Part of the UPPP Series

Planning for Capacity: A Risk-Mitigation Approach to Prison Population Projections

April 2025

Utah Commission on Criminal & Juvenile Justice

https://justice.utah.gov/

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REPORT HIGHLIGHTS

~An analysis of UDC prison data based on the average daily population between 2010 and 2024~

~2%

The median annual prison growth measured around 2% between 2010 and 2024

5-year projections indicate upward pressure on the prison population comparable to historical trends

Averaging across projection models and reviewing error bands can support more informed policy decisions

Capacity can be limited by staffing and resource availability, extending beyond the number of prison beds

New and recent criminal justice legislation is expected to impact intermediate and long term projections

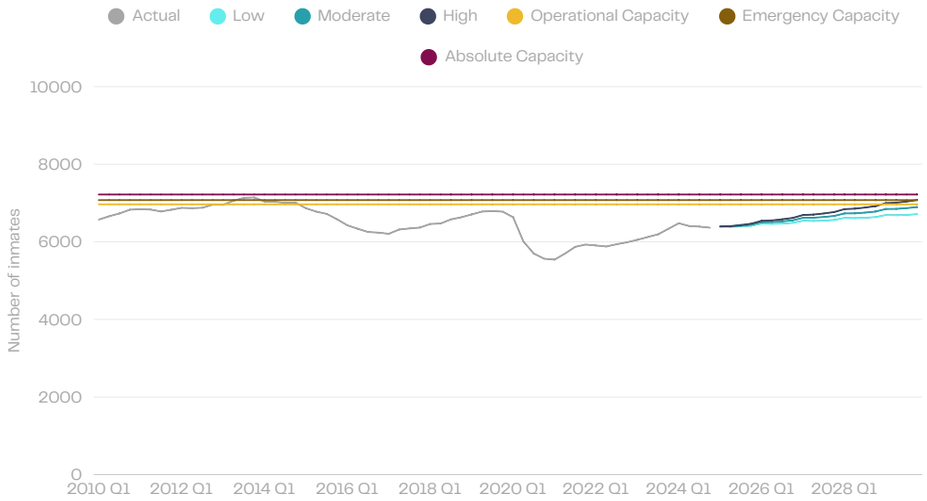
Regular updates allow for ongoing refinement and adjustment to shifting trends as new data becomes available

EXECUTIVE SUMMARY

Prison population projections are a vital tool for resource allocation and long-term planning. This report recommends using a range of models, averaging across, and incorporating error bands to better account for uncertainty in capacity planning.

- **Data and Historical Trends:** Examines trends in Utah's prison population from 2019 to 2024.
- **Prison Drivers:** Upward pressure is driven by increased admissions since COVID-19, a large sex offender population, and high revocation rates.
- **Prison Projections:** Forecasts indicate steady population growth over the next five years, with annual rates ranging between 1.2-2.3%.

- **Recommendations:** Given the uncertainty inherent in projection analysis and with changes in criminal justice legislation, we recommend updating these models as new data and information becomes available.



Utah's Prison Population: Actual vs Projected: 2024-29

INTRODUCTION

Reliable prison population projections are an important tool for effective criminal justice planning, resource allocation, and policy development. However, single-model projections and “point estimates” often fail to report the inherent uncertainties that are part of projection work. This can lead to flawed policy decisions and inefficient resource management.

This report reviews historical trends and key drivers of Utah's prison population, advocating the need to review a range of models and error bands to mitigate risks in projections and regular updating.

This report analyzes 3 areas related to prison population growth:

1

Historical Trends

Analyzes trends in Utah’s prison population over time.

2

Prison Drivers

Reviews important drivers behind population growth.

3

Projections

Presents five-year projections and makes recommendations on findings.

Risk Mitigation & Cost Implications

Mitigating risk in capacity planning and projection work requires balancing ***overestimation***, which can lead to unused resources, and ***underestimation***, which may cause operational strain. Regular updates, in-depth data exploration, and sensitivity analyses can help improve projection accuracy and reliability to help balance these two factors. Furthermore, **evaluating alternatives to incarceration** is important in policy decisions balancing public safety and prison capacity expansion costs.

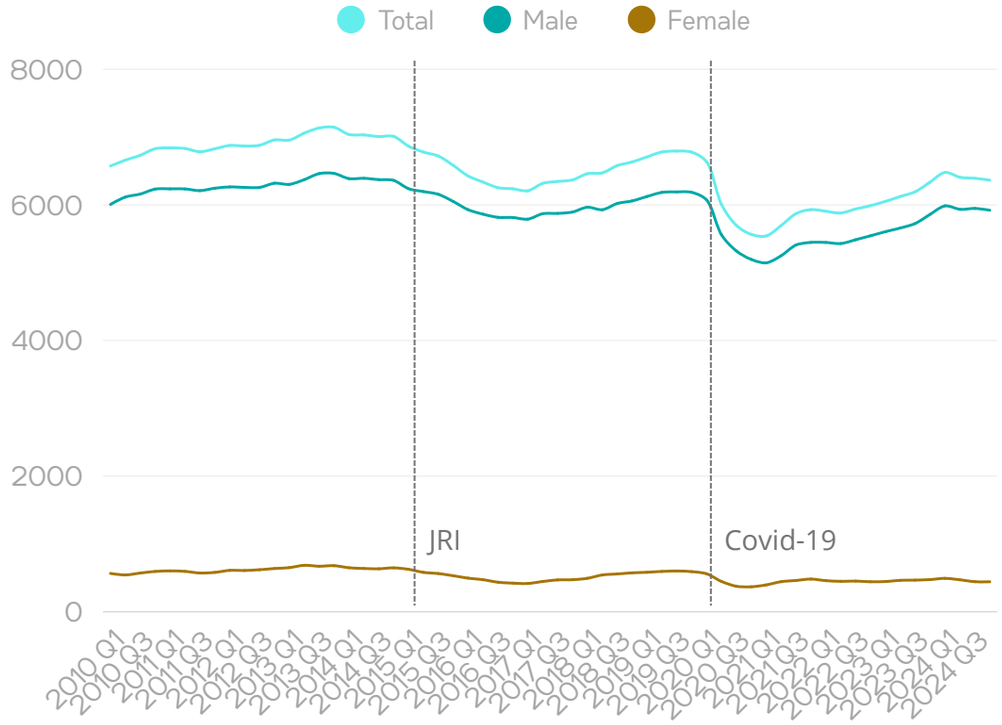
HISTORICAL TRENDS

While reduced during the Justice Reform Initiative (JRI) in 2016 and the Covid-19 pandemic in 2020, **Utah's prison population has experienced upward pressure in the past 14 years.** Between 2010 and 2024, the population increased by a median* annual value of 1.5%. This value was higher when excluding JRI and Covid-19 (2.2%).

In 2024, the prison population reached approximately 6,350 persons on any given day, with roughly 5,900 males and 450 females (~93 vs 7% of the total inmate population).

*The *median* value is the "middle" value and is less sensitive to outliers then the often reported *average*.

Figure 1: *Utah's Prison Population: 2010-24*



Annual Growth

Figure 2: *Annual Growth - Males : 2010-24*

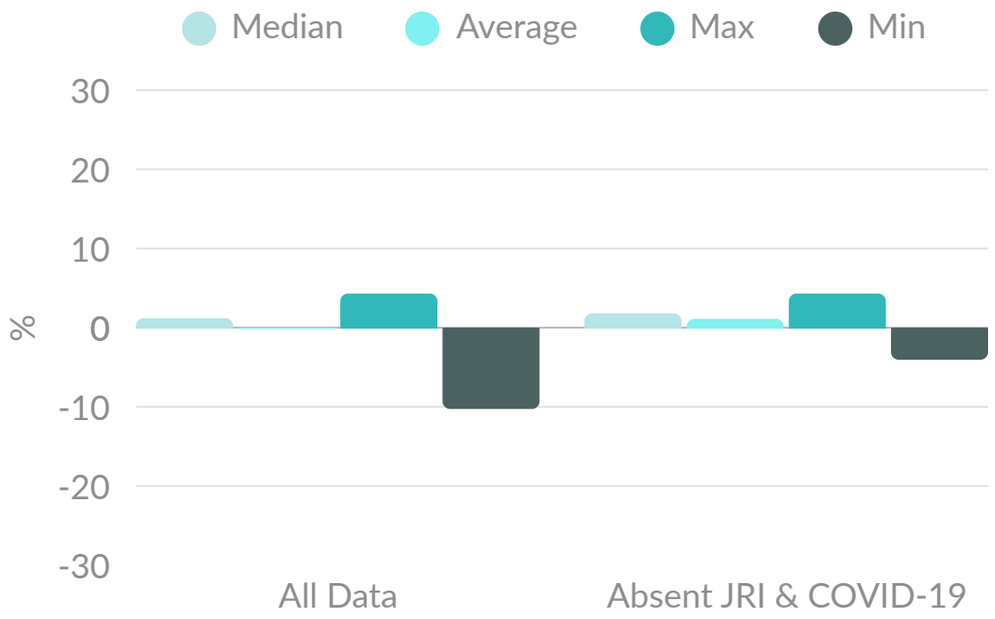
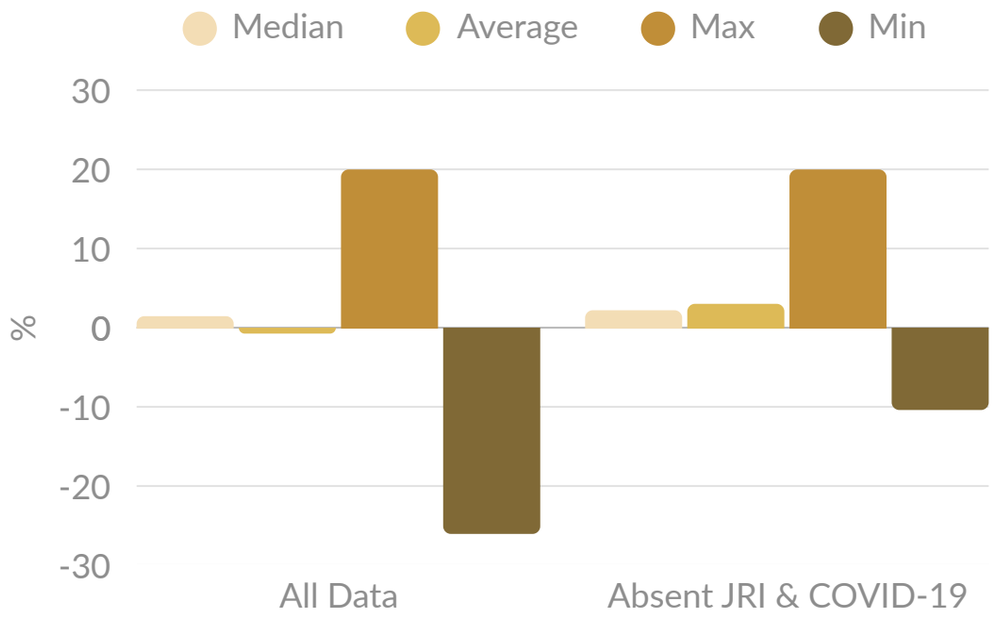
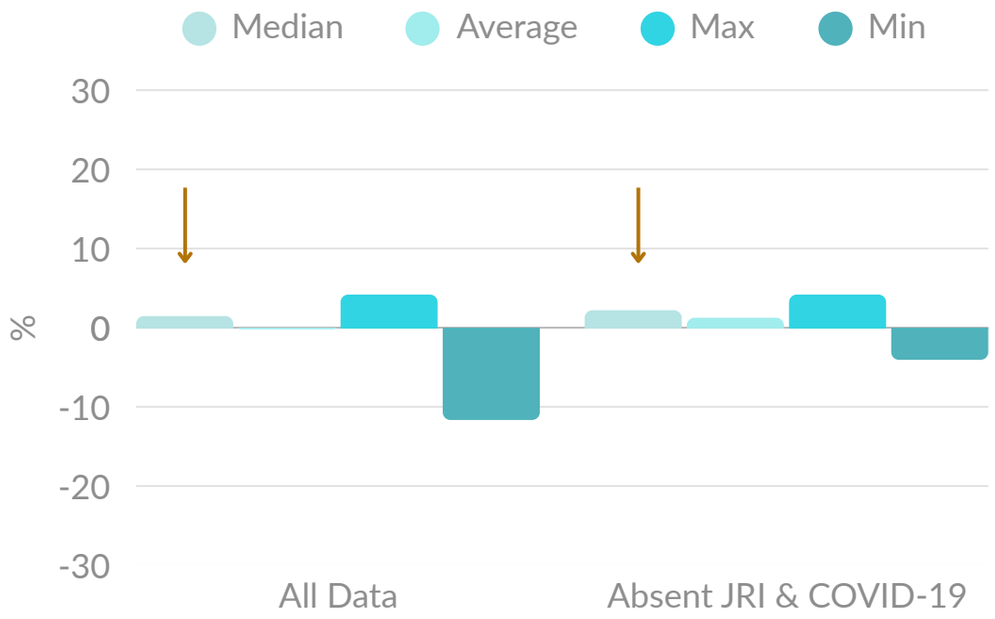


Figure 3: *Annual Growth - Females : 2010-24*



Annual Growth Cont.

Figure 4: *Annual Growth - Total : 2010-24*



Key-Takeaways: Historical Trends

~2%

Median Growth

The median annual growth measured around 2% between 2010-24

Fluctuations

Fluctuations in growth have existed in large part due to JRI and Covid-19.

Females

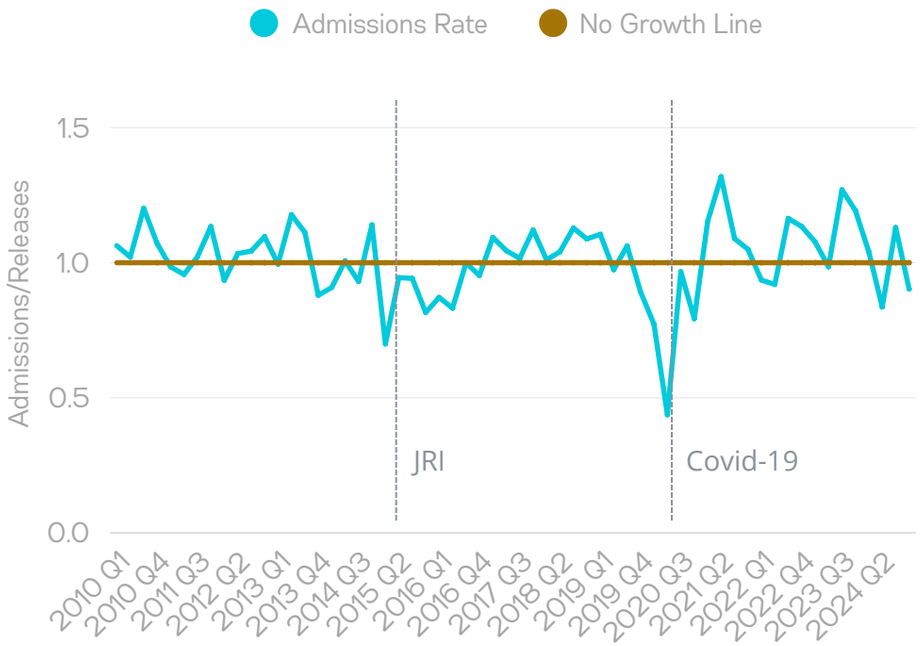
Female growth has exhibited higher annual fluctuations.

PRISON DRIVERS

Admissions and releases drive the overall flow of the prison population. Over the past 14 years, admissions have, on average, exceeded releases, leading to population growth. Figure 5 shows the admissions rate—admissions divided by releases where a rate of one means a constant, or "no growth" population and a rate above one indicates growth.

A significant share of these admissions comes from technical violations of probation and parole, with a 3-year return-to-prison rate for parolees at around 65%. **For a deeper exploration of internal ways UDC have identified to control prison population pressures please visit: this link.**

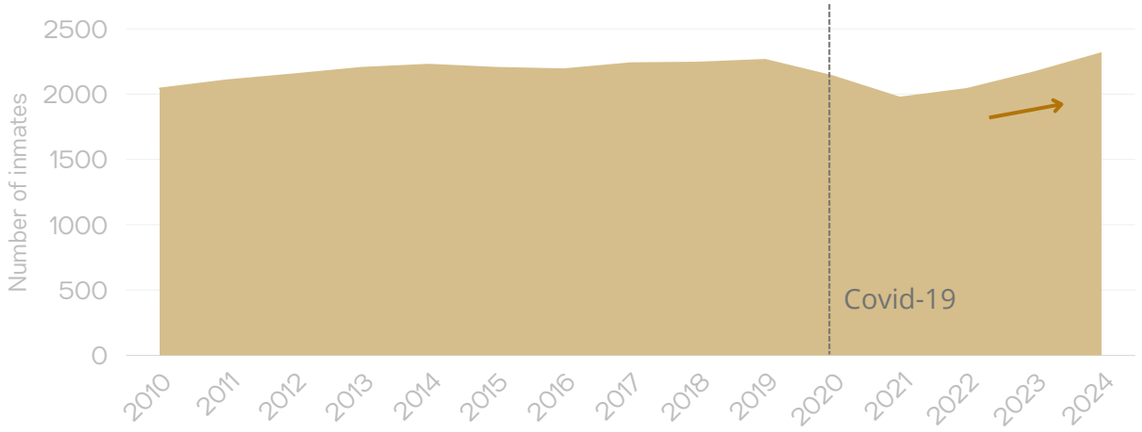
Figure 5: *Admissions over Releases: 2010-2024*



Prison Drivers Cont.

Individuals convicted of sex offenses make up nearly 40% of the prison population, with preliminary projections indicating a higher-than-average growth rate for this group. Other factors contributing to population pressure include legislation that increases time served or new admissions.

Figure 6: *Annual Utah prison population (sex offenses): 2010-2024*



See the UPPP Dashboard for additional trends on prison drivers

Key-Takeaways: Prison Drivers

Admissions

Admissions has on average exceeded releases, leading to population growth.

Supervision Challenges

~65% of individuals return to prison within 3-years, due to technical violations.

Sex Offenses

Sex offenders make up the largest crime category, placing continued upward pressure on the prison population.

PRISON PROJECTIONS

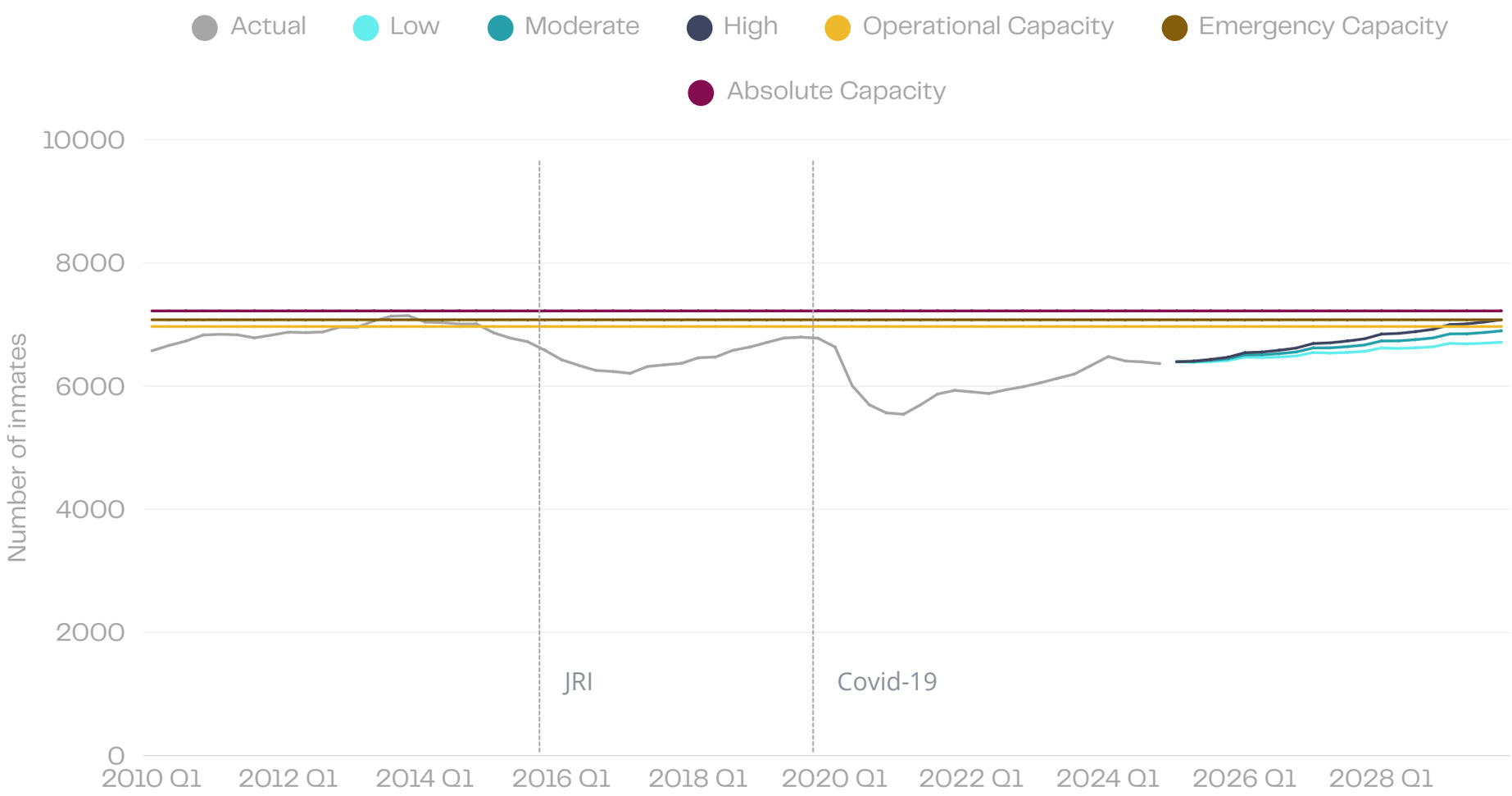
Figure 7 presents three projection scenarios—**Low, Moderate, and High**—developed using standard time series forecasting methods and are averaged across. The key difference among these scenarios is how they adjust for potential post-COVID underestimation:

- **Low Scenario:** Assumes recent growth is temporary and applies no correction, resulting in a more conservative forecast.
- **Moderate/Expected Scenario:** Applies an upward adjustment based on the historical median annual growth rate.
- **High Scenario:** Applies an upward adjustment based on the historical median annual growth rate and assumes some of the recent higher than average growth will continue.

All three scenarios anticipate steady growth over the next five years, with annual increases ranging from 1.2% to 2.3%

See the Appendix for more details about our methododology.

Figure 7: *Utah's Prison Population: Actual vs Projected 2010 Q1-2029 Q4*



Error Bands

Error bands are a standard feature in statistical analysis that illustrate the range of possible outcomes around a central estimate. **Rather than presenting a single forecasted number, they show a *spectrum* of plausible results, helping to convey the uncertainty inherent in any projection**.

For policymakers, this can mean a more realistic view of potential future scenarios—particularly when planning for capacity. It should be noted that including upper bounds in our analyses increases the chance of reaching capacity within the 5-year time frame.

Key-Takeaways: Prison Projections

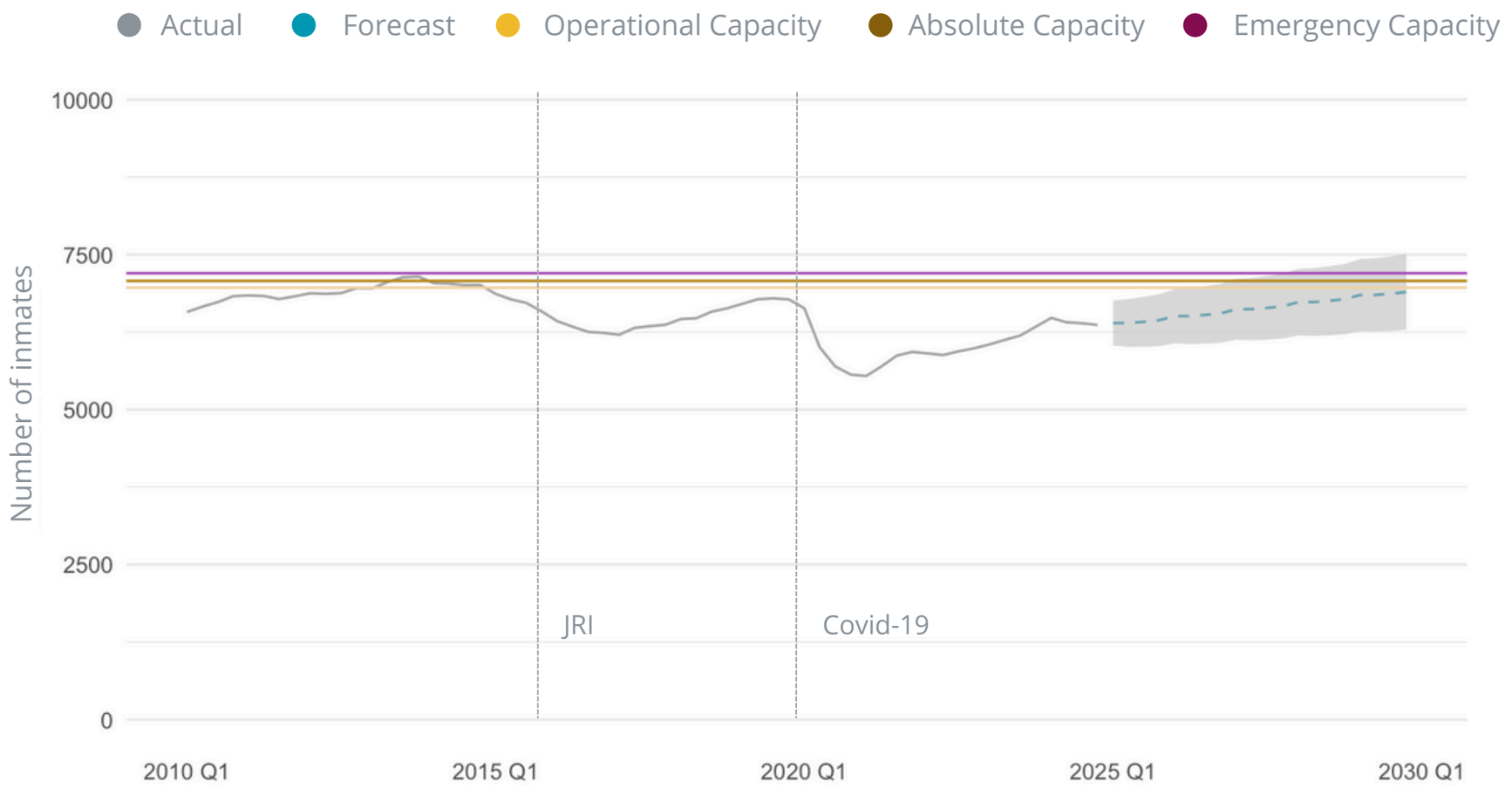
5-year growth

Five-year projections indicate upward pressure on the prison population, with annual percentage growth ranging from 1.2% to 2.3%.

Error Bands

Error bands show uncertainty around point estimates by providing a lower and upper bound.

Figure 8: *Utah's Prison Population: Actual vs Projected with Error Bands - Moderate Scenario: 2010 Q1-2029 Q4*



Capacity Considerations

Capacity within the correctional system is multifaceted, encompassing actual prison bed availability, county jail space used for overflow and contracting, and housing options in community corrections centers. It is important to consider that operational capacity, the ability to effectively manage inmates, is constrained by staffing levels, program availability, and other operational resources, in addition to physical bed space.

Key-Takeaways: Capacity Considerations

Multifaceted

Capacity includes available prison beds, county jail space used for overflow, and contracted facilities.

Resource Constraints

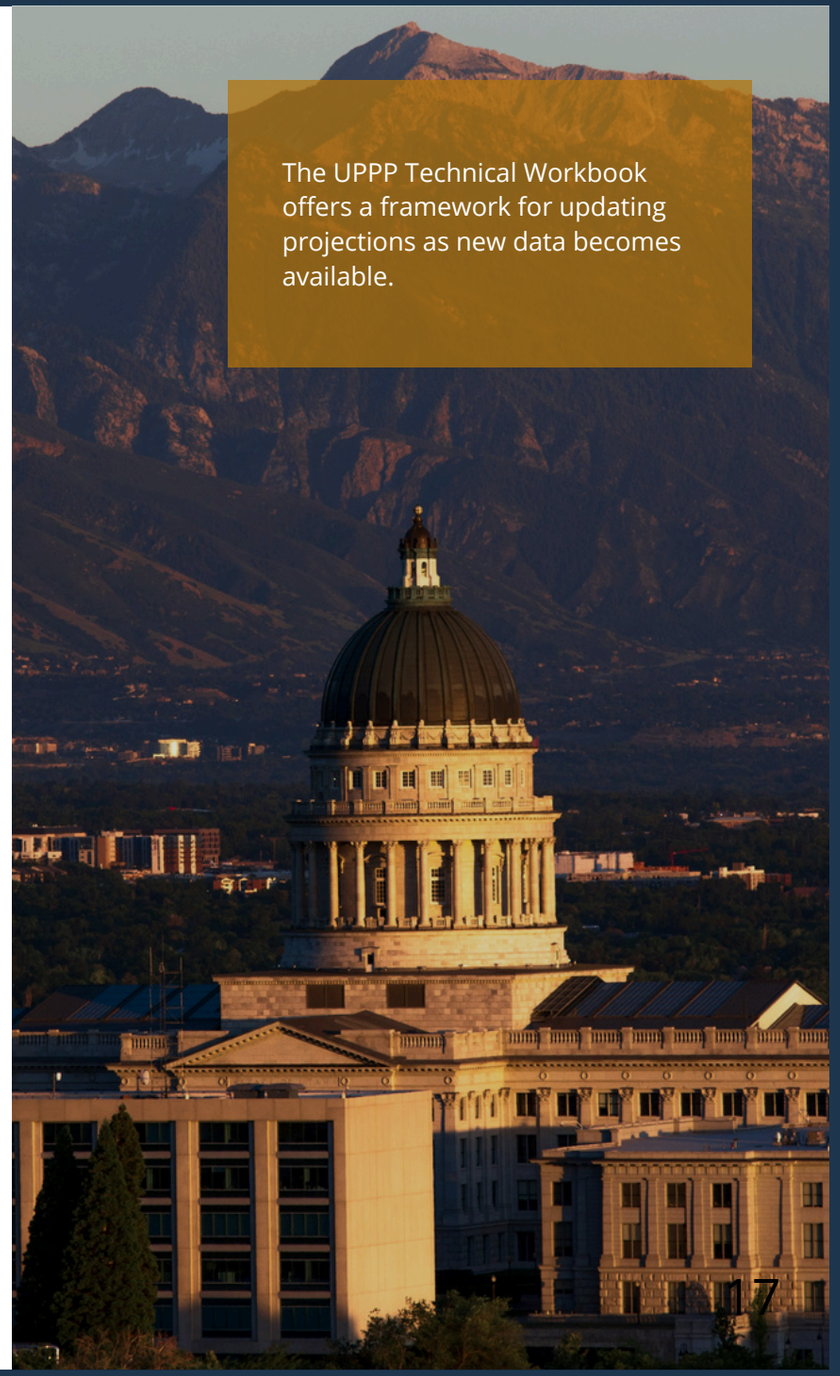
Capacity can be constrained by insufficient staffing and resource availability even if bed space is available.

Limitations & Updates

Current projections do not include the impact of recent, and possibly impactful legislative changes. Though initial impact analysis on criminal justice bills such as HB207, that is expected to increase time served for certain offenses, is under review.* Furthermore, and seen by other states, uncertainty around post Covid-19 growth remains.

Continuous model validation and refinement are crucial for maintaining projection accuracy and informing effective policy decisions. **The UPPP Technical Workbook provides a framework for updating prison population projections as new data and information becomes available.**

**For further details about the latest bills passed, please visit this link.*



CONCLUSION & RECOMMENDATIONS

Reliable prison projections remain an important tool for resource allocation and planning. **Current five-year projections indicate that, absent significant internal, policy, or legislative changes, the population is expected to grow toward capacity but is unlikely to reach absolute or emergency levels by 2029.** However, factoring in uncertainty through higher scenarios and error bands increases this risk.

Given the inherent uncertainty in projections and the potential impact of new legislation, we recommend updating these models as new data and information becomes available.

Report Takeaways:

Upward Pressure

Absent significant changes, five-year projections indicate upward pressure on the prison population.

Capacity Measures

The population is expected to grow toward capacity but is unlikely to reach absolute or emergency levels within 5-years.

Continous Updates

Regular updates are essential for reliable projections and sound policy decisions.

THANK YOU!

We would like to express our gratitude to the Utah Department of Corrections for their collaboration, expertise and for sharing the data underlying this project and report.

Utah Commission on Criminal & Juvenile Justice

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APPENDIX: Data & Methodology

Prison projections were developed using historical quarterly prison data between 2010 and 2024 using UDC's daily average population. The analysis uses three statistical models with structural controls for justice reform and COVID-19, some of which account for trends and seasonality. Results are then averaged and corrected for systematic bias as appropriate. Several additional variables were reviewed, including Utah's general population growth and trends in violent crime.

Projection Data Table

Year/Quarter	Low	Moderate	High
2025 Q1	6395.1	6395.1	6395.1
2025 Q2	6387.7	6396.7	6405.5
2025 Q3	6397.5	6415.8	6433.3
2025 Q4	6414.4	6441.8	6468.2
2026 Q1	6469.7	6506.6	6542.1
2026 Q2	6462.2	6508.3	6552.8
2026 Q3	6472.1	6527.5	6581.1
2026 Q4	6489.0	6553.9	6616.7
2027 Q1	6544.3	6619.1	6691.7
2027 Q2	6536.8	6620.9	6702.7
2027 Q3	6546.7	6640.4	6731.5
2027 Q4	6563.6	6667.0	6767.7
2028 Q1	6618.8	6732.6	6843.7
2028 Q2	6611.4	6734.6	6855.1
2028 Q3	6621.2	6754.3	6884.4
2028 Q4	6638.1	6781.1	6921.3
2029 Q1	6693.4	6847.3	6998.3
2029 Q2	6685.9	6849.4	7010.0
2029 Q3	6695.8	6869.3	7039.9
2029 Q4	6712.7	6896.4	7077.4

- **Operational** = 6,967
- **Emergency** = 7,076
- **Absolute** = 7,220

Projected Numbers by Scenario