2017 meeting.

The Justice Sector Leadership Board approved a projection that would reach 14,400 in 2027 as the most likely projection based on current system settings. This reflected their belief that a reduction in the growth rate in the out years used for previous projections was unrealistic given recent trends in the data and current policy settings.

## Quality control of projections

To ensure a robust quality assurance Dr John Small of Covec Economic Consultants sat in on the projections and provided an independent review of the process. He reviewed the process and modelling methodology providing endorsement and some options for possible consideration in future projections. He did not review the assumptions, which were agreed in the workshops with a range of justice sector experts.

The projections will be rerun in the second half of 2018 but, as is our regular process, the results will be reviewed in conjunction with Justice Sector partners. This will allow emerging data trends and the Government's legislative programme to be incorporated into the projections.

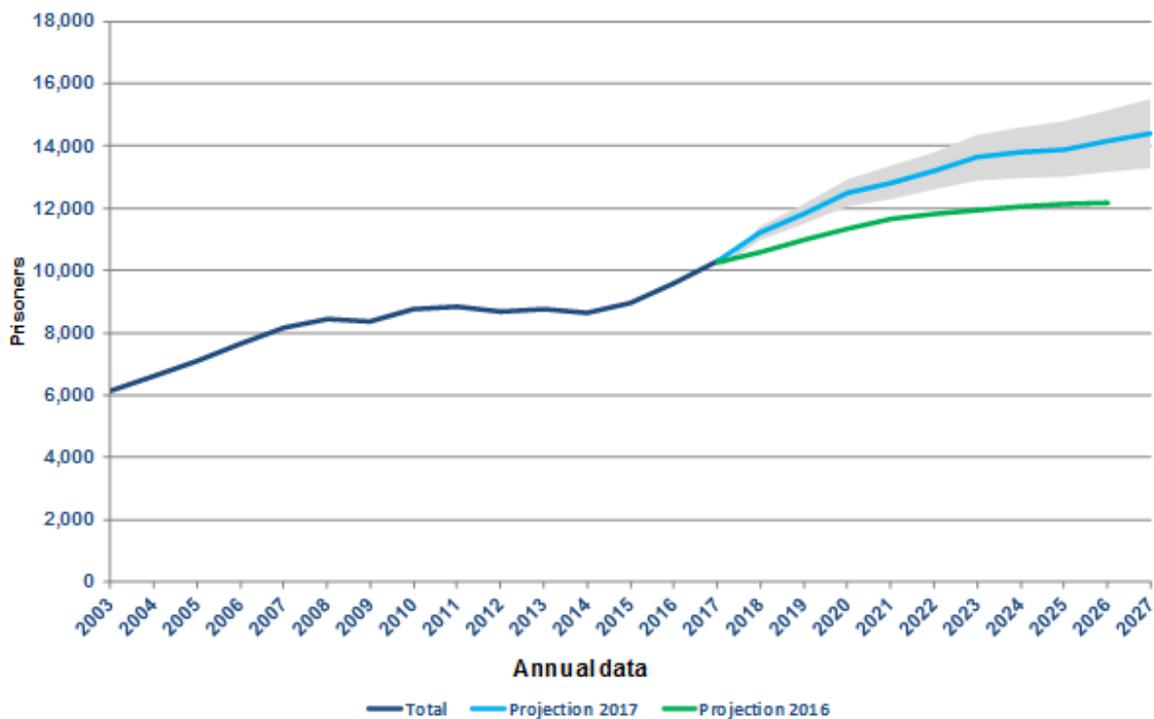
# Caveats

The projections do not reflect the impact of any future legislative, policy, operational or procedural changes that may occur to respond to the increasing prison population or any other issue in out years. Rather, these projections provide a “baseline” against which the impacts of any future changes can be assessed.

Even if future changes were known, the actual future prison population may not match the 2017 projection. There are a multitude of reasons why this may be the case, reflecting the high complexity of the criminal justice system. For example, the impact of legislative change could differ substantially from that expected (e.g. there was a sharper than expected increase in remand rates after the implementation of the Bail Amendment Act 2013).

As with all 10-year projections, there is a large degree of uncertainty the further into the future the projection is. The 2017 projections are provided as point estimates so that they better assist in justice policy development and prison capacity planning. The confidence intervals shown in Figure 5, based on the annual maximum of the total population, assist in describing the inherent uncertainty of the sector.

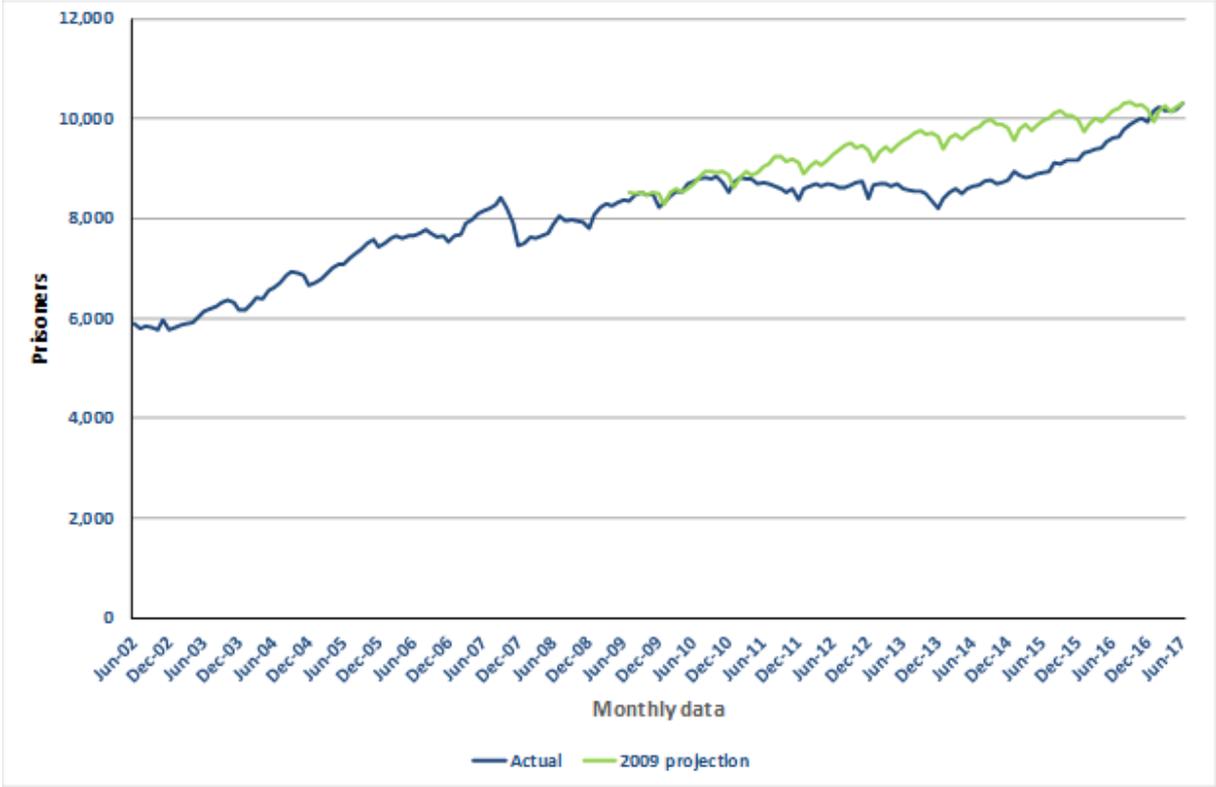
**Figure 5: 2017 projection with confidence intervals and 2016 projection for comparison**



Therefore, while the 2017 projections depict the most likely prison population under current legislative settings, it is important to note that actual path to the population can be substantially different. For example, the 2009 projection estimated that the total prison population would be 10,314 in June 2017; the actual number was 10,308. While this 2009

projection proved to be accurate to within 0.0006%, it should be noted that the path taken to reach the 2017 value was markedly different with the actual prison population significantly increasing to meet the 2009 projection line in the last four years. This reflects many policy and operational changes that the impact of which are unknown and which decreased, and then subsequently increased, the prison population.

**Figure 6: Comparison of trend in actual prison population against the 2009 projection**



# Appendix A. Population projection data

Table 2: Total prison population, maximum numbers for fiscal years 2016-17 through to 2026-27

Fiscal year	Total population		
	Population maximum	Annual change	Compared to June 2017 actual
2016-2017	10,308	7.3%	0.0%
2017-2018	11,201	8.7%	8.7%
2018-2019	11,811	5.4%	14.6%
2019-2020	12,485	5.7%	21.1%
2020-2021	12,819	2.7%	24.4%
2021-2022	13,205	3.0%	28.1%
2022-2023	13,619	3.1%	32.1%
2023-2024	13,781	1.2%	33.7%
2024-2025	13,893	0.8%	34.8%
2025-2026	14,139	1.8%	37.2%
2026-2027	14,399	1.8%	39.7%

Table 3: Remand prison population, maximum numbers for fiscal years 2016-17 through to 2026-27

Fiscal year	Remand population		
	Population maximum	Annual change	Compared to 2016 forecast
2016-2017	3,090	18.3%	-0.3%
2017-2018	3,455	11.8%	9.2%
2018-2019	3,828	10.8%	15.2%
2019-2020	4,129	7.9%	20.3%
2020-2021	4,379	6.1%	22.1%
2021-2022	4,648	6.2%	27.9%
2022-2023	4,876	4.9%	33.1%
2023-2024	4,959	1.7%	35.9%
2024-2025	5,044	1.7%	35.6%
2025-2026	5,230	3.7%	38.8%
2026-2027	5,457	4.3%	n/a

**Table 4: Sentenced prison population, maximum numbers for fiscal years 2016-17 through to 2026-27**

Fiscal year	Sentenced population		
	Population maximum	Annual change	Compared to 2016 forecast
2016-2017	7,265	3.9%	0.9%
2017-2018	7,746	6.6%	3.9%
2018-2019	8,039	3.8%	5.1%
2019-2020	8,377	4.2%	6.1%
2020-2021	8,535	1.9%	4.7%
2021-2022	8,673	1.6%	5.1%
2022-2023	8,791	1.4%	5.2%
2023-2024	8,883	1.0%	5.2%
2024-2025	8,951	0.8%	5.1%
2025-2026	8,961	0.1%	4.9%
2026-2027	8,994	0.4%	n/a

Tables 1-3 show the maximum numbers of people in prison during the fiscal year – for example, Table 1 shows the maximum projected capacity required during the year. This provides a better basis to plan management of the prison estate as well as any further construction.

The separate remand and sentenced populations peak at different times of the year so the maximum total population is not the sum of the maximum remand and maximum sentenced populations.

# Appendix B. Scenario assumptions

**Table 5: Projection assumptions - scenario 2 (Base Case)**

	17/18	18/19	19/20	20/21	21/22	22/23	23/24	24/25	25/26	26/27
Assumption 1 - number of new prosecutions	4.50%	3.80%	3.20%	2.80%	2.50%	1.50%	0.50%	0.00%	0.00%	0.00%
Assumption 2 - proportion starting custodial remand	28.10%	28.50%	28.90%	29.30%	29.50%	29.70%	29.90%	30.10%	30.30%	30.50%
Assumption 3 - average time on custodial remand (days)	75.5	79.0	80.6	80.5	82.0	84.9	86.1	86.1	87.7	90.5
Assumption 4 - proportion convicted	76.30%	76.30%	76.30%	76.30%	76.30%	76.30%	76.30%	76.30%	76.30%	76.30%
Assumption 5 - mix of cases ( specifically proportion imprisoned)	12.40%	12.80%	13.10%	13.30%	13.50%	13.70%	13.80%	13.80%	13.80%	13.90%
Assumption 6 - length of imposed prison sentence (days)	650	650	650	650	650	650	650	650	650	650
Assumption 7 - proportion of imposed sentence served	77.50%	78.30%	79.10%	80.00%	80.30%	80.30%	80.30%	80.30%	80.30%	80.30%

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