
IX. Future Projections

CGR's approach to estimating the likely future population of the Tompkins County Jail is based on five main components:

- An age and gender profile of inmates in the Tompkins County Jail, factoring in what we know about race and poverty
- Cornell University's 2015-2040 population projections for Tompkins County
- The average daily census of the Tompkins County Jail
- Trends in the Tompkins County Jail average daily census over time
- The anticipated impact of the changes recommended in this study.

The first four components are discussed below, assuming no programmatic changes, while the anticipated impact of the recommended changes was discussed above in Chapter VIII. The five components are tied together, overlaying trends and projections with estimated impacts of programmatic changes, at the end of this chapter.

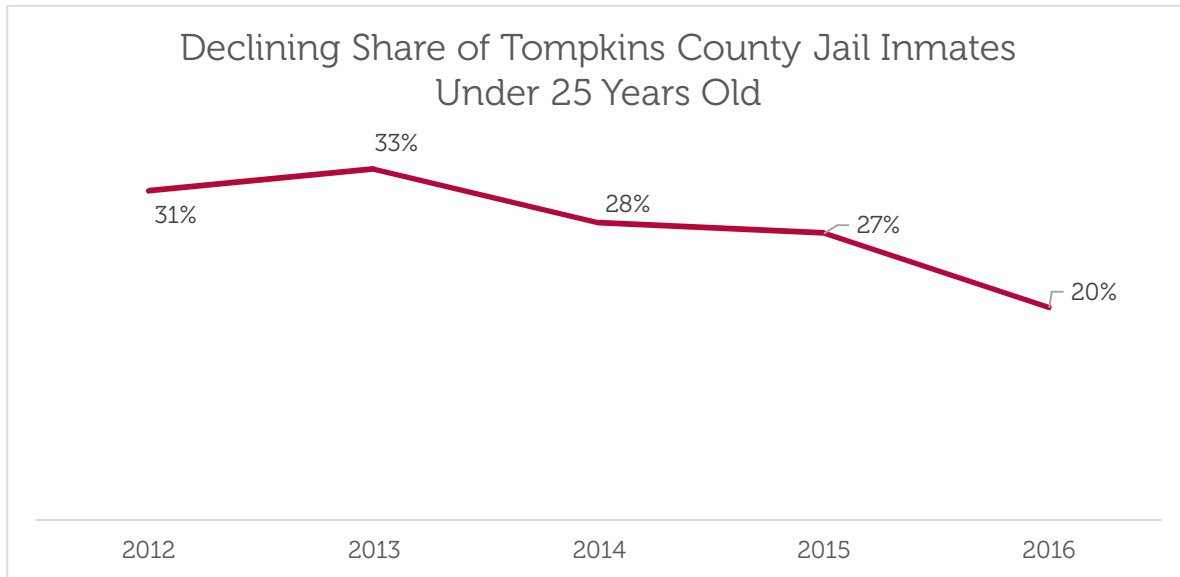
Jail Demographic Profile

CGR has examined a number of descriptive demographic characteristics of the Tompkins County jail, including age, gender, race/ethnicity, education and employment levels and many others. However, only age and gender were included in this effort to project the future jail census, primarily because those are the only demographic components included in typical population projections (described in detail below).

Age and gender are key factors to predicting a jail's future population, as inmates tend to be younger men relative to the overall county population.

Interestingly, while the Tompkins County jail has consistently remained around 80 percent male and 20 percent female for the past five years, the jail has experienced a declining share of younger inmates throughout that period, as reflected in Graph 29.

Graph 29



This trend, if it continues, could have a significant impact on the jail's future population. While the number of adults 25 to 34 in Tompkins County is expected to decline considerably over the next 25 years, the number of younger adult residents is projected to remain much more stable. To account for this shift, CGR prepared two separate demographic profiles of the Tompkins County jail, one based on the jail's 2012-2016 demographic profile (Table 46), and the other based on the jail's 2016 profile alone (Table 47). The two demographic profiles are detailed below.

Table 46

2012-2016 Jail Demographic Profile		
Age Group	Female	Male
Under 20	1.6%	7.2%
20 to 24	4.0%	16.0%
25 to 29	3.4%	15.2%
30 to 34	3.6%	12.8%
35 to 39	2.6%	8.8%
40 to 54	4.0%	16.0%
55+	0.8%	3.2%
Total	20%	80%

Table 47

2016 Jail Demographic Profile		
Age Group	Female	Male
Under 20	1.4%	3.3%
20 to 24	2.7%	12.6%
25 to 29	4.9%	15.5%
30 to 34	4.1%	14.7%
35 to 39	3.3%	11.1%
40 to 54	3.8%	18.1%
55+	0.5%	3.8%
Total	21%	79%

Tompkins County Future Population Estimates

As noted earlier, for this study CGR is relying upon the methodology and assumptions of Cornell University's Program on Applied Demographics projections, which produce future population estimates in five-year increments for each county in New York State. Had we chosen to use the Woods and Poole projections also known to the County, population projections would have been somewhat higher in future years, rather than the declines forecast by Cornell. We believe the latter are more realistic. Regardless of the population projection method used, however, its impact is far outweighed by the estimated programmatic impacts on the jail population outlined in the previous chapter, and summarized at the end of this chapter.

According to the Cornell projections, as indicated in Table 48, Tompkins County will experience a 3 percent decline in overall population from 2015 to 2040 (101,657 to 98,606).¹³ The 16+ population is also expected to decline by 3 percent from 86,156 to 83,333. The rate of change varies considerably by age group and gender, though, with a larger decline expected among male residents.

¹³ Cornell's original projections for 2015 were 101,657, but as shown earlier, the 2011-15 Census Bureau's American Community Survey's 5-year estimate was 103,855. These differences have been factored into the projections for the outlying 5-year intervals beginning in 2020.

Table 48

Female	2015 Pop	2015 - 2020 % Change	2015-2025 % Change	2015-2030 % Change	2015-2035 % Change	2015-2040 % Change
16 to 19	4,382	3.9%	4.4%	6.9%	7.2%	7.3%
20 to 24	9,213	-6.4%	-4.4%	-3.5%	-2.2%	-2.2%
25 to 29	3,725	3.2%	-7.4%	-9.0%	-11.3%	-12.9%
30 to 34	3,259	-0.6%	-1.0%	-9.9%	-10.5%	-11.6%
35 to 39	2,702	10.0%	8.8%	7.4%	-1.7%	-1.6%
40 to 54	8,157	-4.7%	-3.9%	-0.9%	0.3%	-3.1%
55+	12,827	4.1%	5.6%	4.4%	2.9%	2.2%
Total	44,265	0.2%	0.3%	0.0%	-0.7%	-1.7%
Male	2015 Pop	2015-2020 % Change	2015-2025 % Change	2015-2030 % Change	2015-2035 % Change	2015-2040 % Change
16 to 19	4,251	4.4%	5.1%	6.4%	6.6%	6.4%
20 to 24	9,674	-6.9%	-4.9%	-3.9%	-2.9%	-2.9%
25 to 29	3,917	2.5%	-8.4%	-10.1%	-12.8%	-14.6%
30 to 34	3,170	0.0%	-1.3%	-10.3%	-11.3%	-12.6%
35 to 39	2,462	8.1%	7.1%	4.8%	-4.3%	-4.8%
40 to 54	7,715	-3.7%	-4.4%	-2.9%	-2.3%	-5.8%
55+	10,702	1.7%	1.8%	-0.7%	-3.4%	-4.8%
Total	41,891	-0.7%	-1.4%	-2.4%	-3.6%	-4.9%

Average Daily Census Baseline

Determining the baseline average daily jail census is an important, and challenging factor in estimating the future jail population. For this analysis, CGR prepared four different census baselines. As noted earlier in this report, the Tompkins County jail's census has been abnormally low (relative to the past ten years) since August, 2016. This recent trend complicates our effort to establish a baseline census from which to calculate an expected future jail population, as it is unclear whether this persistently low census since August 2016 represents a new normal in the jail, or is simply a short term blip that will inevitably recede.

CGR prepared four different jail census baselines to inform our future population estimates. These markedly different baselines demonstrate the uncertainty inherent in estimating the likely future census of the Tompkins County Jail.

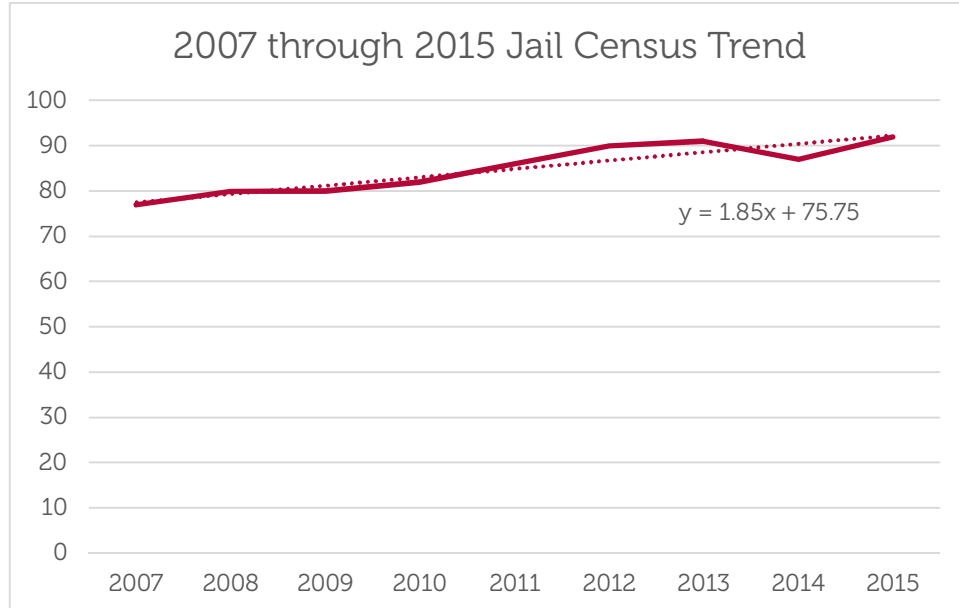
- January 2012 through July 2016 Average – 89.18
- January 2012 through December 2016 Average – 86.84
- January 2016 through April 2017 Average - 78.69
- August 2016 through April 2017 Average – 72.56

Jail Census Trends

The recent changes in the Tompkins County Jail average daily census also complicate our efforts to confidently establish a long term jail census trend. Each of the trends calculated below would, if they continued, significantly impact the jail census, particularly in the latter years of our estimates.

If this study had begun earlier in 2016, CGR would have likely relied upon the long term trend detailed below in Graph 30. Doing so would have prompted us to build an annual census increase of 1.85 inmates per night into our estimates of the future jail population, minus any impact resulting from programmatic changes. While not a substantial total in one or two years, the cumulative effect of this trend over 20 years would be considerable.

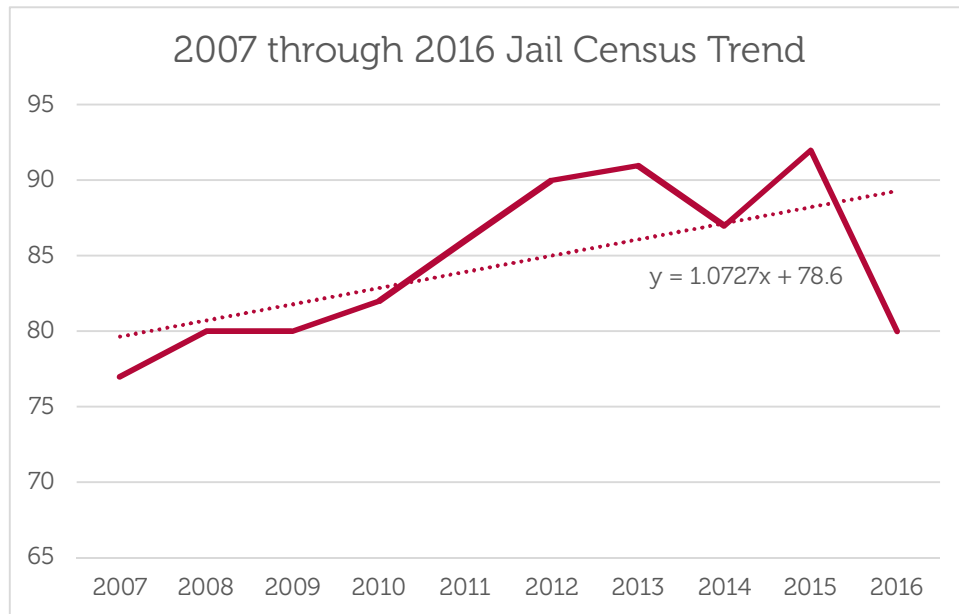
Graph 30



However, reduction in the jail's census from August, 2016 through the end of the year had a notable impact on the anticipated annual census increase. Adding data from

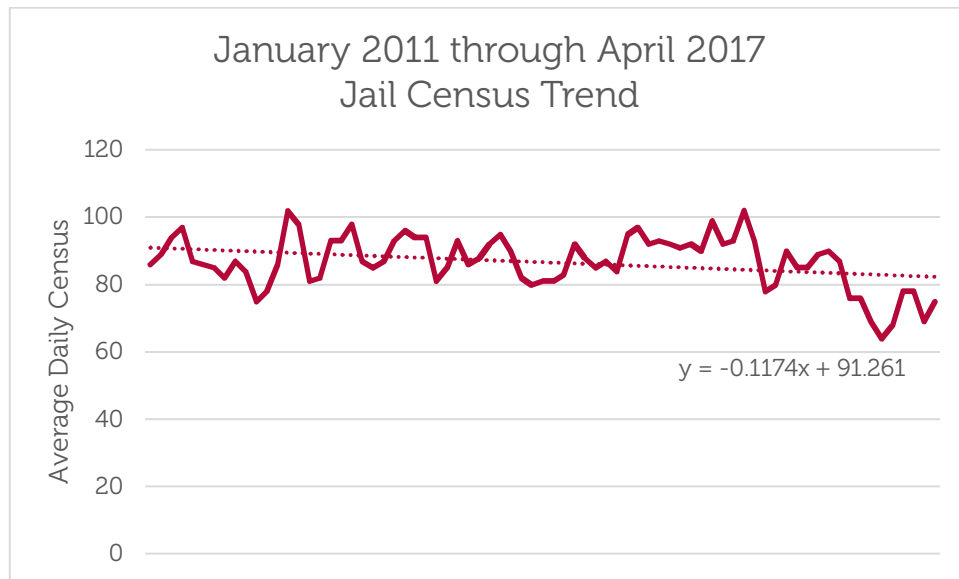
2016 to our estimates reduces the expected annual increase from 1.85 beds per night per year to 1.07, as indicated in Graph 31. Over 20 years, this reduces that anticipated increase by more than 15 beds/inmates per day (before factoring in demographic changes).

Graph 31



Finally, if one adopts a more responsive trend line, based on the monthly average census from January 2011 through April 2017, we discover a slight downward trend, reflected in Graph 32. When annualized, this trend would reduce the census by an average of 1.41 per night per year.

Graph 32



Methodology

CGR's basic methodology for projecting the future census of the Tompkins County jail is outlined below

- Calculate the relative share of each gender and age combination of jail inmates
- Apply the average daily jail census baselines to that demographic profile
- Multiply the share of jail census for each age and gender combination by the anticipated population change rate for that age and gender group in Tompkins County in five-year increments
- Apply the trend estimate

The sum of each of these individual calculations (by five-year increments) creates a future average jail census estimate. For example, 25 to 29 year old men (at admission) comprised 15 percent of the total jail population in 2012-2016. If the average jail census during this time was 88 inmates per day, 25 to 29 year old men occupied 13.38 beds per day over this period.

Our methodology then incorporates the future population projections for Tompkins County, which project that the number of 25 to 29 year old males in Tompkins County is expected to decline from 3,917 in 2015 to 3,344 in 2040. If this 15 percent decline is reflected in the Tompkins County jail population, 25 to 29 year old males will occupy an average of 11.42 jail beds per day in 2040.

Peak Factor and Classification Issues

CGR examined quarterly Commission of Correction census data regarding census variations in the Tompkins County jail. These data revealed that the highest census on a day in a particular quarter from 2011 through 2016 was 5 percent to 16 percent higher than the average census during that period. Accordingly, to avoid the need to board inmates out to other county jails, the Tompkins County jail would ideally need the capacity to manage a likely short-term census as much as 16 percent higher than the average census during a particular period.

In addition, classification concerns can limit the ability to fully use the jail's licensed capacity of 82 beds. Classification issues could result in as few as 80 percent of beds being available for use at a particular time. Therefore, the effective capacity of the jail is often as low as 66 beds (in the absence of a variance). Given the variability in the daily census, the average census for a given period would need to be no more than approximately 56 inmates per day to fully avoid the need for any board-outs in the future.

These numbers assume that the County would be preparing for the worst case scenario and planning for that – i.e., planning for a jail that could always accommodate the worst possible combination of classification restrictions and a peak census of 16 percent over the average, the highest at any time in the past six years. Such a combination is likely to occur rarely if ever, so is probably not realistic in determining numbers of cells needed for the future. But we have incorporated these numbers in the following scenarios so the County can understand what would be necessary to avoid virtually any prospect of future boarding-out of inmates. What is probably more realistic is to create future scenarios that will limit the future daily census as much as possible, but recognize that some boarding out may occasionally be necessary, given rare days when the perfect storm of classification restrictions and peak numbers of inmates come together.

Scenarios

CGR prepared five different estimates of the Tompkins County jail's expected future census, summarized in Table 49. All five estimates rely on the jail's demographic profile, recent average censuses at the jail, and expected population changes in Tompkins County. Scenarios 4 and 5 also incorporate trends in the jail's census. None of these scenarios incorporate any estimates of the impact of recommendations found elsewhere in this report, although those estimates will be applied to these scenarios at the end of this chapter and in the conclusions in Chapter X.

Table 49

Scenario	Jail Demographic Profile	Average Daily Census Baseline	Trend
Scenario 1	2012-16 Profile	2012–16	No Trend
Scenario 2	2016 Profile	January '16 through April '17	No Trend
Scenario 3	2016 Profile	August '16 through April '17	No Trend
Scenario 4	2016 Profile	January '16 through April '17	2012 – April '17 Trend
Scenario 5	2012-16 Profile	January '12-July '16	2007-15 Trend

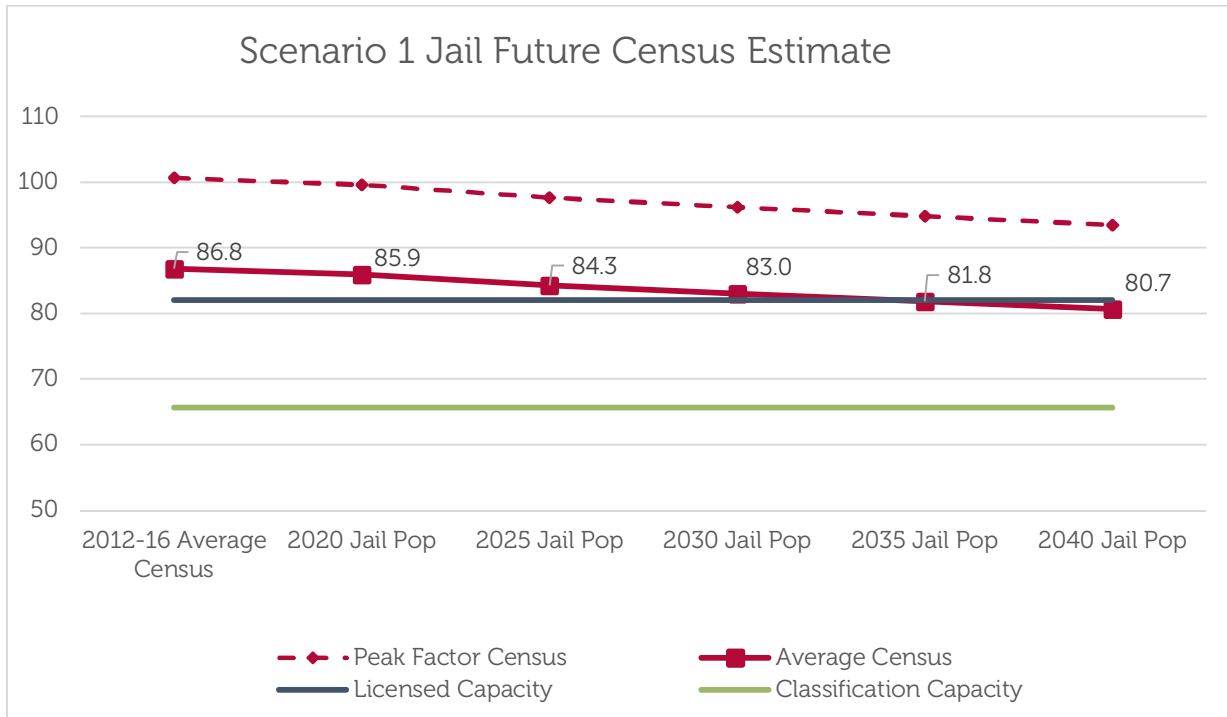
In all scenarios but one, the expected decline in population in Tompkins County, particularly among residents in more crime-prone age groups, indicates that over the next 25 years, demand for jail beds will decline somewhat. Obviously, a great deal can change over the course of the next 25 years, but if these demographic patterns hold, and are accompanied by a commensurate reduction in crime, the average daily population of the Tompkins County jail will slowly decline on its own, with no other intervening strategies. However, the rate of decline, and the baseline from which to measure the decline, could vary greatly, as shown below.

Scenario 1

One approach to estimating the future jail census is to simply use the average daily census over the past five years and apply the jail's demographic profile over those years to the anticipated demographic changes that will take place in Tompkins County from 2015 to 2040. This scenario does not assume any underlying jail census trend. The demographic changes anticipated for Tompkins County over the next 25 years would result in an anticipated 7 percent reduction in the jail's census from the baseline of 86.8 in 2012-16 to 80.7 in 2040.

As Graph 33 indicates, while the average daily census would decline under this scenario, it would remain above the jail's licensed capacity until 2035. When one accounts for classification issues or the day-to-day variation in the jail's population (also known as the jail's peak factor), it seems likely that the jail would retain a substantial need to continue boarding out inmates.

Graph 33

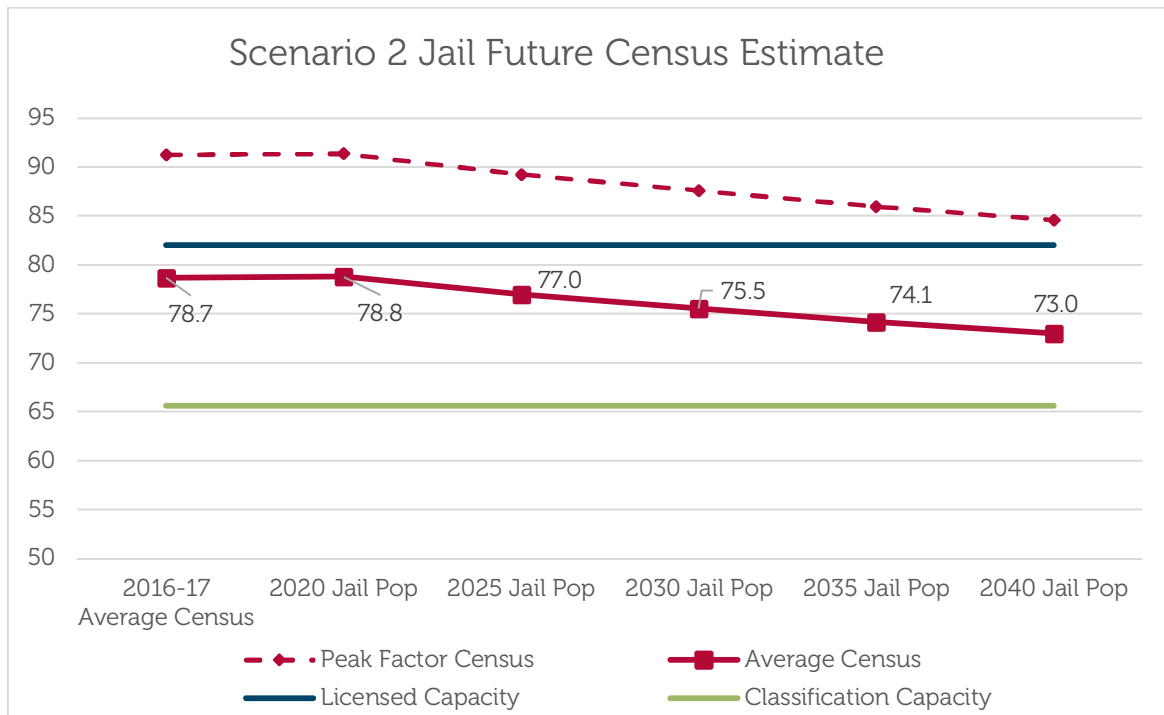


Scenario 2

Another approach to estimating the future census of the Tompkins County jail relies on a more recent profile of jail inmates and the average daily census. Specifically, this scenario relies upon the 2016 jail demographic profile and the average monthly census from January 2016 through April 2017. This scenario also does not assume any underlying jail census trend, and merely applies the demographic estimates on a more recent baseline census and jail demographic profile.

While this scenario does envision an average jail census below the facility’s licensed capacity of 82 beds, as shown in Graph 34, it is likely that given classification and regular fluctuations in the census, Tompkins County would likely still need to board out some number of inmates each year.

Graph 34

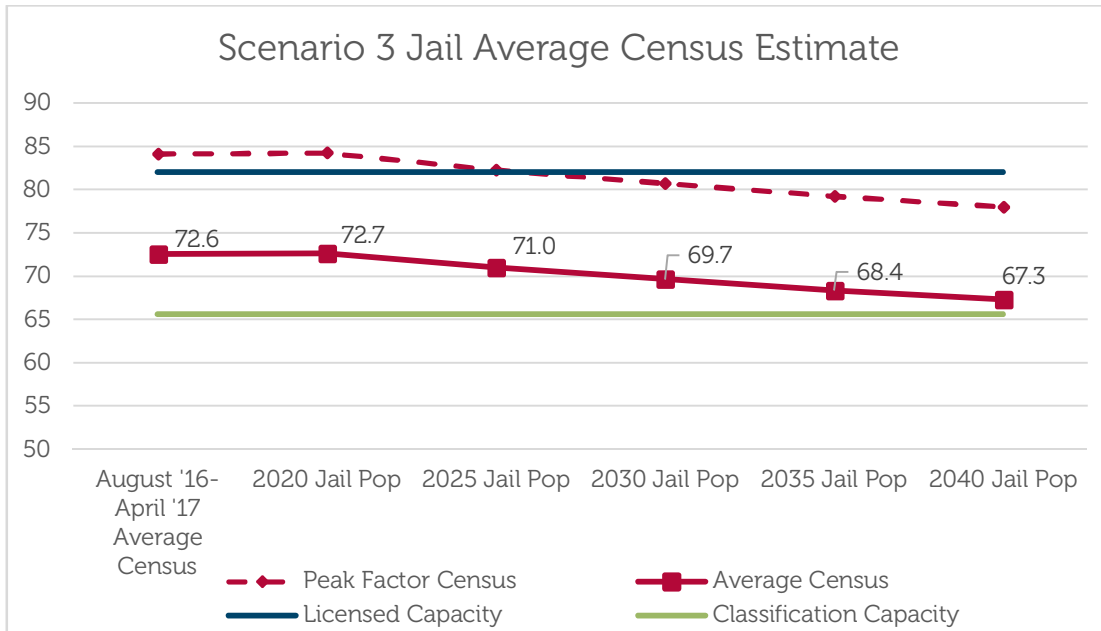


Scenario 3

The third scenario explored by CGR assumes that the lower average census that emerged in August, 2016 is not temporary, but instead represents a new normal jail bed usage. Specifically, this estimate relies upon the average monthly census from August, 2016 through April, 2017, and the 2016 jail demographic profile. It does not include any trend line.

As with Scenario 2, the average daily census at the Tompkins County jail in this scenario is below the licensed capacity of the facility, and the peak factor census will fall below the licensed capacity after 2030, as shown in Graph 35. However, given classification constraints, it is likely that the County would still need to occasionally rely on board outs to other counties.

Graph 35

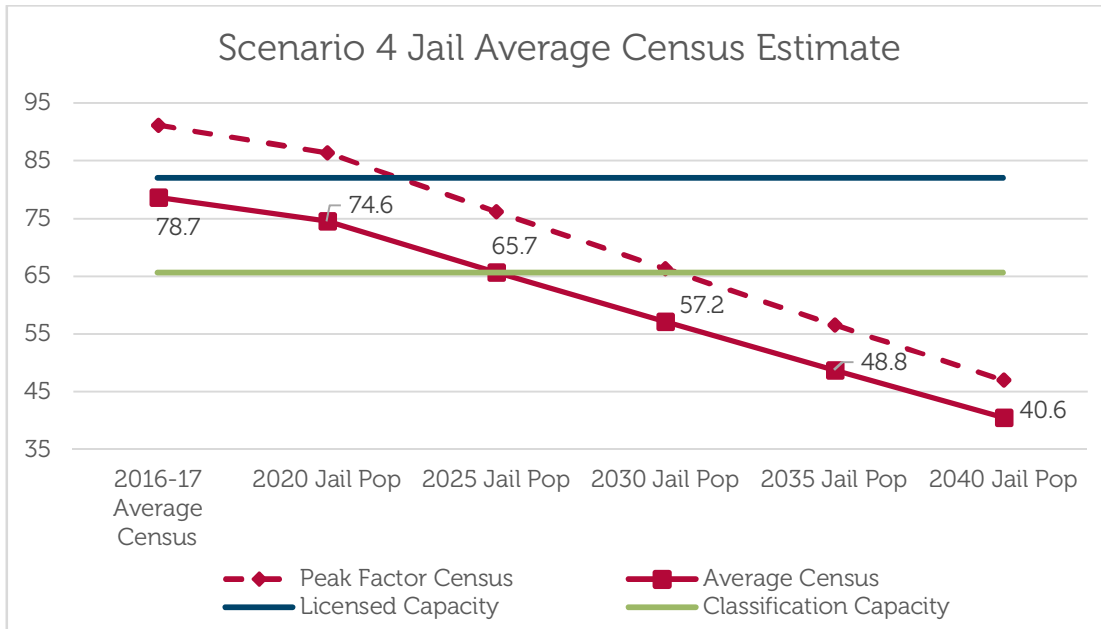


Scenario 4

As noted above, even a minor trend in a jail’s average census can, if it continues, have an enormous impact over the course of many years. The slight downward trend in the jail’s census from January, 2011 through April, 2017, when combined with the expected demographic changes in Tompkins County and applied to a relatively low baseline census, has a considerable effect over time.

Graph 36 applies the 1.40 annualized decline in the jail’s daily census since 2011 to the assumptions that formed Scenario 2 above. The compound effect of that annual decline and the expected demographic changes in the future would result in a 46 percent reduction in the jail’s average census from 2016 to 2040.

Graph 36



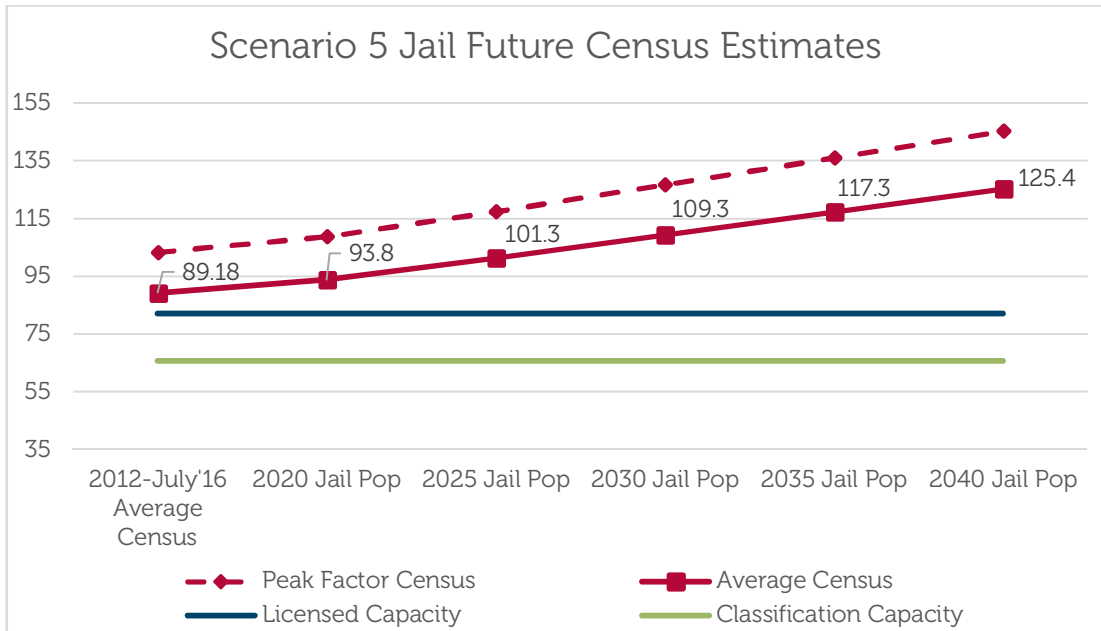
Under this scenario, the jail would stop needing to board out inmates due to classification concerns in 2025 and due to routine fluctuations in usage (combined with classification concerns) in 2030.

Scenario 5

This final scenario was developed in part to show the limitations of this approach to estimating the future jail population on these quantitative data factors alone. If CGR had been asked to estimate the future census of the Tompkins County Jail during the middle of 2016, we would have relied upon the average census from 2012 through the middle of 2016, the jail’s demographic profile from 2012 to 2016, and a multi-year trend showing an increased jail census over the years. Specifically, an annual increase of 1.85 inmates per year from 2007 through 2015.

Under this scenario, as shown in Graph 37, the Tompkins County jail would exceed an average of 100 inmates per day in 2025, and reach 125 inmates on average in 2040. This increase is offset slightly by the changing demographic patterns in Tompkins County, as the average census would be nearly 132 inmates per day if the 2015 population profile continued indefinitely.

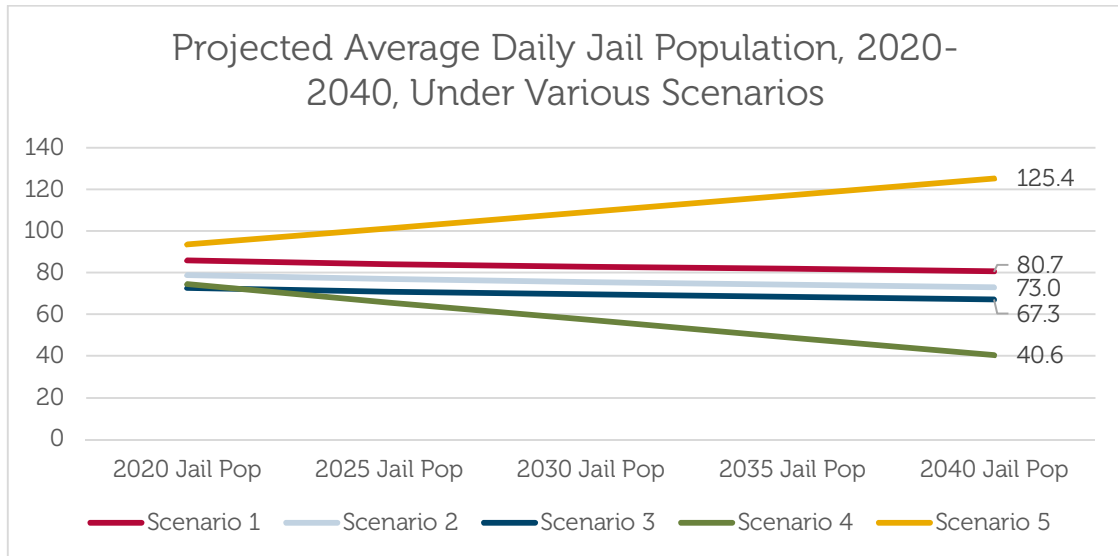
Graph 37



Future Census Projection Conclusion

Each of the five scenarios presented above relies on the same core set of information, but arrives at vastly different projections. This highlights the uncertainty of making long range projections about the likely future jail census. Given the five projections summarized in Graph 38 below, it appears wise to discard scenarios 4 and 5. Scenario 4 assumes that a short term downward trend in the jail’s census will continue in perpetuity, while Scenario 5 discounts what appears to be a significant shift in jail admissions in Tompkins County over the past year.

Graph 38



Therefore, it is our assessment that the likely future average daily census of the Tompkins County Jail, not yet factoring in any potential implementation of the options outlined in Chapter VIII, would lie somewhere in the range of scenarios 1, 2, and 3. As shown in Table 50, in all instances, the average daily jail population would decline from 2020 to 2040, but the County would struggle to avoid boarding out inmates to other counties (peak days are not included in this table).

Table 50

Scenario	Baseline Census	2020 Jail Census	2025 Jail Census	2030 Jail Census	2035 Jail Census	2040 Jail Census
One	86.8	85.9	84.3	83.0	81.8	80.7
Two	78.7	78.8	77.0	75.5	74.1	73.0
Three	72.6	72.7	71.0	69.7	68.4	67.3

Impact of Recommendations on Long Term Projections

As noted in Chapter VIII, we believe that, upon the full implementation of a number of different strategies, 29 jail bed days can be reduced from the current census levels. If the average census were to decline for reasons unrelated to these strategies (such as through the various scenarios listed above), the number of days reduced by these

interventions would likely decline as well, since a smaller denominator from which to calculate the expected reduction would likely result in a smaller total reduction.

Therefore, it seems wise to treat these 29 jail bed days as a percentage of the jail's census. These 29 days represent a 37 percent reduction off Scenario 2's baseline census (29 of 78.7). If that 37 percent reduction is applied consistently across the three most likely projected future jail census scenarios outlined above, Tompkins County would be able to avoid the need to expand the number of beds available in the jail, as summarized in Table 51.

Table 51

Year		Scenario		
		One	Two	Three
2016 Baseline Census		86.8	78.7	72.6
2020 Jail Census	Base Estimate	85.9	78.8	72.7
	w/ 37% Reduction	54.1	49.6	45.8
2025 Jail Census	Base Estimate	84.3	77.0	71.0
	w/ 37% Reduction	53.1	48.5	44.7
2030 Jail Census	Base Estimate	83.0	75.5	69.7
	w/ 37% Reduction	52.3	47.6	43.9
2035 Jail Census	Base Estimate	81.8	74.1	68.4
	w/ 37% Reduction	51.5	46.7	43.1
2040 Jail Census	Base Estimate	80.7	73.0	67.3
	w/ 37% Reduction	50.8	46.0	42.4