JANUARY 2018

Evidence-Based Policy Planning for the Leon County Detention Center: Population Trends and Forecasts

Prepared for the Leon County Sheriff's Office

Center for Criminology and Public Policy Research
College of Criminology and Criminal Justice
Florida State University
Tallahassee, Florida

Evidence-Based Policy Planning for the Leon County Detention Center: Population Trends and Forecasts

Prepared for the Leon County Sheriff's Office

January 2018

Authors
J.W. Andrew Ranson
William D. Bales
Thomas G. Blomberg
William Casey
Jennifer Copp
George B. Pesta

Center for Criminology and Public Policy Research
College of Criminology and Criminal Justice
Florida State University
Tallahassee, Florida

Table of Contents

1. Introduction

This report provides forecasts of the inmate population for the Leon County Detention Center from October 2017 to October 2023. The Center for Criminology and Public Policy Research within the College of Criminology and Criminal Justice at Florida State University (FSU), entered into a cooperative agreement with the Leon County Sheriff's Office (LCSO) on June 23, 2017. FSU then determined the availability of existing LCSO data that could be used to enable forecasts of the Detention Center's population, collected data on county population trends and projections, and developed forecasts using Leon County Detention Center, Florida Department of Corrections (FDOC), and Leon County demographic data. This report presents forecasts of the average total daily population (ADP), and the daily population awaiting trial. We use an established method, namely Autoregressive Integrated Moving Average (ARIMA) to develop our forecasts. Overall, the results provide specific identification of the Leon County Detention Center's past, current, and future populations that can be used to inform policies and programs that affect the Detention Center's population. In addition, the forecast findings will be used to guide future research partnerships involving the Leon County Sheriff's Office and Florida State University.

1.1 Purpose

The purpose of this project is to (1) conduct forecasting analyses using Detention Center, arrest, and county data; (2) provide the Leon County Sheriff's Office with a report of forecasts of the Leon County Detention Center's population from October 2017 to October 2022; and (3) to guide the development of a long-term research agenda between FSU and the LCSO.

These forecasts provide reliable estimates of the future population of the Leon County Detention Center. The report describes the trends in bookings and releases in the Leon County Detention Center and presents an in-depth examination of the results of the ARIMA analysis used to forecast the total Detention Center population, and the pretrial population by year and month through 2022.

1.2 Data Sources

Data were compiled from a variety of sources to conduct the analyses and gain insight into the trends and characteristics of individuals booked, released, and detained in the Leon County Detention Center on a given day. The datasets gathered includes Detention Center bookings, releases, and information on the active population from the LCSO, average daily Detention Center population from the Florida Department of Corrections (FDOC) (Florida Department of Corrections, 2017), and detailed information on past and future demographic characteristics of Leon County residents from the Office of Economic & Demographic Research of the Florida Legislature (EDR). This section provides a brief description of each dataset.

The LCSO provided FSU with data containing all bookings between January 2012 and July 2017. These data included the individual's unique identification number (SPN), date of booking, date of crime, date of birth, race, sex, citizenship, marital status, county of residence, employment status, arrest reason, most serious charge, charge level (i.e., felony or misdemeanor), arresting agency, bond amount, and bond type (i.e., through a professional bail agent or cash). Each individual booked can have more than one charge and, as a result, more than one booking entry for each arrest. Furthermore, the same individual may be arrested and booked multiple times within the period under review. As a result, FSU retained only the first

charge for each booking event. After retaining only the first charge, there were 59,570 unique booking events between January 2012 and July 2017.

FSU also requested a separate dataset containing individual releases between January 2012 and July 2017. These data included the following variables: the individual's unique identification number, date of birth, sex, race, date of booking, date of release, type of release, and reason for release. The average number of days spent in the Detention Center was calculated from the date of booking and the date of release. As with the booking data, there is a record for each charge and for each release. Once again, FSU retained only the first charge for each release, which resulted in 64,365 releases from the Leon County Detention Center in the period reviewed.

Data on the average daily population (ADP) of the Leon County Detention Center was obtained from the monthly "Florida County Detention Facilities Average Inmate Population" reports (Florida Department of Corrections, 2017). These publicly available reports are published by the FDOC and provide information on all of the county detention facilities in the State of Florida. This information includes the ADP, the incarceration rate, the number of individuals being held prior to trial with a felony charge, the number of individuals being held prior to trial with a misdemeanor charge, and the total percentage of each detention center's population consisting of individuals being held prior to trial.

To provide insight into the composition of the Leon County Detention Center on a given day, FSU received data from the LCSO on the status population. This data included information on the sex, race, date of birth, bond amount, date of booking, and charge. The file contained status population information on August 27, 2017 and was comprised of 1,045 individuals.

The county demographic data used by FSU was obtained from the EDR. These data include past and forecasted county populations by sex, race, ethnicity, and age. FSU used these data to develop demographic-based projections of the Detention Center and county populations between 2017 and 2022.

The report begins with the Leon County Detention Center's annual booking and release trends from January 2012 through December 2016 and monthly trends from January 2012 through July 2017. This section discusses the descriptive statistics on the Detention Center's bookings and releases. This discussion includes a comparison between males and females as well as by race. In addition, it briefly examines special populations within the Detention Center such as military veterans, and those who were homeless at the time of booking. This is followed by an examination of the forecasts of the Leon County Detention Center's population from October 2017 to October 2022. Finally, the findings of these forecasts are discussed and suggestions for future research projects based upon the forecasts are identified.

1.3 Forecasting Methods

This section includes a brief examination of the methods used to forecast the Leon County Detention Center's population from October 2017 to October 2022. The method used to forecast the population of the Leon County Detention Center is an Autoregressive Integrated Moving Average (ARIMA), also known as time-series analysis. ARIMA modeling techniques are often used to forecast the populations of state prisons and local detention centers. This method relies upon the use of historical trends in a prison or detention center's population. These historical trends are then used to predict the future populations of a prison, detention center, etc. This method involves a number of steps to provide the most accurate forecast possible. First, it gives the greatest weight to cases that are closest to the time-period being

forecasted. For example, data from September of 2016 is given more weight than data from September of 2012. Second, this technique considers the seasonal patterns in populations such as the varying number of releases at different months in the year. This allows for more accurate forecasts from month to month.

1.4 Limitations in Detention Center Forecasts

There are several issues that must be considered when forecasting detention center populations. Surette, Applegate, McCarthy, and Jablonski (2006) identified several difficulties in forecasting detention center populations. These difficulties include the volatility of local detention center populations, issues with detention center forecasting data, and policy changes throughout the criminal justice system (Surette et al., 2006).

First, in comparison to state prisons, detention centers house a diverse, volatile population of inmates. For example, individuals incarcerated in county detention centers include: pretrial detainees, individuals awaiting transport to state prisons, people serving sentences in detention, probation violators, and people awaiting transfer to other counties, to name just a few. This variation in the inmate population makes it more difficult to create a reliable long-term forecast of a detention center's population relative to state prisons. This is partially true because these different groups are often housed in a detention center for varying amounts of time as well.

Second, when considering data needed accurately provide long-term forecasts for a detention center, there is often a difference in the data needed versus the data available (Surette et al., 2006). When forecasting the population of county detention centers, it is critical to have enough data to provide accurate forecasts of future populations. If there are not enough data it

becomes very difficult to make reliable forecasts. For many detention centers, the data needed to produce accurate forecasts are often not available.

Finally, the population of a county detention center can be severely impacted by the activities of criminal justice officials (Surette et al., 2006). Law enforcement officers, judges, prosecutors, and others affect the populations of local detention centers based upon these daily decisions and actions. For example, decisions to arrest an individual rather than issuing a ticket can affect the average daily population of a county detention center if it occurs at a high frequency. The courts can also significantly affect future detention center populations by increasing or decreasing the amount of bond arrestees are assigned to pay in order to be released pretrial. Judges can also, alter the detention center populations by increasing and/or decreasing the number of offenders sentenced to the local detention center and/or by giving longer or shorter sentences. In addition, larger criminal justice policy decisions can lead to fluctuations in a detention center's population. For example, if criminal justice officials decide to intensify the enforcement of drug offenses, it may lead to larger increases in detention center populations. When major policy changes occur after a forecast has been produced it may affect the accuracy of the forecast. Therefore, it is important to consider, when examining forecasts of detention center populations, the underlying assumption that no major policy changes will occur that will lead to major changes in a detention center's population. Additionally, it is important that a new jail population forecast is monitored on a regular basis to ensure accuracy. If the accuracy decreases appreciably, generating a new forecast should be considered.

2. Trends in Detention Center Bookings

This section focuses on monthly and annual trends in bookings in the Leon County Detention Center between January 2012 and July 2017 and begins by illustrating the booking

trends for all individual bookings. This is followed by examination of the trends by gender and

race. The section concludes with a brief discussion of the booking trends for military veterans,

as well as those people who were homeless at the time of booking.

2.1 Detention Center Bookings

The number of monthly bookings between January 2012 and July 2017 are provided in

Table 2.1 in the appendix and Figure 2.1 below. Overall, there is monthly variation in the

number of bookings as they range from a low of 666 in December 2014 to a high of 1,054 in

August 2012. Overall, the monthly bookings show a downward trend indicating that the number

of booking events have decreased since 2012. Furthermore, there appears to be a seasonal

pattern in which bookings are often at their lowest in November and December and at the highest

in the summer and fall months. For example, in 2013 and 2014 December had the lowest

number of bookings. While in 2012 and 2015, the lowest number occurred in November. This

may be partially attributed to large segments of the student population leaving the city for the

holidays, and that crime generally decreases in the winter months (McDowall, Loftin, and Pate,

2012). With the exception of 2016, where July (753 bookings) were the lowest, but overall,

November and December have the fewest bookings in each year.

Figure 2.1 Total Detention Center Bookings by Month 2012- July, 2017
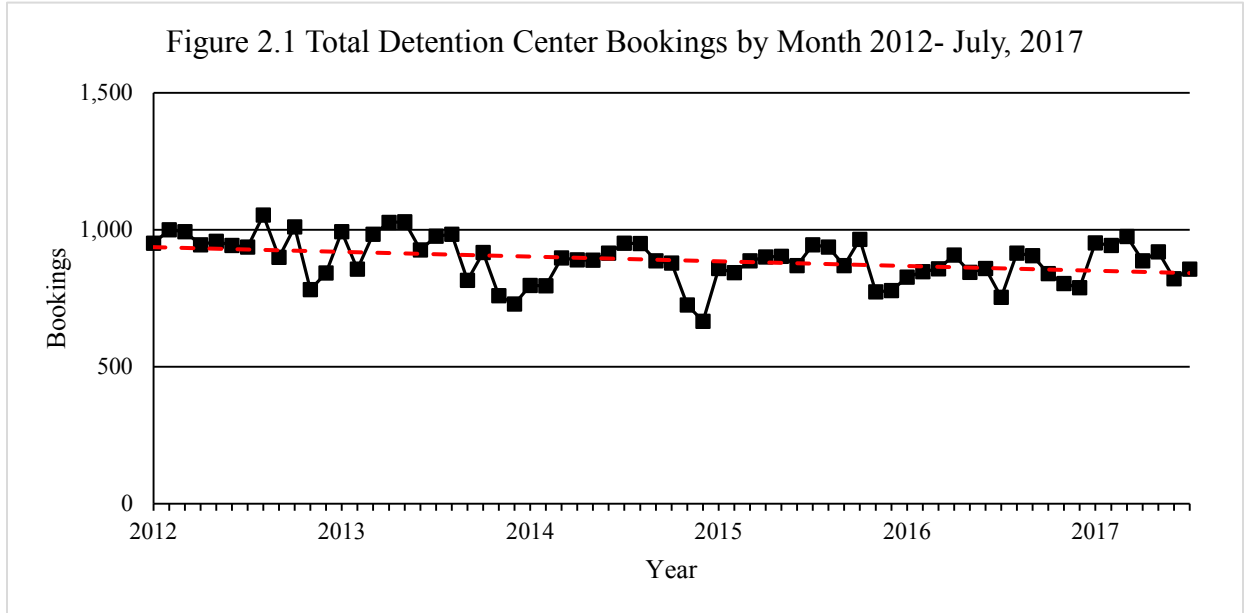
Figure 2.2 displays the annual trends in the total number of bookings between 2012 and 2016 (only, years with complete data). This figure illustrates that bookings were at their highest in 2012 with 11,312. Further, this figure displays the same downward trend in bookings during the examination period that was discussed when examining the monthly booking trends. Overall, there was a decline from 11,312 bookings in 2012 to 10,146 bookings in 2016. The total decline was 1,166 booking events or 10.3%.

Figure 2.2: Bookings Per Year for Males, Females, and Total Detention Center Population 2012-2016
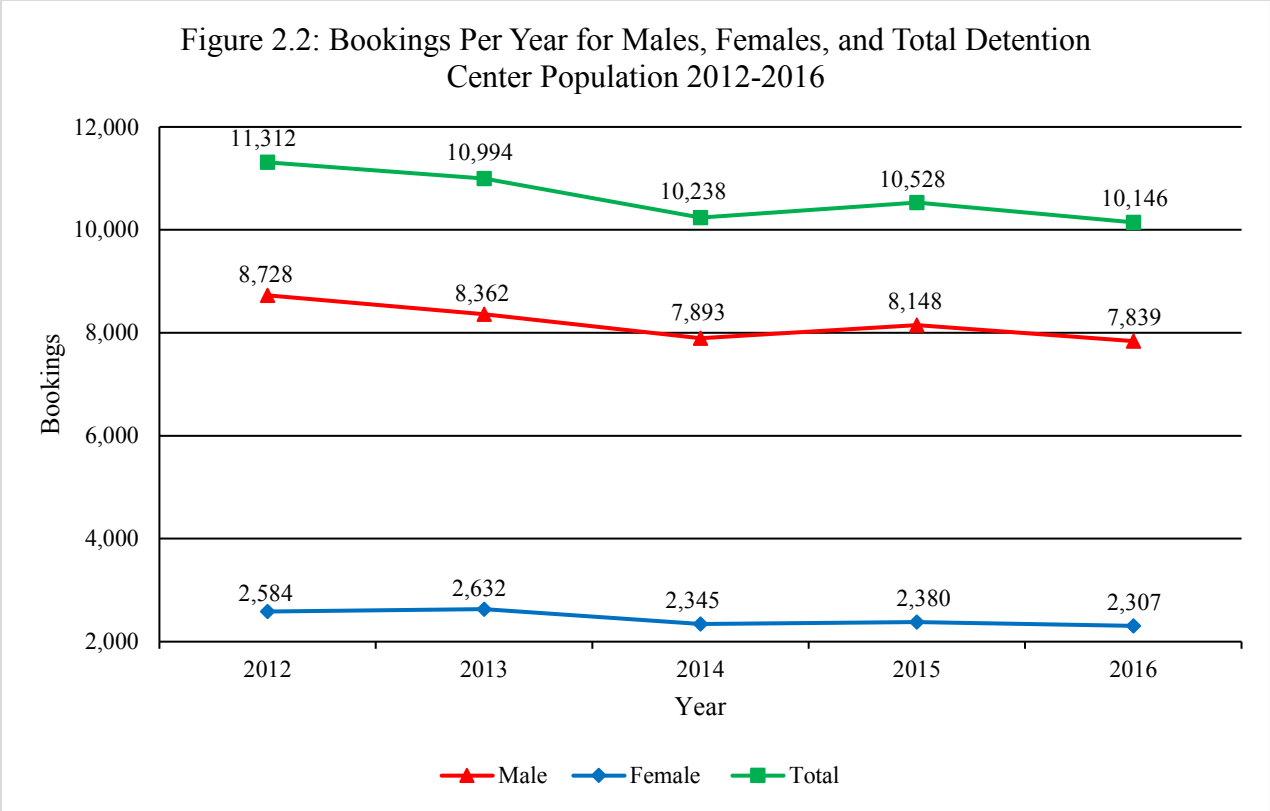
2.2 Bookings by Gender

Figure 2.2 also presents the trends in the annual number of bookings from 2012-2016 for males and females. As with the results from the overall sample, there is a downward trend for both groups. From 2012-2016 the number of males who were booked dropped from a high of 8,728 in 2012 to a low of 7,839 in 2016. This is a decline of 889 bookings or 10.2% between 2012 and 2016. There was some variation in the annual number of bookings for males. However, the general trend is a gradual decline in the annual number of bookings with the exception of 2015, when there was an increase of 255 from 2014.

The number of females booked during this timeframe is significantly lower than the number of males. The gap between male and female bookings is apparent when examining Figure 2.2. Although the number of females booked between 2012 and 2016 did decrease, this

decrease was not as large in number as the decrease in the males booked and there was less variation in the annual bookings for the female population. The total decline between 2012 and 2016 in the number of females booked was 277. However, because the number of female bookings was already low, the total percentage decrease was similar to that of the male population namely 10.7%. For detailed examination of the male and female bookings by month, see Tables 2.2 and 2.3 in the appendix. Table 2.2 contains the monthly bookings for males from January 2012 through July 2017. While, Table 2.3 contains the monthly bookings for females from January 2012 through July 2017.

2.3 Bookings by Race

Figure 2.3 displays the trends for bookings based on race from January 2012 through December 2016. The two categories for race used in the analyses are white and non-white. Upon examination of Figure 2.3, it is clear that there are significant racial differences in the number of bookings among whites and non-whites. In 2012, the number of non-whites who were booked was 6,884. In comparison, the number of whites booked in 2012 was 4,420. This amounts to a total difference of 2,464 bookings in 2012 alone. An additional trend illustrated in Figure 2.3 is that both whites and non-whites experienced a decline in the total number of bookings. Whites experienced a total decline of 339 bookings (or 7.7%) whereas non-whites had a total decline of 830 booking events (or 12.1%) between 2012 and 2016.

Figure 2.3: Bookings by Race 2012-2016
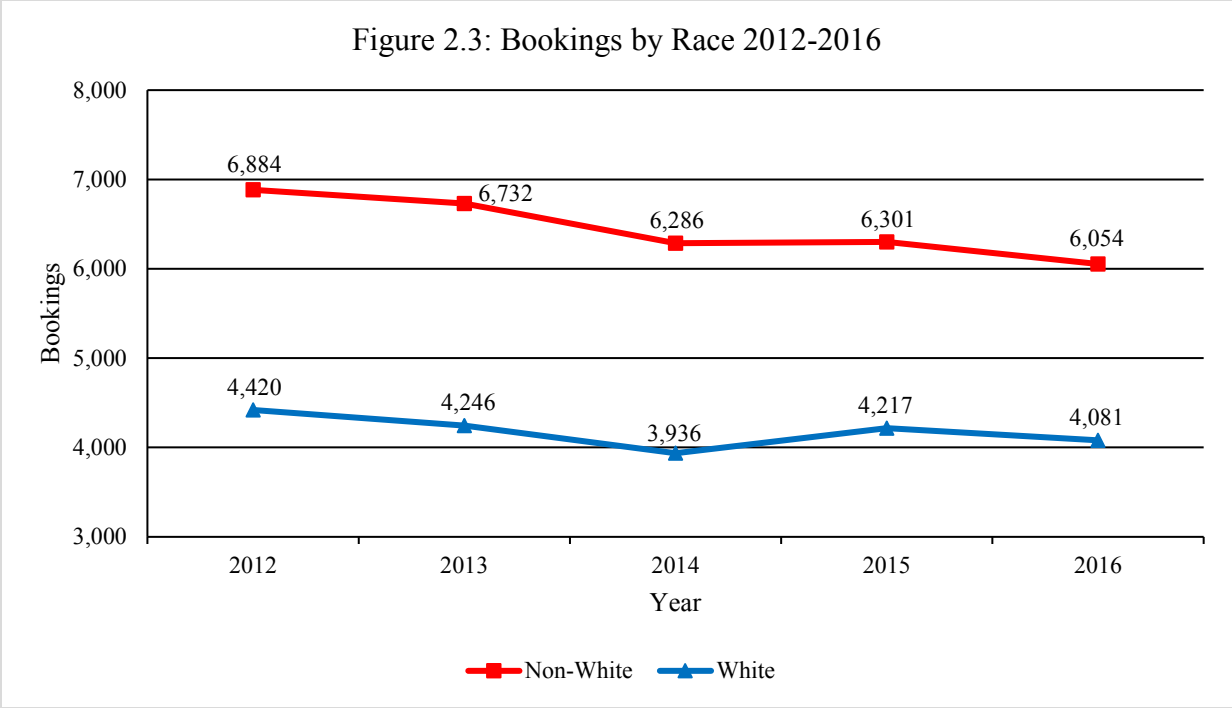
2.4 Bookings of Military Veterans

Data were collected and analyzed in relation to two distinct populations incarcerated in the Leon County Detention Center. These distinct populations are those individuals who are military veterans and those who were homeless upon booking. Figures 2.4 and 2.5 illustrate the annual trends in bookings of military veterans and compares bookings of military veterans to those who were booked but were not military veterans. Upon examination of Figure 2.4, it is apparent that the number of bookings involving military veterans has increased between 2012 and 2016. However, this increase is minimal. In 2012, 205 military veterans were booked. This number steadily increased until 2015 and 2016 when the numbers of military veterans who were booked stabilized at 271 and 270 annually.

Figure 2.4: Total Military Veterans Bookings Per Year 2012-2016
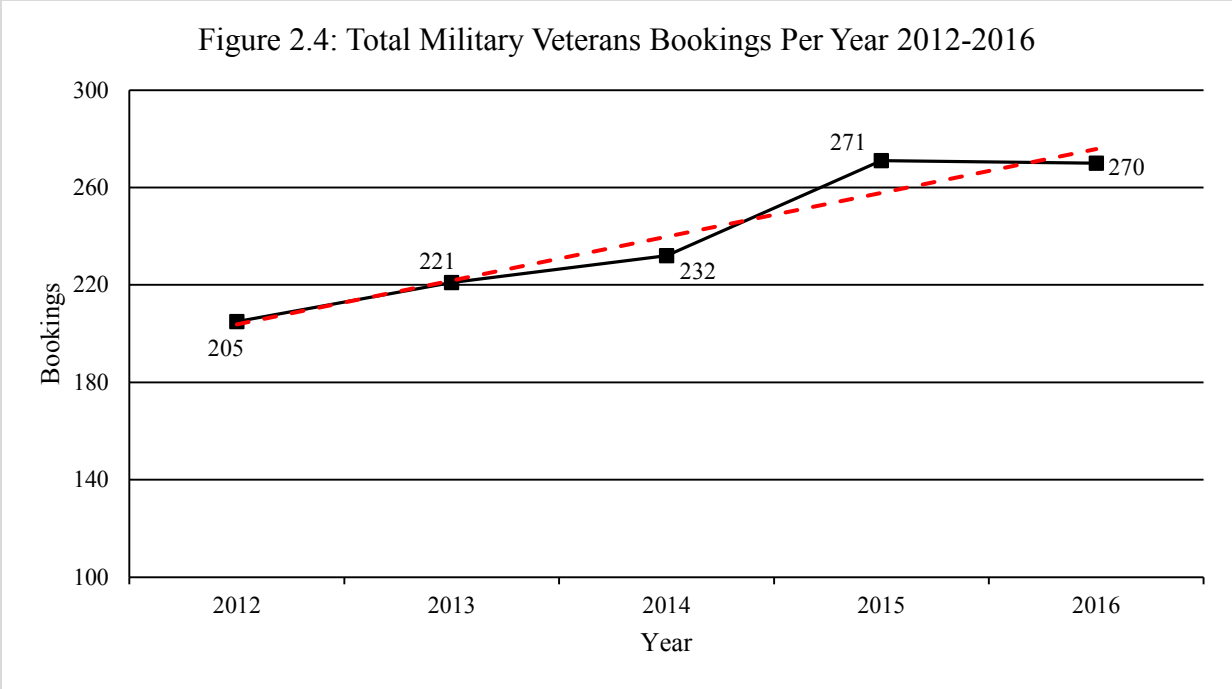
The increase in the booking of military veterans is in contrast to the trends in the general population. However, this increase is small when compared to the total number of bookings. Figure 2.5 illustrates this comparison. From 2012 to 2016 the average number of bookings of non-veterans annually was 10,404. In comparison, the average number of military veterans who were booked from 2012 to 2016 was 240. In sum, although there was a 31.7% increase in the number of military veterans who were booked during this time period. This increase made up a relatively small number of the total bookings.

Figure 2.5: Total Bookings Per Year: Military Veterans & Non-Veterans 2012-2016
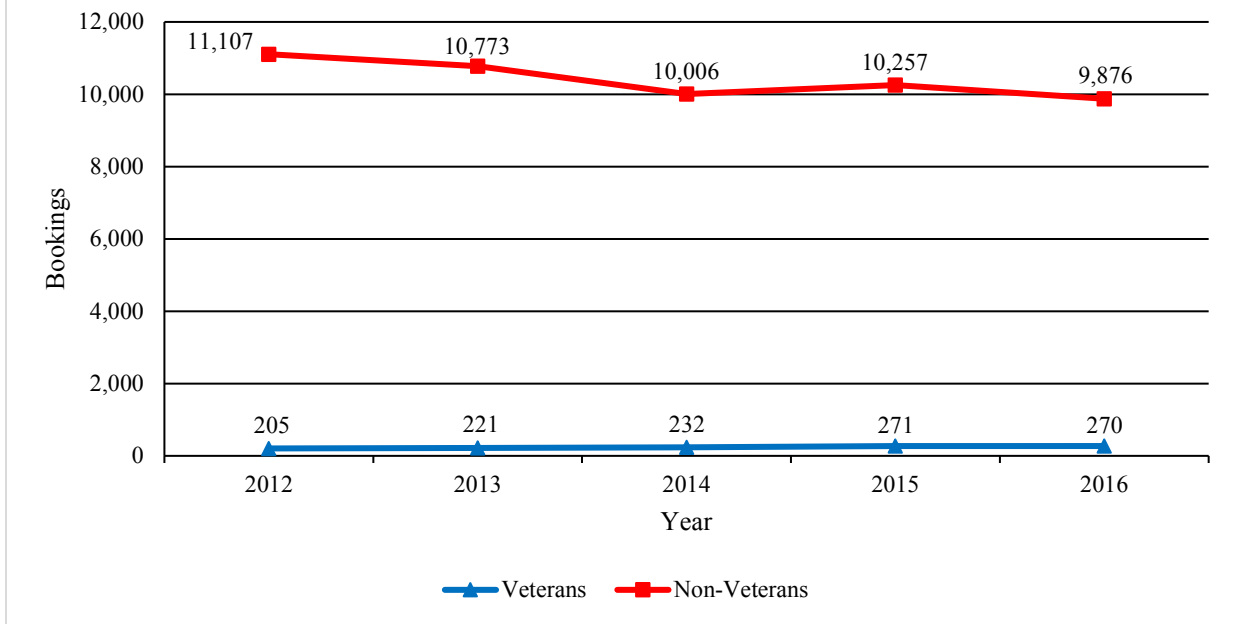
2.5 Homeless at Time of Booking

The other distinct population examined in the analyses was the homeless population. From 2012 to 2016, the average annual number of people who were homeless when booked was 355 people. The peak for the number of bookings involving homeless people was in 2012 at 547, and the low was in 2016 at 279. This translates to a total decrease of 268 bookings. However, in a similar manner to the veteran population, when comparing those who were homeless to the number of people who were not homeless upon entering the Detention Center, it is clear that the homeless population represents a small portion of those who are booked annually. For example, in 2012, the total number of people who were homeless at booking was 547. This was the highest number of bookings of homeless individuals in any year by 195 bookings. However, in 2012 those people who were homeless upon booking represented only 4.8% of all bookings for the year. Finally, unlike the bookings of military veterans, the number of homeless bookings follows the trend associated with the general population. The number of

people who were homeless upon entering the Detention Center decreased by 268 bookings events between 2012 and 2016.

Figure 2.6: Number of Homeless Upon Booking Per Year 2012-2016
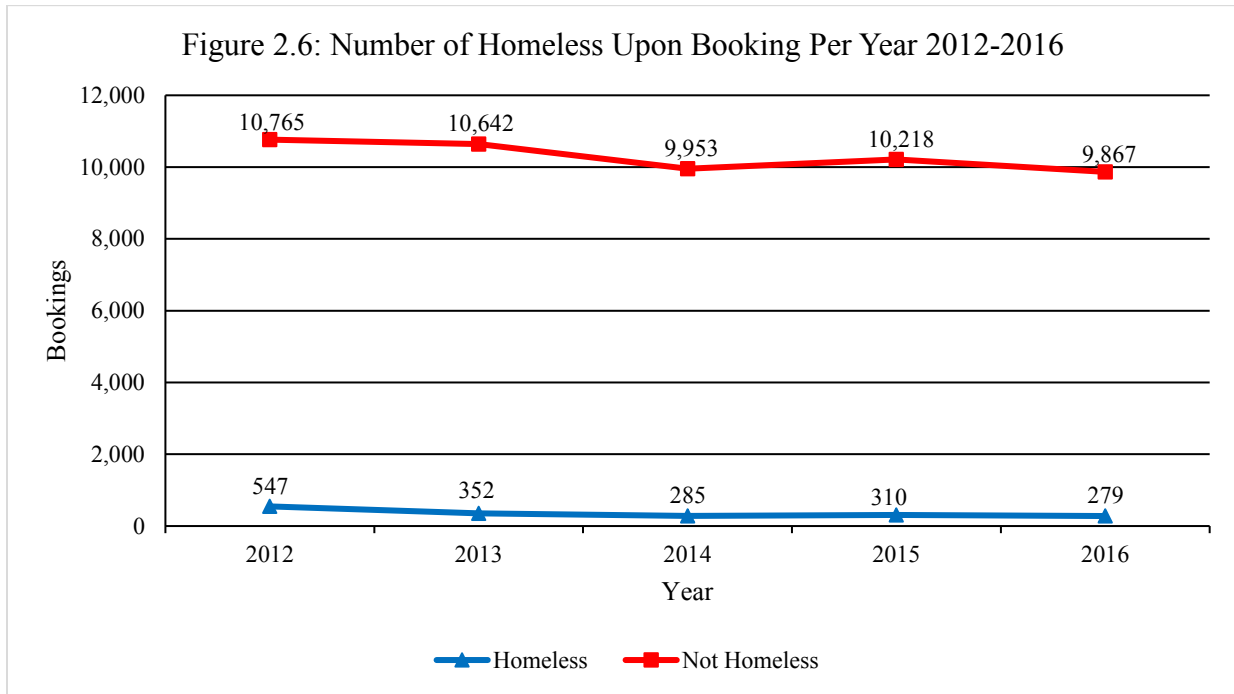
Overall, we see a decline in the total number of Detention Center bookings of 1,166 between the years of 2012 and 2016. This is an overall decline of 10.3%. Declines in the number of bookings were found for all populations examined (sex, race, and homelessness) except for those who were military veterans, with a slight increase in bookings.

3. Trends in Detention Center Releases

This section reports trends in releases from the Leon County Detention Center between January 2012 and July 2017. In a similar manner to the exploration of booking trends, this section includes discussion of all releases and releases by gender, race, and the number of military veterans released from the Leon County Detention Center.

3.1 Detention Center Releases

The total number of monthly releases from the Leon County Detention Center between January 2012 and July 2017 are displayed in Table 3.1 in the appendix and Figure 3.1 below. The number of releases ranges from a low of 714 in January 2012 to a high of 1,158 in October 2012 a difference of 444 releases. In a similar manner to bookings, there appears to be some degree of seasonality in the pattern of releases. Releases tend to be at their highest in the late summer and early fall, and lower during the months of December and January. For example, October was the month with either the highest or tied for the highest number of releases in 2012, 2013, and 2015. Figure 3.1 illustrates that although there is considerable variation monthly in the number of releases, overtime, the average number of releases has remained relatively stable with a slight decrease between 2012 and 2017.

Figure 3.1: Total Detention Center Releases by Month 2012-July, 2017
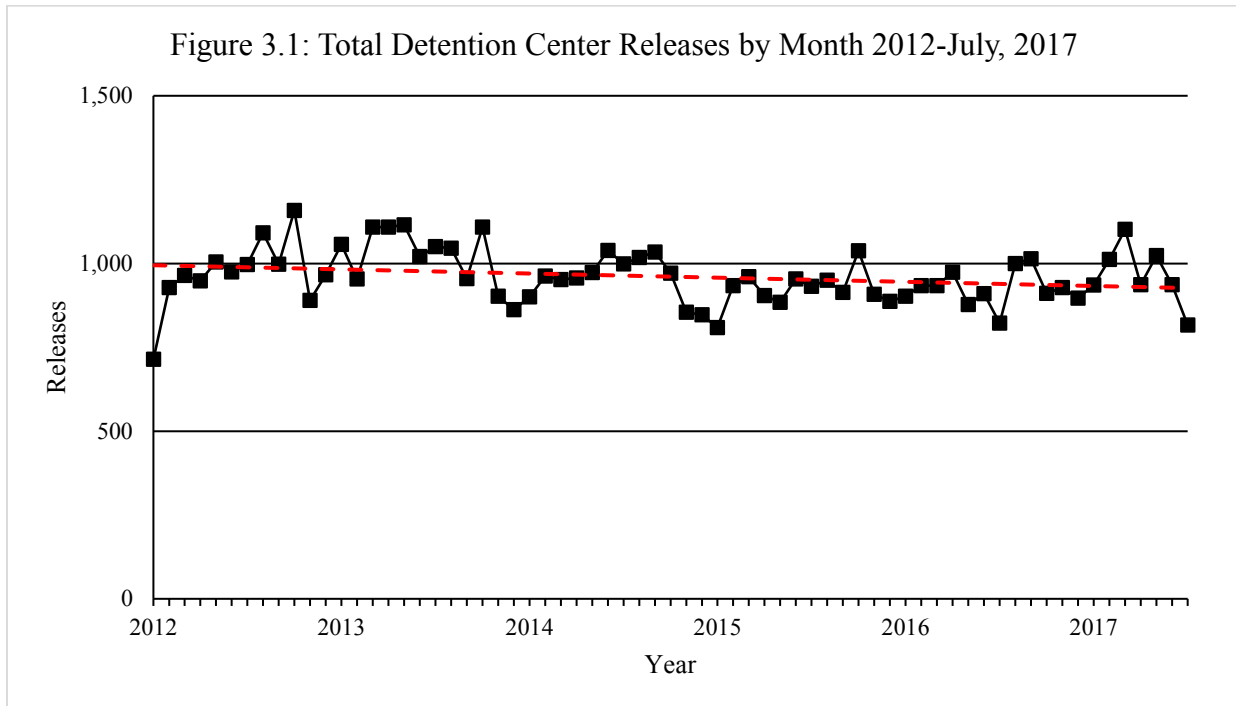
The annual trends in releases from 2012 to 2016 are displayed in Figure 3.2. The number of releases increased from 11,633 in 2012 to 12,285 in 2013. This is an increase of 655 or 5.6%.

15

It was the largest annual increase in releases during the time period examined. Following this initial increase, the number of releases decreased by 778 to 11,507 in 2014 and declined further to 11,103 in 2016. This results in a total drop in releases between 2012 and 2016 of 503 or 4.5%.

3.2 Releases by Gender

Tables 3.2 and 3.3 in the appendix display the monthly trends in releases for males and females from 2012 to July 2017. Much like total releases, there is significant variation in the number of monthly releases for males and females. For example, the monthly releases of males range from a low of 547 in January 2012 to a high of 892 in October 2012. The trend in annual male releases is displayed in Figure 3.2. As with overall releases, there is an increase in releases between 2012 from 8,967 to 9,408 in 2013. The releases reach their lowest in 2015 at 8,586 before increasing slightly in 2016 to 8,621. Between 2012 and 2016 the total number of releases of males decreased by 346 or 3.9%.

Figure 3.2: Releases Per Year by Male, Female, and Total Detention Center Population 2012-2016
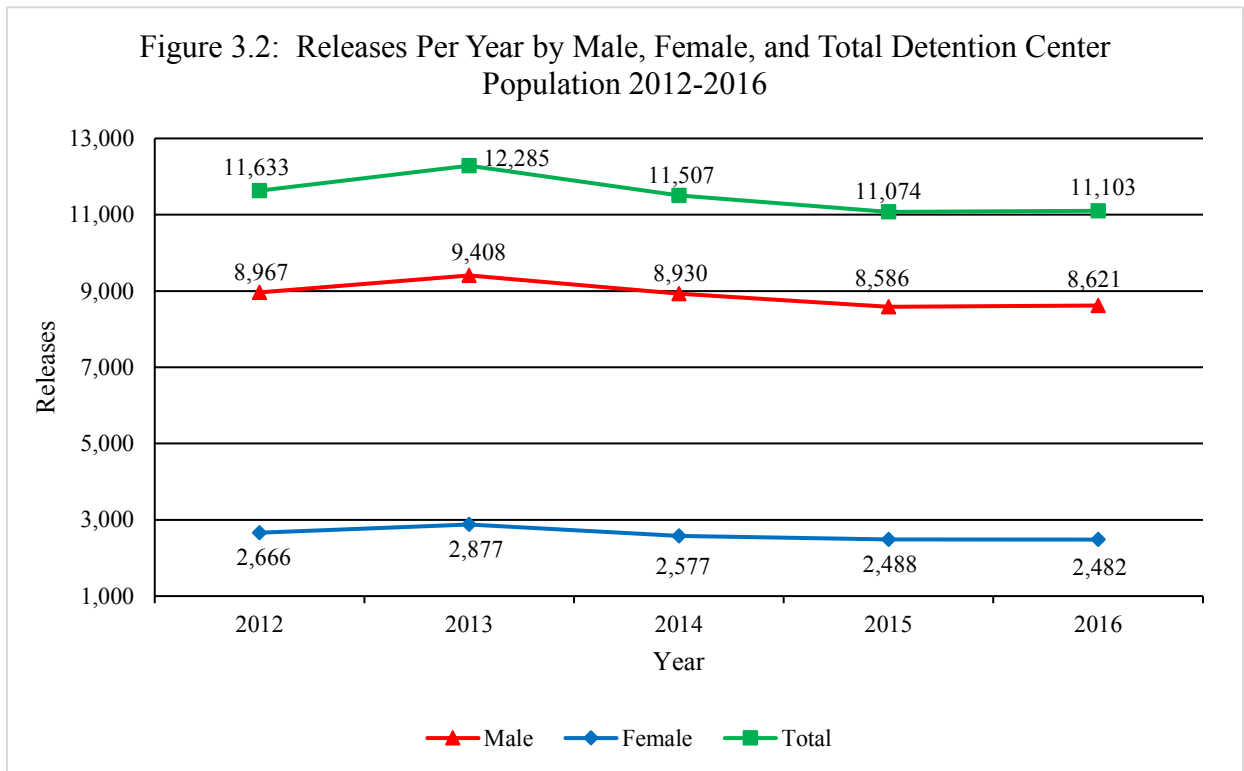
Table 3.3 in the appendix displays the monthly Detention Center releases for females between 2012 and July 2017. The number of releases range from a low of 167 in January 2012 to a high of 266 in October 2012. Figure 3.2 displays trends in the annual number of releases between 2012 and 2016. As with male releases, the number of female releases increased from 2,666 in 2012 to 2,877 in 2013. However, unlike the male sample, the number of female releases declined each year from that point forward. Overall, the number of females released declined from 2,666 in 2012 to 2,482 in 2016. This is a total decrease of 184 releases or 6.9%.

3.3 Releases by Race

When examining trends in releases by race large disparities are apparent. Overall, both the white and non-white populations experienced decreases in the total number of releases overtime and this trend generally followed the trend in the total population. The number of non-white releases decreased by 350 during the time period being examined. In comparison, the number of white releases decreased by 169 during this same time period. In a similar manner to bookings, large differences across racial groups exist in the number of releases. Figure 3.3 provides an excellent illustration of the differences in the number of releases. The non-white population had a considerably higher number of people annually released compared to the white population. Between 2012 and 2016, the average number of releases of non-whites was 6,994. In comparison, the average number of releases for whites was 4,470. This resulted in an average difference of 2,524 annually. Further data and resources are required to determine why racial

disparities exist in both bookings and releases.

Figure 3.3: Total Releases Per Year by Race 2012-2016
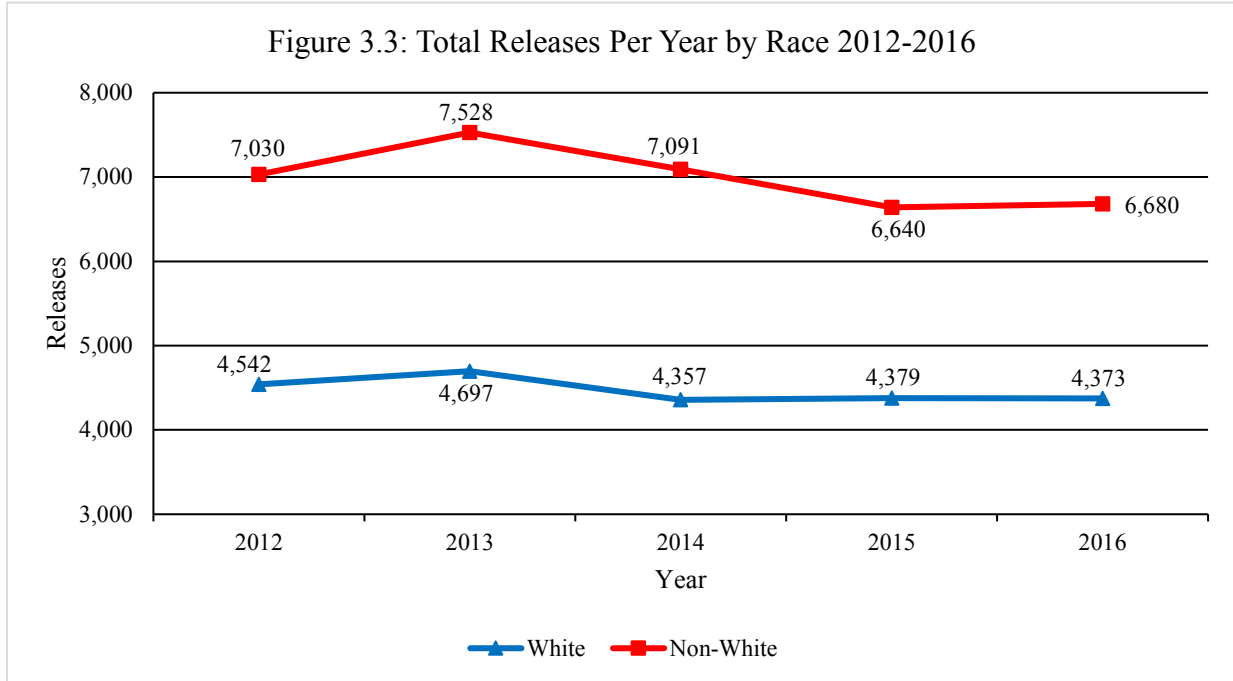
3.4 Releases of Military Veterans

Figure 3.4 shows the number of military veterans released between 2012 and 2015. The number of military veterans released increased each year. However, these increases were relatively small. For example, the largest increase in releases from one year to the next was 34 between 2014 and 2015. In total, the number of military veterans released increased from 220 in 2012 to 307 in 2016, a total increase of 87 releases. One distinguishing aspect regarding the release of military veterans in comparison to the general population is that military veterans were the only group that had an increase in releases rather than a decrease. This trend in releases for veterans aligns closely with the pattern of veteran bookings.

Figure 3.4: Total Releases Per Year for Military Veterans & Non-Veterans 2012-2016
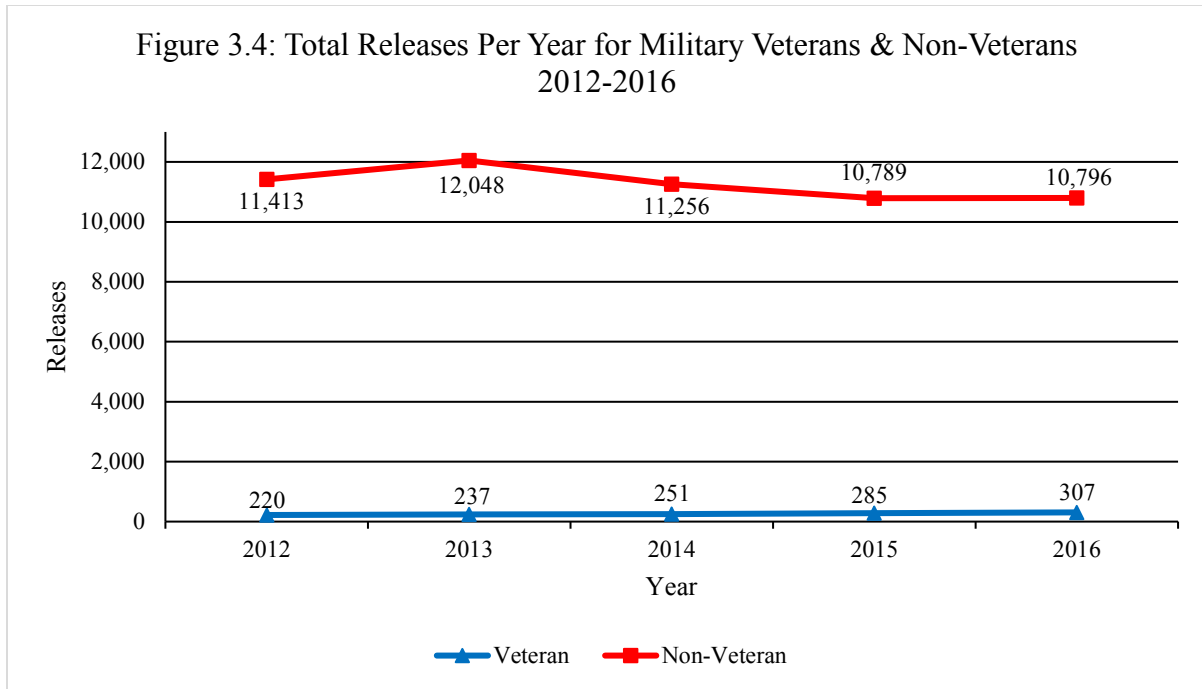
In summary, there was a decline in the number of releases from the Leon County Detention Facility between 2012 and 2016. From 2012 to 2016 there was a total decrease of 530 releases. For all populations examined, except for military veterans, this same trend was observed. The number of military veterans who were released from the Detention Center increased slightly during the period under observation. Finally, large racial disparities exist in the number of releases between the white and non-white groups, with the number of non-whites who were released being much larger than whites.

4. Comparison of Bookings and Releases

Figure 4.1 illustrates bookings and releases from 2012 to 2016. In general, the trends in bookings and releases follow similar patterns. Both decreased in total between 2012 and 2016. However, the number of bookings saw a larger decrease. One of the major differences between bookings and releases is that they diverged from one another between 2012 and 2013. Both started at a very similar level in 2012, but by 2013 the number of releases had increased by 652

whereas the number of bookings had decreased by 318. By 2015 the gap between releases and bookings became smaller before diverging again in 2016.

Figure 4.1: Total Bookings and Releases Per Year 2012-2016
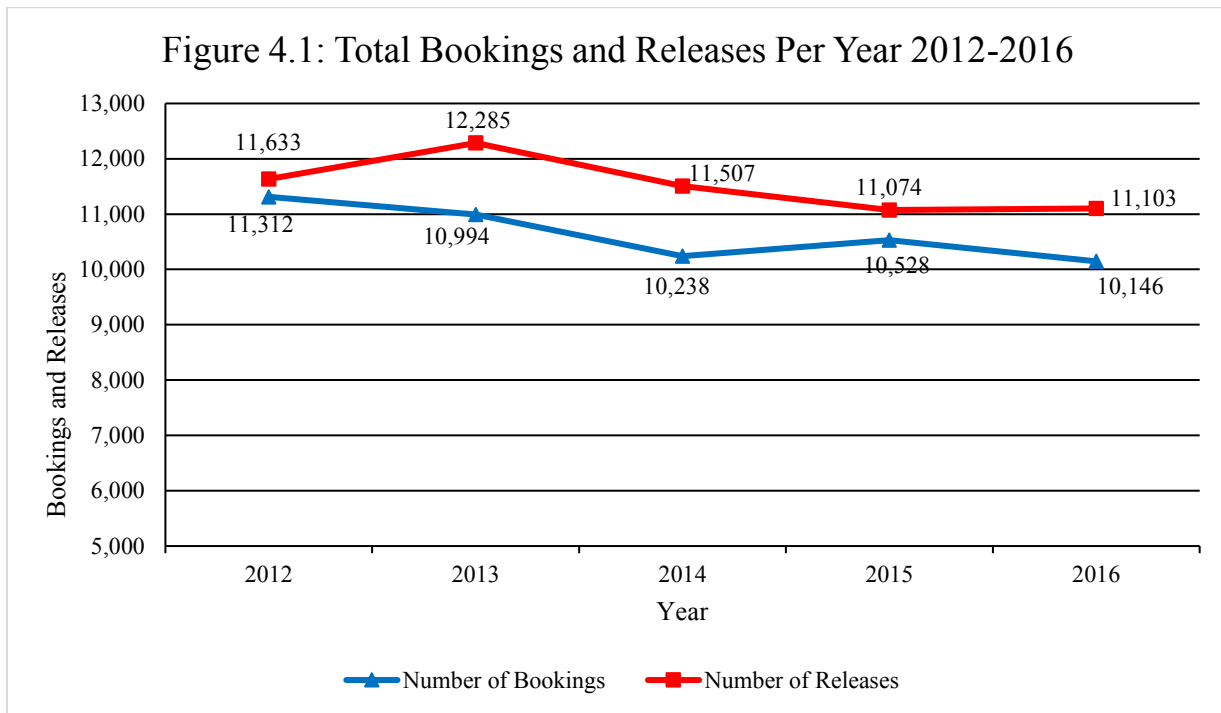
4.1 Average Number of Days in the Leon County Detention Center

Figure 4.2 provides an illustration of the average number of days released inmates spent in the Detention Center annually between 2013 and 2016.[1] The major trend illustrated by Figure 4.2 is the annual increase in the average number of days in confinement. In total, the average number of days spent in confinement increased by 13 days between 2013 and 2016. The largest increase from year to year occurred between 2015 and 2016 when the average number of days in confinement increased by 6.9 days. In addition, the increase in the average number of days spent in confinement is associated with an increased average cost of incarceration per inmate. The

---

[1] We omit 2012 because we lack data on bookings prior to 2012. Thus, the amount of time spent in Detention Center for releases in that year would be biased downwards (i.e., the most time any individual could serve would be one year).

2017/2018 average daily cost per inmate in the Leon County Detention Center was $74.75[2].

Using this daily cost rate, the average cost of incarceration per inmate, based on their length of stay, in 2013 was $2,399.48. In comparison, the average cost of incarceration per inmate, based on their length of stay, in 2016 was $3,371.23. This translates into an average increase in the cost of incarceration per inmate between 2013 and 2016 of $971.75.

Figure 4.2: Average Number of Days Spent in Detention Center 2013-2016

Average Time Spent in Detention Center

- 2013: 32.1
- 2014: 37.5
- 2015: 38.2
- 2016: 45.1

Year
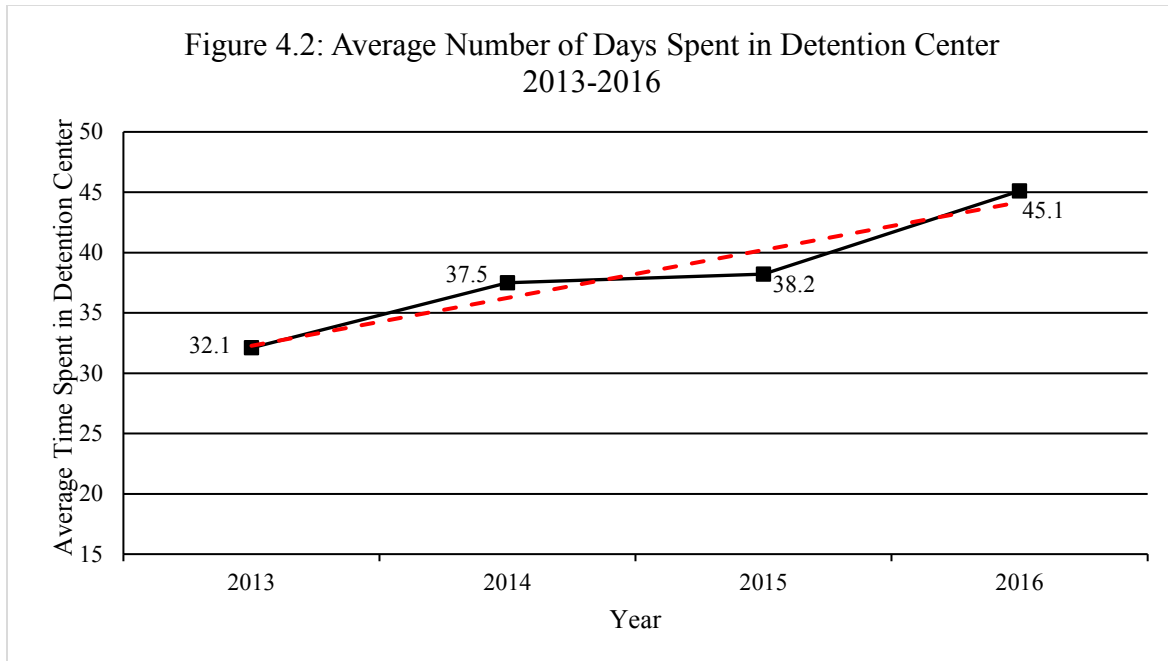
Figure 4.3 provides an illustration of the average number of days spent in confinement broken down by month between 2015 and 2016 among released inmates. Much like Figure 4.2, Figure 4.3 illustrates that the overall trend is an increase in the average number of days spent in confinement. However, Figure 4.3 shows that there is significant variation in the average number of days spent in confinement from month to month. For example, in August of 2015 the average number of days served was 32.3, which was the lowest level between 2015 and 2016. In

---

[2] The daily cost of a Detention Center bed was found in the Leon County Annual Budget & Capital Improvement Program Fiscal Year 2017/2018.

July of 2016, the average number of days served was 55 days, the highest level between 2015

and 2016. This is a total difference of 22.7 days served.

Figure 4.3: Average Number of Days Spent in the Leon County Detention Center by Month 2015-2016
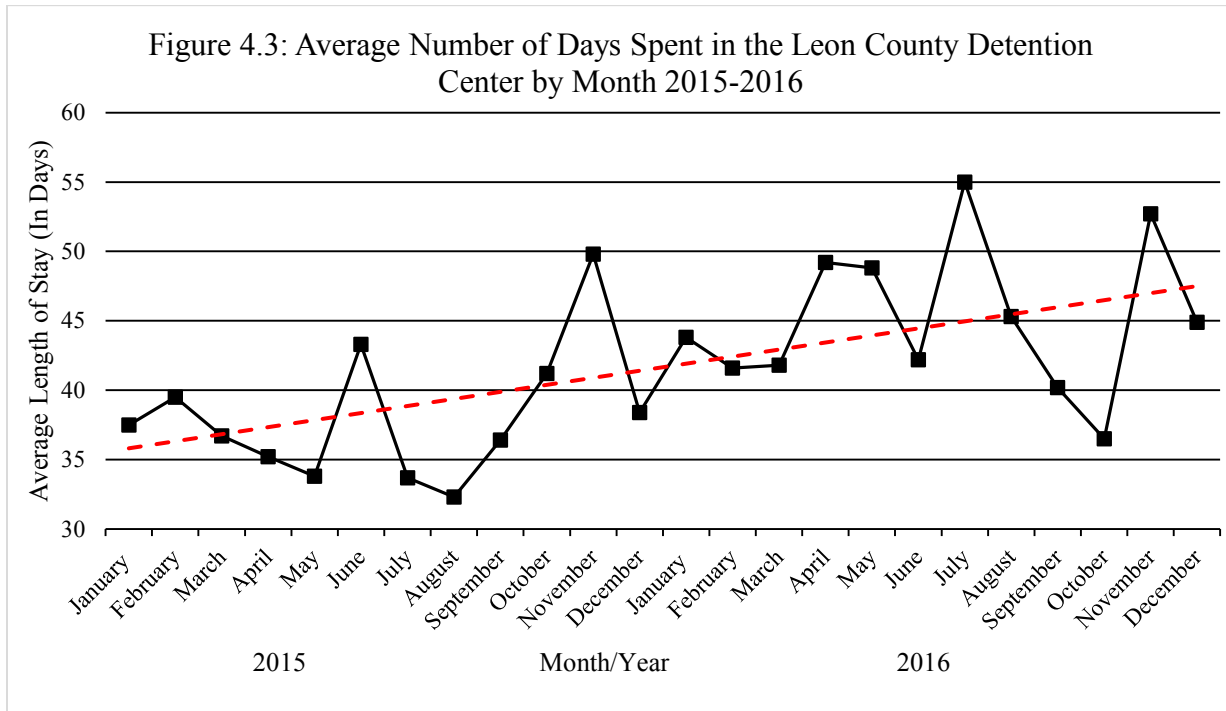
Figure 4.4 displays the percentage of releases by the number of days spent in

confinement between 2013 and July 2017. The figure illustrates that 28.9% of individuals

released spent less than 1 day in the Detention Center. A relatively small amount (1%) of

releases spent over one year in the Leon County Detention Center. As a result, while some

individuals spend a significant amount of time incarcerated, these individuals make up a very

small segment of the population.

Figure 4.4: Percent of Releases by Categories of Days Spent in the Leon
County Detention Center 2012-July, 2017
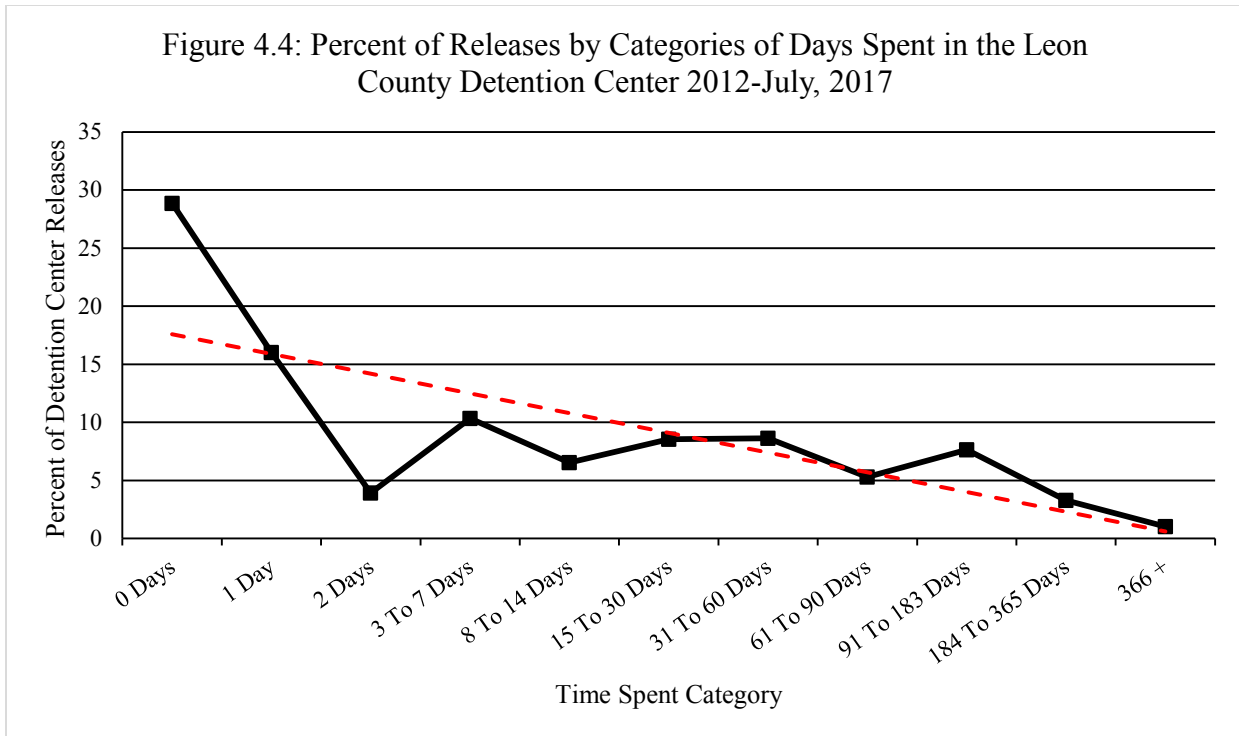
In examining the descriptive statistics regarding the Detention Center's bookings,

releases, and the average number of days spent in confinement, several trends were identified.

First, the number of bookings and releases both decreased between 2012 and 2016 for all

populations examined, except for military veterans. The number of military veterans booked and

released in the Leon County Detention Center increased slightly between 2012 and 2016.

However, military veterans still represent a very small portion of all bookings and releases, only

2.25% for both between 2012 and 2016. In addition, large racial disparities exist in the number

of bookings and releases. The number of bookings and releases are significantly larger for non-

whites than for whites. The main trends, when examining the average number of days spent in

confinement, were (1) the average increased by a large amount between 2013 and 2016, and (2)

there is large monthly variation in the average number of days spent in confinement. Finally, the

increase in the average number of days spent in confinement results in a large increase in the per

inmate cost of incarceration.

5. Leon County Detention Center Population Forecasts

This section focuses on the results of the forecasting model created using data from Leon County and the Florida Department of Corrections. The results of the forecasts can be used to guide policy implementation and to direct future research partnerships between the Leon County Sheriff's Office and Florida State University.

5.1 Trends in Pretrial and Total ADP

Utilizing data from the FDOC's "Florida County Detention Facilities Average Inmate Population" monthly reports (Florida Department of Corrections, 2017), FSU evaluated patterns in Leon County's inmate population between January 2012 and September 2017 (the latest publicly available report). These reports provide information on Leon County's incarceration rate, the average daily population (ADP) for each month, as well as the percentage of the Detention Center population that is awaiting trial, the average number of individuals who are awaiting trial for misdemeanors, and the ADP who are awaiting trial for felonies.

The monthly ADPs between January 2012 and September 2017 are provided in Figure 5.1 below and Table 5.1 in the appendix. In the line representing the total ADP by month, we see fluctuations with a low of 913 in December 2014 and a peak of 1,113 in June 2015. Table 3.1 in the appendix displays the ADP by year and shows a slight increase in the annual ADP between 2012 and 2016. While the population declines from 1,040 in 2012 to 1,018 in 2014, it increases to 1,077 in 2016. Overall, this represents an increase of 3.6% in average annual ADP between 2012 and 2016.

It is also evident from Figure 5.1, that the majority of the population in the Leon County Detention Center is comprised of individuals awaiting trial, while those who have been sentenced or are being held for other reasons (e.g., being held for another jurisdiction) comprise

less than half of the population. Overall, the pretrial population ranges from 568 in December of 2014 to 737 in June 2015. Annually, there is a decline among those classified as sentenced/other from an average of 414 in 2012 to 389 in 2016, a decline of 6%, which is illustrated in Figure 5.1. In contrast, the average annual ADP of individuals awaiting trial increases from 625 in 2012 to 688 in 2016, an increase of 10.1%. Therefore, the annual increase in the total ADP is driven primarily by an increase in the number of individuals awaiting trial. While we do not display these totals, this appears to be a function of the number of individuals awaiting trial for felony charges as it increases from 554 in 2012 to 615 in 2016 (or an increase of 11%). Meanwhile, the increase in the average number of individuals awaiting trial for misdemeanors is negligible over the period, increasing from 71 in 2012 to 73 in 2016.

Figure 5.1: Monthly Average Daily Population 2012-September, 2017
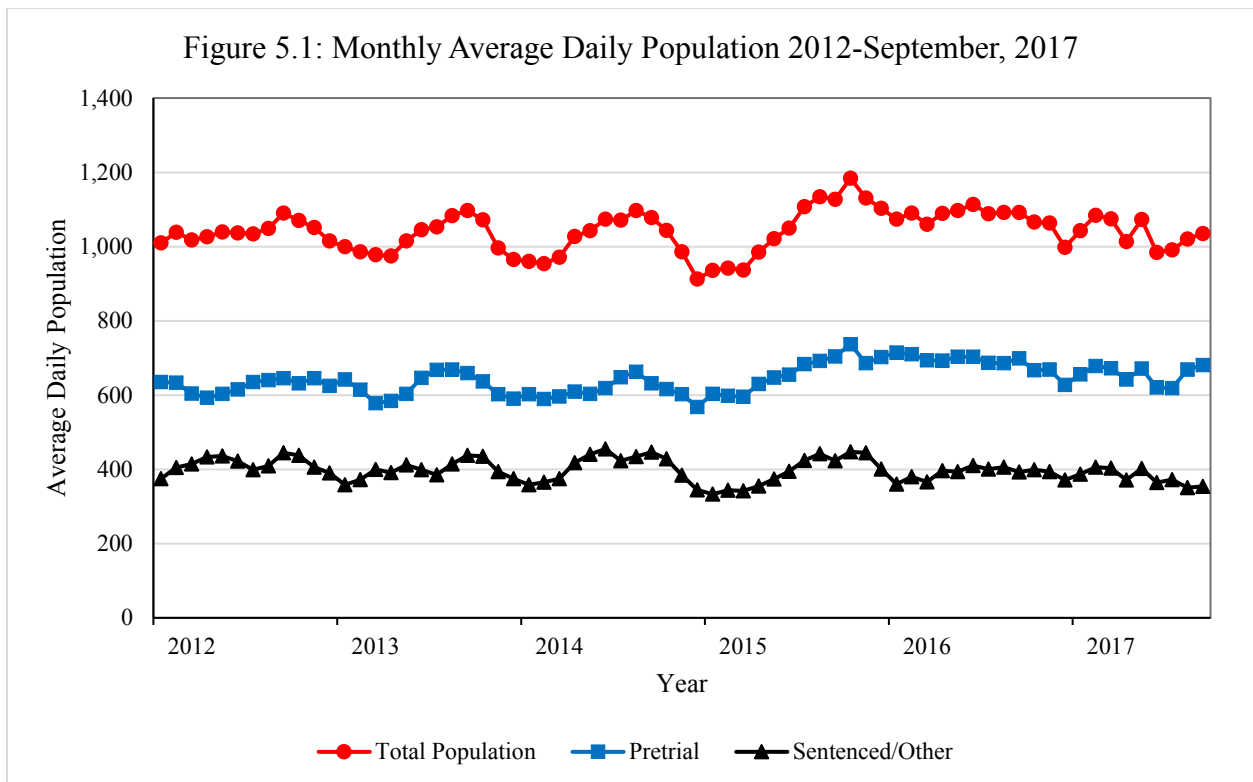
5.2 Forecasts of the Average Daily Detention Center Population

      Based upon data compiled from the DOC monthly reports, a monthly average daily Leon County Detention Center forecast was developed from October 2017 to December 2022. To construct these forecasts, as mentioned earlier, we followed a commonly used approach in correctional forecasting by using Autoregressive Integrated Moving Average (ARIMA). As a check to ensure the validity of the forecasts, test forecasts were conducted predicting the monthly levels of the total and the pretrial ADP between January 2016 and September 2017. These forecasts were then compared to the observed ADP and the pretrial population during this period. These results demonstrate the forecasting models are accurate.[3] To produce the forecasts from October 2017 to December 2022 the total and pretrial ADP were used from December 2012 to September 2017.

      Table 5.2 and Figure 5.2 below display the results of the historical and projected annual total and pretrial ADP for the Leon County Detention Center. Although the ARIMA models produce monthly estimates, we display the average ADP for each year. The values for 2017 contain the observed ADPs from the DOC reports from January through September and the forecasted totals for October through December. The forecast indicates that the ADP will peak in 2017 at 1,126 and decline to 1,043 in 2022. This is a projected decline of 7.4% in the annual total ADP. The pretrial ADP peaks in 2016 at 688 and is forecast to decline to 645 by 2020. The forecast predicts stability in the pretrial population from 2020 to 2022. This is a decline of 6.25% in the annual pretrial ADP from 2016 to 2020. In summary, based on the ARIMA model both the pretrial and total populations are forecast to remain stable from 2018 to 2022.

---

[3] Result available upon request.

Table 5.2: Historical and Projected ADP 2012-2022		
Year	**Total**	**Pretrial**
Historical		
2012	1,040	625
2013	1,022	624
2014	1,018	612
2015	1,055	661
2016	1,077	688
Projected		
2017	1,126	658
2018	1,046	653
2019	1,041	647
2020	1,043	645
2021	1,041	645
2022	1,043	645

Figure 5.2: Historical and Projected ADP 2012-2022
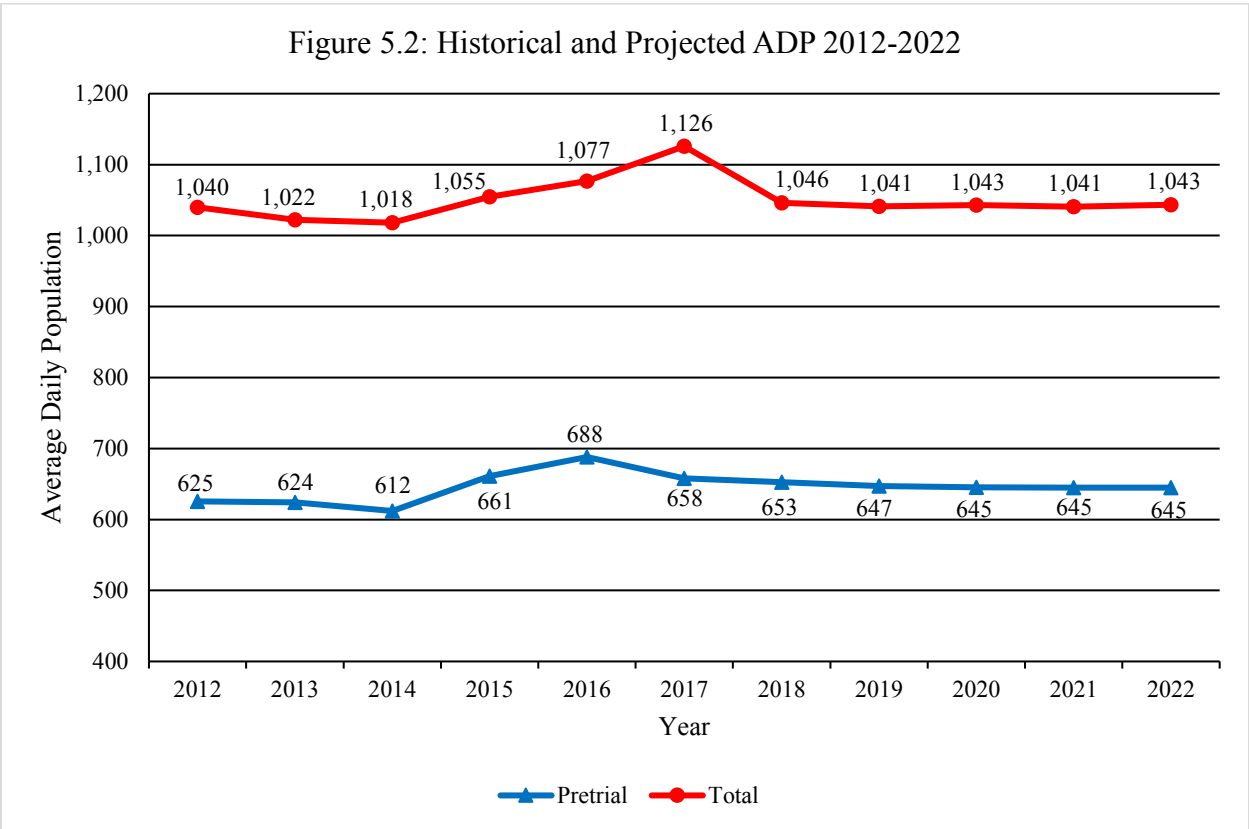
6. Detention Center and County Demographics

This section briefly examines the characteristics of the individuals housed in the Leon County Detention Center. In addition, this section provides county demographic projections of populations within the Detention Center and Leon County in general.

6.1 Status Population

The results of the analysis of the status population are displayed in Tables 6.1-6.5. Table 6.1 displays the average bond amount, age, and time spent in the Detention Center as of August 27, 2017. For those who received a bond the average amount was $25,198.15. However, as is detailed in Table 6.2 below, roughly 42% of individuals in the Detention Center on August 27, 2017 did not have a bond set. The average age of those in the Detention Center was 34.31 years and the average amount of time in the Detention Center was 169.65 days. However, there was large variance in the number of days spent in the Detention Center as they ranged from one to 2,148.

Table 6.1: Descriptive Statistics of Status Population				
	Mean	**Standard Deviation**	**Minimum**	**Maximum**
Age	34.31	11.49	17	78
Bond Amount	$25,198.15	43,031.13	100	$265,000
Days in Detention Center	169.56	236.48	1	2,148

Table 6.2: Bond Amount by Categories of Status Population		
Amount Categories	**Total**	**Percent**
$1 - $199	5	0.48%
$200 - $499	15	1.44%
$500 - $999	46	4.40%
$1,000 - $1,999	63	6.03%
$2,000 - $4,999	83	7.94%
$5,000 - $9,999	89	8.52%
$10,000 - $14,999	71	6.79%
$15,000+	237	22.68%
No Bond Set	436	41.72%
Total	1045	100%

Table 6.3 displays the racial composition of the status population. Six hundred and seventy-two or 64.31% were black while 369 or 35.31% were white. A small percentage of individuals (.38% of the population) were either Asian or of unknown racial background. The composition of the population on August 27, 2017 was 85.59% male and 14.41% female. These figures are contained in Table 6.4. Also, as documented by the booking data, veterans made up a relatively small segment of the population of the Detention Center as only 24 individuals or 2.30% were veterans (these results are displayed in Table 6.5).

Table 6.3: Racial Composition of Status Population		
Race	Total	Percent
Black	672	64.31%
White	369	35.31%
Other	4	0.38%
Total	1,045	100%

Table 6.4: Sex Composition of Status Population		
Sex	Total	Percent
Female	150	14.35%
Male	891	85.26%
Unknown	4	0.38%
Total	1,045	100%

Table 6.5: Veteran Status of Status Population		
Status	Total	Percent
Non-Veteran	1,021	97.70%
Veteran	24	2.30%
Total	1,045	100%

Overall, the results from the status population suggest that the majority of the population were male and black. In addition, a small proportion of the population were veterans.

6.2 Detention Center and County Demographic Projections

Table 6.6 provides a breakdown of the number and percentage of each adult demographic group in the Leon County Detention Center on August 27, 2017. In addition, the table includes a

breakdown of the same demographic groups among the general Leon County population. Overall, blacks were the majority in the Detention Center population on this day. In total, 62.3% of the Detention Center population were black males. Several other trends emerge when examining these tables. First, black males ages 25 to 29 comprised a large portion (20.4%) of the Detention Center's population on August 27, 2017. This same group in 2017 made up only 1.7% of the adult population in Leon County. In contrast, white males ages 25 to 29 made up 4.2% of the jail population and a similar 3.2% of the adult resident population in Leon County. When examining the percentage of inmates ages 18 to 24 who are black, data shows that they make up 14.7% of the Detention Center population but only 3.9% of the adult resident county population. However, whites in the same age group comprise 3.6% of the Detention Center population and 7.7% of the adult resident county adult population.

Table 6.6: Count and Percentage of Demographic Groups in Leon County & Leon County Detention Center				
Demographic Category	Leon County Detention Center Population on August 27th 2017	Detention Center Population August 27th 2017	Residents in Leon County 2017	Adult Population 2017
Male Black: 25 to 29	1,070	20.4%	3,938	1.7%
Male Black: 18 to 24	772	14.7%	9,213	3.9%
Male Black: 30 to 34	625	11.9%	3,117	1.3%
Male Black: 35 to 39	330	6.3%	2,606	1.1%
Male White: 30 to 34	272	5.2%	5,442	2.3%
Male Black: 45 to 54	242	4.6%	4,100	1.7%
Male White: 25 to 29	219	4.2%	7,423	3.2%
Male White: 18 to 24	190	3.6%	18,118	7.7%
Male White: 35 to 39	168	3.2%	5,077	2.2%
Male White: 55 to 99	162	3.1%	23673	10.1%
Male White: 40 to 44	146	2.8%	4735	2.0%
Male Black: 40 to 44	139	2.7%	2,261	1.0%
Male White: 45 to 54	135	2.6%	9,894	4.2%
Female Black: 25 to 29	106	2.0%	4,574	1.9%
Female Black: 30 to 34	106	2.0%	3,568	1.5%
Male Black: 55 to 99	89	1.7%	6,368	2.7%
Female White: 30 to 34	69	1.3%	5,397	2.3%
Female White: 35 to 39	69	1.3%	4,880	2.1%
Female Black: 18 to 24	56	1.1%	11,666	5.0%
Other Demographic Groups	273	5.2%	99,073	42.1%
TOTAL	5,238	100.0%	235,123	100.0%

Table 6.7 provides the projected Leon County population in 2022, both the overall change from 2017 to 2022, and the percent change from 2017 to 2022. Overall, all demographic groups are projected to grow, except for white males ages 45 to 54 who are expected to decrease by 285 residents in the Leon County population. The populations that are expected to experience the largest increases are black males age 35 to 39, white males age 55 to 99, black males age 40 to 44, and black males age 55 to 99. Each of these demographic groups are expected to grow by more than 10% over the next 5 years. Of particular interest to the Leon County Detention

Center, is that some of the most at-risk groups for incarceration in the Detention Center are projected to increase. However, these increases are not large. For instance, black males aged 25 to 29, who make up the largest portion of the Leon County Detention Center, are only expected to grow by 3.38% over the next five years.

Table 6.7: Projected Change in Leon County Demographics: 2017-2022				
Demographic Category	Residents in Leon County 2017	Projected Residents in Leon County 2022	Raw Change	Percent Change
Male Black: 25 to 29	3,938	4,071	133	3.38%
Male Black: 18 to 24	9,213	9,732	519	5.63%
Male Black: 30 to 34	3,117	3,326	209	6.71%
Male Black: 35 to 39	2,606	3,082	476	18.27%
Male White: 30 to 34	5,442	5,692	250	4.59%
Male Black: 45 to 54	4,100	4,476	376	9.17%
Male White: 25 to 29	7,423	7,475	52	0.70%
Male White: 18 to 24	18,118	18,220	102	0.56%
Male White: 35 to 39	5,077	5,498	421	8.29%
Male White: 55 to 99	23,673	26,192	2519	10.64%
Male White: 40 to 44	4,735	5,107	372	7.86%
Male Black: 40 to 44	2,261	2,690	429	18.97%
Male White: 45 to 54	9,894	9,609	-285	-2.88%
Female Black: 25 to 29	4,574	4,797	223	4.88%
Female Black: 30 to 34	3,568	3,729	161	4.51%
Male Black: 55 to 99	6,368	7,404	1036	16.27%
Female White: 30 to 34	5,397	5,512	115	2.13%
Female White: 35 to 39	4,880	5,273	393	8.05%
Female Black: 18 to 24	11,666	12,148	482	4.13%
Other Demographic Groups	103,539	105,602	2063	1.99%
TOTAL	235,123	249,635	14512	6.17%

7. Proposed Research Projects

Based upon the results of the forecasts, as well as a review of the data available in the LCSO data systems, FSU proposes to continue monitoring trends in the population of the Leon County Detention Center. A number of factors can contribute to changes in the future Detention

Center population, including shifts in the resident population, as well as policy changes not only by the LCSO but by the State Legislature, the Tallahassee Police Department, the City of Tallahassee, the local county and circuit courts, among others. However, the forecasts detailed in this report assume stability in these areas. As a result, it is important to continue to monitor and adjust the forecasts if necessary to ensure that they remain valid and can be used by the LCSO to effectively plan and budget.

Other projects with the LCSO could include evaluations of various programs and services provided to inmates, such as pre-trial release programs, visitation, mental health services, reentry services, probation, and inmate work crew and work camp programs. Evaluation projects are important because they provide insight into the effectiveness of the programs in achieving their goals. Furthermore, if a program is determined to be ineffective in reducing recidivism, it may be advisable to redirect the resources expended on that program to other more effective programs. It is equally important to simultaneously assess why these programs might be ineffective. For example, a program may not be effective due to implementation issues as opposed to program design. Thus, we propose a two-pronged approach focusing on whether a program is able to achieve its goals and whether it is implemented with integrity and in accord with the program's original design. In addition, programs found to be effective at reducing recidivism or achieving other goals should be considered for additional funding and expansion.

For example, a proposed study on visitation would identify the impact of visitation while in the Leon County Detention Center on recidivism among offenders released from the Detention Center. A number of studies have been conducted focusing on the impact of visitation on recidivism in state prisons and have shown that visitation significantly reduces the likelihood of recidivism. However, there have been no studies focusing on visitation at local jails or detention

33

centers. The LCSO has particularly rich visitation data that indicates the relationship of visitors to the inmate, the number of visits as well as the amount of time visiting. As a result, a visitation study would allow LCSO to be on the cutting edge of this area of research and provide it with greater information on visitation at the Leon County Detention Center and the potential benefits of visitation.

We hope to meet soon and jointly agree upon future steps.

Appendix

Table 2.1: Total Detention Center Bookings by Month 2012-July, 2017								
Year	Month	Bookings	Year	Month	Bookings	Year	Month	Bookings
2012	January	951	2014	January	796	2016	January	827
2012	February	1,000	2014	February	795	2016	February	847
2012	March	993	2014	March	897	2016	March	857
2012	April	945	2014	April	890	2016	April	908
2012	May	958	2014	May	889	2016	May	844
2012	June	942	2014	June	914	2016	June	858
2012	July	937	2014	July	951	2016	July	753
2012	August	1,054	2014	August	950	2016	August	915
2012	September	899	2014	September	887	2016	September	905
2012	October	1,010	2014	October	878	2016	October	840
2012	November	781	2014	November	725	2016	November	804
2012	December	842	2014	December	666	2016	December	788
2013	January	993	2015	January	859	2017	January	952
2013	February	856	2015	February	843	2017	February	942
2013	March	983	2015	March	886	2017	March	975
2013	April	1,027	2015	April	901	2017	April	887
2013	May	1,029	2015	May	903	2017	May	919
2013	June	926	2015	June	869	2017	June	821
2013	July	976	2015	July	945	2017	July	856
2013	August	984	2015	August	937	-	-	-
2013	September	815	2015	September	869	-	-	-
2013	October	917	2015	October	965	-	-	-
2013	November	759	2015	November	773	-	-	-
2013	December	729	2015	December	778	-	-	-

Table 2.2: Detention Center Bookings by Month 2012-July, 2017 (Males Only)								
Year	Month	Bookings	Year	Month	Bookings	Year	Month	Bookings
2012	January	745	2014	January	602	2016	January	624
2012	February	789	2014	February	594	2016	February	672
2012	March	764	2014	March	694	2016	March	653
2012	April	751	2014	April	698	2016	April	718
2012	May	725	2014	May	704	2016	May	652
2012	June	718	2014	June	694	2016	June	691
2012	July	700	2014	July	746	2016	July	591
2012	August	802	2014	August	713	2016	August	708
2012	September	697	2014	September	679	2016	September	657
2012	October	773	2014	October	680	2016	October	625
2012	November	605	2014	November	577	2016	November	625
2012	December	659	2014	December	512	2016	December	623
2013	January	749	2015	January	672	2017	January	729
2013	February	657	2015	February	652	2017	February	722
2013	March	740	2015	March	696	2017	March	761
2013	April	784	2015	April	709	2017	April	682
2013	May	782	2015	May	700	2017	May	731
2013	June	688	2015	June	670	2017	June	645
2013	July	742	2015	July	719	2017	July	680
2013	August	739	2015	August	720	-	-	-
2013	September	628	2015	September	651	-	-	-
2013	October	714	2015	October	759	-	-	-
2013	November	581	2015	November	591	-	-	-
2013	December	558	2015	December	609	-	-	-

Table 2.3: Detention Center Bookings by Month 2012-July, 2017 (Females Only)							
Year	Month	Bookings	Year	Month	Bookings	Year	Month	Bookings
2012	January	206	2014	January	194	2016	January	203
2012	February	211	2014	February	201	2016	February	175
2012	March	229	2014	March	203	2016	March	204
2012	April	194	2014	April	192	2016	April	190
2012	May	233	2014	May	185	2016	May	192
2012	June	224	2014	June	220	2016	June	167
2012	July	237	2014	July	205	2016	July	162
2012	August	252	2014	August	237	2016	August	207
2012	September	202	2014	September	208	2016	September	248
2012	October	237	2014	October	198	2016	October	215
2012	November	176	2014	November	148	2016	November	179
2012	December	183	2014	December	154	2016	December	165
2013	January	244	2015	January	187	2017	January	223
2013	February	199	2015	February	191	2017	February	220
2013	March	243	2015	March	190	2017	March	214
2013	April	243	2015	April	192	2017	April	205
2013	May	247	2015	May	203	2017	May	188
2013	June	238	2015	June	199	2017	June	176
2013	July	234	2015	July	226	2017	July	176
2013	August	245	2015	August	217	-	-	-
2013	September	187	2015	September	218	-	-	-
2013	October	203	2015	October	206	-	-	-
2013	November	178	2015	November	182	-	-	-
2013	December	171	2015	December	169	-	-	-

Table 3.1: Total Detention Center Releases by Month 2012-July, 2017								
Year	Month	Releases	Year	Month	Releases	Year	Month	Releases
2012	January	714	2014	January	900	2016	January	902
2012	February	928	2014	February	962	2016	February	934
2012	March	964	2014	March	952	2016	March	934
2012	April	948	2014	April	957	2016	April	974
2012	May	1,004	2014	May	973	2016	May	877
2012	June	975	2014	June	1,039	2016	June	910
2012	July	997	2014	July	999	2016	July	822
2012	August	1091	2014	August	1,018	2016	August	1,000
2012	September	998	2014	September	1,034	2016	September	1,014
2012	October	1,158	2014	October	971	2016	October	911
2012	November	890	2014	November	855	2016	November	928
2012	December	966	2014	December	847	2016	December	897
2013	January	1,057	2015	January	809	2017	January	936
2013	February	954	2015	February	934	2017	February	1,012
2013	March	1,108	2015	March	960	2017	March	1,102
2013	April	1,108	2015	April	904	2017	April	937
2013	May	1,115	2015	May	884	2017	May	1,023
2013	June	1,021	2015	June	954	2017	June	937
2013	July	1,050	2015	July	932	2017	July	816
2013	August	1,045	2015	August	950	-	-	-
2013	September	955	2015	September	914	-	-	-
2013	October	1,108	2015	October	1,038	-	-	-
2013	November	902	2015	November	908	-	-	-
2013	December	862	2015	December	887	-	-	-

38

Table 3.2: Total Detention Center Releases by Month 2012-July, 2017 (Males Only)								
Year	Month	Releases	Year	Month	Releases	Year	Month	Releases
2012	January	547	2014	January	700	2016	January	679
2012	February	719	2014	February	716	2016	February	734
2012	March	743	2014	March	737	2016	March	725
2012	April	749	2014	April	760	2016	April	763
2012	May	775	2014	May	767	2016	May	689
2012	June	749	2014	June	805	2016	June	706
2012	July	725	2014	July	780	2016	July	644
2012	August	838	2014	August	787	2016	August	801
2012	September	771	2014	September	800	2016	September	750
2012	October	892	2014	October	739	2016	October	676
2012	November	691	2014	November	672	2016	November	741
2012	December	768	2014	December	667	2016	December	713
2013	January	795	2015	January	614	2017	January	710
2013	February	741	2015	February	720	2017	February	771
2013	March	848	2015	March	748	2017	March	867
2013	April	852	2015	April	713	2017	April	739
2013	May	851	2015	May	705	2017	May	826
2013	June	770	2015	June	754	2017	June	729
2013	July	810	2015	July	707	2017	July	629
2013	August	786	2015	August	708	-	-	-
2013	September	709	2015	September	696	-	-	-
2013	October	872	2015	October	830	-	-	-
2013	November	705	2015	November	705	-	-	-
2013	December	669	2015	December	686	-	-	-

Table 3.3: Total Detention Center Releases by Month 2012-July, 2017 (Female Only)								
Year	Month	Releases	Year	Month	Releases	Year	Month	Releases
2012	January	167	2014	January	200	2016	January	223
2012	February	209	2014	February	246	2016	February	200
2012	March	221	2014	March	215	2016	March	209
2012	April	199	2014	April	197	2016	April	211
2012	May	229	2014	May	206	2016	May	188
2012	June	226	2014	June	234	2016	June	204
2012	July	272	2014	July	219	2016	July	178
2012	August	253	2014	August	231	2016	August	199
2012	September	227	2014	September	234	2016	September	264
2012	October	266	2014	October	232	2016	October	235
2012	November	199	2014	November	183	2016	November	187
2012	December	198	2014	December	180	2016	December	184
2013	January	262	2015	January	195	2017	January	226
2013	February	213	2015	February	214	2017	February	241
2013	March	260	2015	March	212	2017	March	235
2013	April	256	2015	April	191	2017	April	198
2013	May	264	2015	May	179	2017	May	197
2013	June	251	2015	June	200	2017	June	208
2013	July	240	2015	July	225	2017	July	187
2013	August	259	2015	August	242	-	-	-
2013	September	246	2015	September	218	-	-	-
2013	October	236	2015	October	208	-	-	-
2013	November	197	2015	November	203	-	-	-
2013	December	193	2015	December	201	-	-	-

Table 5.1: Monthly Average Daily Population (ADP) January, 2012 - September, 2017								
Year	Month	ADP	Year	Month	ADP	Year	Month	ADP
2012	January	1,010	2014	January	960	2016	January	1,074
2012	February	1,038	2014	February	954	2016	February	1,090
2012	March	1,018	2014	March	971	2016	March	1,060
2012	April	1,026	2014	April	1,027	2016	April	1,089
2012	May	1,039	2014	May	1,043	2016	May	1,097
2012	June	1,037	2014	June	1,074	2016	June	1,113
2012	July	1,034	2014	July	1,071	2016	July	1,088
2012	August	1,049	2014	August	1,097	2016	August	1,092
2012	September	1,090	2014	September	1,078	2016	September	1,092
2012	October	1,070	2014	October	1,044	2016	October	1,066
2012	November	1,051	2014	November	986	2016	November	1,063
2012	December	1,015	2014	December	913	2016	December	998
2013	January	1,000	2015	January	936	2017	January	1,043
2013	February	986	2015	February	942	2017	February	1,084
2013	March	978	2015	March	937	2017	March	1,075
2013	April	975	2015	April	985	2017	April	1,013
2013	May	1,015	2015	May	1,021	2017	May	1,073
2013	June	1,045	2015	June	1,050	2017	June	984
2013	July	1,053	2015	July	1,107	2017	July	991
2013	August	1,083	2015	August	1,134	2017	August	1,020
2013	September	1,097	2015	September	1,127	2017	September	1,035
2013	October	1,072	2015	October	1,184	2017	October	-
2013	November	996	2015	November	1,131	2017	November	-
2013	December	965	2015	December	1,103	2017	December	-

Year	Month	ADP	Year	Month	ADP	Year	Month	ADP
Tables 5.3: Projected Monthly Average Daily Population (ADP) **October, 2017 - December, 2022**								
2017	October	1,059	2020	January	1,020	2022	January	1,021
2017	November	1,052	2020	February	1,030	2022	February	1,031
2017	December	1,039	2020	March	1,022	2022	March	1,022
2018	January	1,042	2020	April	1,034	2022	April	1,036
2018	February	1,048	2020	May	1,051	2022	May	1,051
2018	March	1,033	2020	June	1,053	2022	June	1,054
2018	April	1,038	2020	July	1,053	2022	July	1,053
2018	May	1,050	2020	August	1,068	2022	August	1,067
2018	June	1,049	2020	September	1,074	2022	September	1,073
2018	July	1,048	2020	October	1,065	2022	October	1,064
2018	August	1,063	2020	November	1,042	2022	November	1,041
2018	September	1,070	2020	December	1,006	2022	December	1,005
2018	October	1,064	2021	January	1,013	-	-	-
2018	November	1,042	2021	February	1,021	-	-	-
2018	December	1,008	2021	March	1,014	-	-	-
2019	January	1,015	2021	April	1,017	-	-	-
2019	February	1,023	2021	May	1,043	-	-	-
2019	March	1,015	2021	June	1,041	-	-	-
2019	April	1,019	2021	July	1,051	-	-	-
2019	May	1,044	2021	August	1,069	-	-	-
2019	June	1,042	2021	September	1,073	-	-	-
2019	July	1,051	2021	October	1,077	-	-	-
2019	August	1,069	2021	November	1,047	-	-	-
2019	September	1,073	2021	December	1,023	-	-	-
2019	October	1,076	-	-	-	-	-	-
2019	November	1,047	-	-	-	-	-	-
2019	December	1,022	-	-	-	-	-	-

References

Florida Department of Corrections. (2017, September). *Florida County Detention Facilities' Average Inmate Population*. Retrieved from Florida Department of Correction: http://www.dc.state.fl.us/pub/Detention Centers/

McDowall, D., Loftin, C., & Pate, M. (2012). Seasonal cycles in crime, and their variability. *Journal of Quantitative Criminology*, 28, 389-410.

Surrette, R., Applegate, B., McCarthy, B., & Jablonski, P. (2006). Self-destructing prophecies: Long-term forecasting of municipal correctional bed need. *Journal of Criminal Justice*, 34, 57-72.