Office of Research and Strategic Planning
Criminal Justice Statistical Analysis Center

January 2013

West Virginia Correctional Population Forecast, 2012-2022
A Study of the State's Prison Population

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Currently, West Virginia is evaluating criminal justice system policies to address prison overcrowding. To assist these planning efforts a prison population forecast is produced every two years to estimate prison needs for the upcoming decade. The current forecast suggests that despite efforts to divert criminals from prisons, the prison population will continue to grow over the next ten years.

West Virginia's prison population grows by roughly 300 prisoners every year. Over the years as the total imprisoned population continues to grow, the same 300 prisoners will continue to represent a smaller percentage of the overall population resulting in an apparent slowing of growth. As a result, the correctional population is projected to grow an average of 4.1% each year from 2012 to 2022. This is less than the 4.6% growth rate predicted in the 2010-2020 population forecast. If the prison population grows at 4.1% over the next decade, the prison population will grow by 41.4% to a total of 10,103 by the end of 2022.

Trends in Commitments and Releases

The total number of commitments to DOC custody continues to show a general growth pattern. Release rates, however, have fluctuated quite a bit since 2005. In 2011, 243 more prisoners were released than in 2010, despite the fact that the parole grant rate has changed little in the past two years.

Commitments

Table 1 displays the annual change in commitments between 2001 and 2011. Overall the number of commitments to Division of Corrections custody has grown over the last decade at an average rate of 7.6%. Commitments in 2008 were the only exception as the total number decreased by 298 prisoners from the previous year. In 2011 the number of commitments increased by 208 prisoners (6.33%) over 2010.

While in 2011 there were noticeable increases in the number of commitments for parole violators (478) and Anthony Center prisoners

Report Highlights

- The correctional population is projected to grow over the next decade at an average annual rate of 4.1%

- While the projected average annual rate of growth has decreased slightly, the number of additional inmates per year through 2022 is still roughly 300.

- At year-end 2011, 6,870 inmates were in DOC custody. This represents a 2.83% increase over 2010.

- After peaking at 539 in 2008, the number of parole violators returning to prison has declined slightly each year to 478 in 2011.

- In 2011, 243 more inmates were released from DOC custody than in 2010, a difference of 9.1%.

- The average maximum sentence for every crime category except DUI was at a lower level in 2011 than in 2005.

- The number of females in the prison population is expected to increase over the next decade with females representing 15.3% of the population by 2022.

Table 1
Annual Change in Commitments to the Division of Corrections Custody, 2001-2011

Year	New Felons	Anthony Center	Diagnostic	Parole Violators	Total	Annual Change N	Annual Change %
2001	1,363	240	158	228	1,989	--	--
2002	1,508	267	179	207	2,161	172	8.60%
2003	1,560	264	189	229	2,242	81	3.70%
2004	1,846	230	167	225	2,468	226	10.10%
2005	1,900	237	82	386	2,605	137	5.60%
2006	2,106	195	103	426	2,830	225	8.60%
2007	2,536	270	160	483	3,449	619	21.90%
2008	2,237	225	150	539	3,151	-298	-8.60%
2009	2,304	227	143	516	3,190	39	1.20%
2010	2,369	236	170	509	3,284	94	2.90%
2011	2,526	302	186	478	3,492	208	6.33%
Average Annual Change, 2001-2011						**150**	**7.60%**

(302) over 2010 numbers, these increases were consistent with rates observed in the previous decade and do not necessarily indicate a trend in prison growth.

From 2004 to 2005, the number of parole violators committed to DOC custody rose by 71.6%, from 225 to 386. The number of parole violators continued to increase each year until 2009. In 2011, parole violator commitments declined by 11.3% to 478 from the high of 539 in 2008.

Parole Decisions

Table 2 summarizes the results of parole decisions since 2006. Between 2010 and 2011 very little changed in parole grant rates and type since the parole grant rate only increased less than 1% from 2010. The number of prisoners granted parole has been stable at roughly 1,300 for the past four years.

In four of the past six years, roughly 1,500 paroles were denied each year. Additionally, roughly 1,200 prisoners have been put on further consideration for parole in the past two years which is a decrease from the 1,305 placed on further consideration in 2009.

Releases

Table 3 summarizes all releases from DOC custody between 2004 and 2011. After the initial 17.1% spike in releases in 2007 the number of prisoners released each year remained stable through 2010. In 2011 more prisoners (243) were released than in 2010 representing a 9.10% increase in releases and the highest number of releases since

Table 2
Parole Decisions by Type and Year

Year	Denied	Granted	Total	Further Con.	% Granted
2006	1,597	1,194	2,761	----	43.2%
2007	1,491	1,630	3,121	----	52.2%
2008	1,199	1,376	2,575	957	53.4%
2009	1,210	1,328	2,538	1,305	52.3%
2010	1,554	1,336	2,890	1,199	46.2%
2011	1,504	1,334	2,838	1,207	47.0%

Source: DOC Commitments and Releases Log/WV Parole Board Activity Sheets

Note: The total column represents the sum of all cases in which the outcome was either to grant or deny parole. Prisoner eligibility for parole is contingent upon an approved Home and Employment Plan (H&EP). Further Consideration (Further Con.) is an action taken by the parole board to delay a decision until a H&EP is verified and approved.

Table 3
Annual Change in Releases from the Division of Corrections Custody, 2004-2011

Year	Discharge	Parole	Anthony Center	Jail	Diagnostic	Other	Total	Annual Change N	Annual Change %
2004	573	773	293	137	153	24	1,953	--	--
2005	658	1,048	251	-----	180	20	2,157	+204	+10.4%
2006	700	1,127	237	-----	148	28	2,240	+83	+3.8%
2007	750	1,437	223	-----	184	29	2,623	+383	+17.1%
2008	765	1,510	278	-----	120	25	2,698	+75	+2.9%
2009	875	1,345	237	-----	138	25	2,620	-78	-2.9%
2010	837	1,344	274	-----	190	24	2,669	+49	+1.9%
2011	921	1,479	283		194	35	2,912	+243	+9.10%

Source: DOC Commitment and Release Logs

Notes: The discharge category includes both expired sentences and court-ordered releases. The other category includes escapes, medical respite, and deaths. The number of jail releases were not able to be extracted from total releases between 2005-2010.

2004.

The number of prisoners discharged (921) in 2011 was the highest in the past eight years. However, a similar number of prisoners (875) were released in 2009 suggesting that the increase observed in 2011 does not necessarily indicate a new pattern in prison releases. As West Virginia's prison population continues to grow, so will the number of prisoners released each year whether by parole, discharge or some other mechanism.

Description of the Current Correctional Population

Not all offenders committed to DOC custody are housed in state prisons due to a lack of available beds. Some of those sentenced to prison serve part, or all, of their sentence in regional jails. When an offender enters a DOC facility they count as an admission for that year. The following section describes the offenders who are housed in DOC facilities.

Admissions

Admissions between 2010 and 2011 declined slightly in five of the nine offense categories (Table 4). All four violent crime categories declined between 2010 and 2011. Admissions for murder (2.0%) and sex offenses (6.0%) are the lowest recorded in the past 7 years and are each 2.8% lower than 2005. While robbery (5.6%) and assault (8.6%) admissions decreased from 2010 both represented a higher percentage of all admissions than recorded in 2005. Among the non-violent offense categories, only admissions for DUI offenses showed a slight decrease (.9%) between 2010 and 2011 and a 3.6% decrease from 2005 admissions. However, since the DUI admission rate varies year to year, this decrease does not necessarily indicate a trend.

In the 2010-2020 forecast it was suggested that the percentage of admissions for assault displayed a general pattern of growth. While assault admissions did peak at 10.6% in 2010, the percentage dropped back to 8.6% in 2011.

In 2010, 72.4% of all admissions to prison were for nonviolent offenses. In 2011 that percentage increased to 77.7% of all admissions. Drug (22.6%) and property (25.1%) crime offenders made up almost half of all admissions. Admissions for both drug and property crimes are 3.2% higher than 2005, but neither is the highest reported percentage in the past seven years.

Overall admissions for burglary have remained stable over the past seven years hovering around 15.0%. In 2011, burglary offenders represented 16.0% of all prison admissions, which is only a 1.0% increase over 2010 but is the highest recorded admission rate since 2005.

Table 4
Inmates Admitted by Type of Offense and Year, 2005-2011

	2005	2006	2007	2008	2009	2010	2011	% Difference 2010-11	% Difference 2005-11
Murder	4.8%	2.5%	2.6%	2.7%	2.9%	2.8%	2.0%	-0.8%	-2.8%
Sex Crimes	8.8%	7.1%	6.6%	6.4%	7.1%	7.9%	6.0%	-1.9%	-2.8%
Robbery	4.8%	6.2%	5.8%	5.8%	5.1%	6.1%	5.6%	-0.5%	0.8%
Assault	7.4%	8.2%	8.7%	8.1%	8.9%	10.6%	8.6%	-2.0%	1.2%
Burglary	15.3%	15.2%	15.1%	15.3%	14.4%	15.0%	16.0%	1.0%	0.7%
Property	21.9%	21.8%	25.3%	26.1%	24.7%	20.7%	25.1%	4.4%	3.2%
Drug	19.4%	23.6%	21.7%	21.1%	22.9%	21.9%	22.6%	0.7%	3.2%
DUI	7.8%	4.8%	5.5%	5.0%	4.5%	5.1%	4.2%	-0.9%	-3.6%
Other	9.8%	10.5%	8.8%	9.5%	9.6%	9.7%	9.8%	0.1%	0.0%

Source: DOC Prisoner Admission Reports

Notes: Anthony Center inmates are not included in these figures, in order to allow for a historical comparison. There were no diagnostic inmate figures between 2003 and 2005 due to constraints on data availability. Percentages may not total to 100.0% due to rounding.

Maximum Sentence Length

Table 5 displays the average maximum sentence lengths (in months) by offense type and admission year. The average maximum sentence went down for every crime category except DUI between 2010 and 2011. The average maximum sentence length for a DUI offender rose by 4.9 months over 2010 and by 1.8 months when compared to 2005. The average maximum sentence length for DUI had previously been relatively stable from 2006 to 2010 at roughly 39 months.

While the average maximum sentence length decreased for all four violent offense categories, sex crimes (160.0), robbery (220.8) and assault (79.4) were the lowest averages observed since 2005. Even though assault is at the lowest average sentence since 2005, it was only 8

Table 5
Average Maximum Sentence Length (in Months) by Offense Type and Admission Year

	2005	2006	2007	2008	2009	2010	2011	Change 10-11	Change 05-11
Murder	254.3	208.9	224.8	280.4	257.0	275.4	244.8	-30.6	-9.5
Sex Crimes	230.6	207.0	197.8	237.9	202.9	225.1	160	-65.1	-70.6
Robbery	241.4	233.0	242.0	241.8	236.7	222.4	220.8	-1.6	-20.6
Assault	94.8	91.8	85.2	94.4	87.5	87.4	79.4	-8	-15.4
Burglary	178.8	187.3	172.4	192.6	173.7	171.4	135.5	-35.9	-43.3
Property	128.8	133.0	130.8	139.2	140.0	133.0	106.7	-26.3	-22.1
Drug	139.7	129.9	126.0	136.7	131.2	120.8	114.7	-6.1	-25
DUI	42.4	39.1	39.3	38.8	39.6	39.3	44.2	4.9	1.8
Other	57.0	54.7	62.5	62.7	62.3	61.1	55.49	-5.61	-1.51

Source: DOC Prisoner Admission Reports

Notes: Anthony Center and diagnostic populations are not included in this table. Maximum sentences that exceeded 1,000 months or more were excluded based on historical methodology.

months less than the 2010 average. Maximum robbery sentences were 1.6 months lower than 2010 and 20.6 months lower than 2005. The average sentence for sex crimes was 65.1 months lower than 2010 and 70.6 months lower than the 2005 average maximum sentence.

The average maximum sentence for murder went down by 30.6 months since 2010 and 9.5 months compared to 2005. However, given the small number of people imprisoned for murder every year, the average maximum sentence tends to vary from year to year.

Of the nonviolent offenses, burglary had the highest average sentence of 135.5 months followed by drug offenses (114.7). This is the second time since 2005 that the average maximum sentence for drug offenses exceeded the average sentence for property offenses. The average maximum for property offenses (106.7) dropped 26.3 months from 2010 and 22.1 months from the average in 2005. Average burglary sentences dropped by 35.9 months compared to 2010 and 43.3 months compared to 2005. At 135.5 months, the average maximum in 2011 for burglary is the lowest since 2005.

DUI sentences have been the most consistent over time as the average has been within one month since 2006. Similarly, the "other" offense category has hovered around 62 months for the past four years. Assuming these lower sentences for are the start of a trend, as the average maximum sentence goes down, the average prisoner's length of stay should also decrease which could slow prison population growth in the future.

Total Population

The WV prison population continues to grow at an average of 266 prisoners per year (see Table 6). At the end of 2011, DOC had custody of 6,870 prisoners which was an increase of 189 from the previous year. With the exception of 2008, the prison population has seen roughly five percent increases each year since 2007. This average growth rate is reflected in the 2022 population forecast presented in the next section.

Projections and Methods

The prison population projections displayed in Graph 1 include, Anthony Center, diagnostic and regional jail inmates as well as all other prisoners under DOC custody.

A standard backcast covering 2011 was conducted to test the accuracy of the projected model. The model preformed well as estimates were within 1.7% of the actual population.

The prison population is expected to grow at an average of 4.1% per year over the next decade. This is lower than the 4.6% growth rate reported in the 2010-2020 population forecast which while highly accurate, over-forecast the prison population in the 2011 backcast. Based on current projections, DOC can expect to receive an average of 296 additional inmates per year over the next decade. Overall, the prison population will continue to grow but at a slightly slower rate than predicted in 2010.

This will result in a correctional population that is expected to reach 8,633 inmates by the end of 2017 and 10,103 inmates by the end of 2022 (see Graph 1). This growth translates into a 41.4% increase in the total number of inmates confined in WV's adult correctional population between 2012 and 2022.
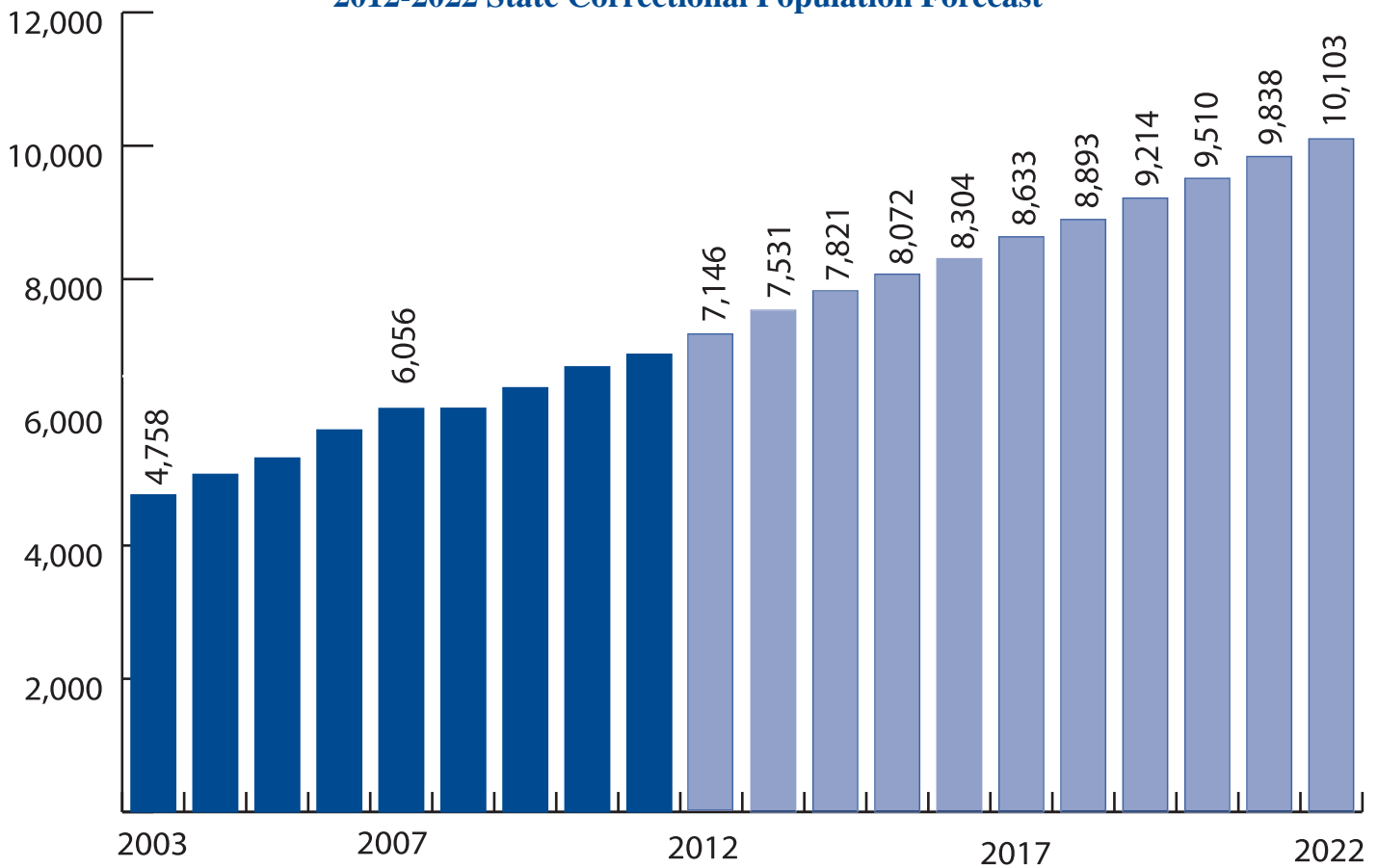
Projected Demographics

Table 7 displays the projected

Table 6
Confined End-of-Year Population, 2001-2011

Year	Population	Annual Change	
		N	%
2001	4,215	--	--
2002	4,544	329	7.81%
2003	4,758	214	4.71%
2004	5,067	309	6.49%
2005	5,312	245	4.84%
2006	5,733	421	7.93%
2007	6,056	323	5.63%
2008	6,059	3	0.05%
2009	6,367	308	5.08%
2010	6,681	314	4.93%
2011	6,870	189	2.83%
Average Annual Change, 2001-2011		+266	+6.30%

Graph 1
2012-2022 State Correctional Population Forecast

Source: DOC End-of-Year Tallies (Tracking and Simulated Forecast)

characteristics of the correctional population through 2022. In 2012, violent offenders (based on most serious offense) comprised just under half of the prison population. However, this is expected to decline over the next decade as violent offenders are projected to represent 40.9% of the population by 2022.

Meanwhile, the proportion of prisoners serving time in DOC facilities for drug offenses is expected to increase slightly (1.5%) by 2017 and stabilize until 2022 (0.1%). Drug offenders are expected to comprise 13.8% of the prison population by 2022. Likewise, public order crimes are forecasted to make up a greater proportion of

the prison population in the next decade. Property offenders will be the fastest growing portion of the prison population representing more than one-quarter of all prisoners in 2017 (26.9%) and 28.3% by 2022.

Consistent with the predictions made in the 2010-2020 forecast, the proportion of male inmates will continue to decrease to 84.1% in 2017 and remain roughly the same in 2022 (84.7%). The proportion of female inmates is expected to increase to 15.9% in 2017. Finally, general population inmates will continue to make up the vast majority of the prison population each year.

Methodology

This section of the report provides a description of the simulation model, forecast assumptions, and data sources used to produce the current 2012-2022 projections. Variable definitions and calculations are also provided. This section begins with a technical description of the forecast model and the various assumptions used to generate and interpret the correctional population projections.

Technical Description of Model

The forecast of the state correctional population was completed using Wizard 2000 projection software. This computerized simulation model

Table 7
Characteristics of Forecasted Population, 2012-2022

	2012		2017		2022	
Population Type	**N**	**%**	**N**	**%**	**N**	**%**
General Population	6984	97.7%	8410	97.4%	9853	97.5%
Anthony Center	143	2.0%	201	2.3%	225	2.2%
Diagnostics	19	0.3%	22	0.3%	25	0.2%
Total	7146	100.0%	8633	100.0%	10103	100.0%
Gender						
Male	5481	86.3%	6606	84.1%	7832	84.7%
Female	872	13.7%	1249	15.9%	1411	15.3%
Total	6353	100.0%	7855	100.0%	9243	100.0%
Broad Offense Category						
Violent	3114	49.0%	3313	42.2%	3784	40.9%
Property	1520	23.9%	2115	26.9%	2614	28.3%
Drug	776	12.2%	1078	13.7%	1280	13.8%
Public Order	943	14.8%	1349	17.2%	1565	16.9%
Total	6353	100.0%	7855	100.0%	9243	100.0%

Source: Simulated Forecast for December 2012, 2017, and 2022

Notes: Total population figures include all offenders in DOC's custody. This includes Anthony Center, diagnostic, and local or regional jail inmates. Due to the small number of Anthony Center and diagnostic inmates, gender and offense projections do not include these populations. Percentages may not total to 100.0% due to rounding.

mimics the flow of offenders through the state's correctional system over a ten-year forecast horizon and produces monthly projections of key inmate groups.

The simulation model utilizes a technique that is consistent with that of a stochastic entity simulation model. When a model is loaded with data, it will mimic the actual flow of cases through the correctional system being modeled. The model operates under the notion of a "growing admissions assumption." This assumes, as stated in the introduction, that what happened last year will carry over to the next year.

In order for the simulation model to work to its full potential, information must be gathered describing all of the entries and exits from the actual system for a previous one-year period. This applies to all offenders sentenced to the DOC custody. Additional data must be gathered describing the characteristics of the admission, confined, and release populations, parole hearing outcomes, and parole revocations. This information is then entered into the simulation model.

The model requires the formation of offense categories, also referred to as ID groups. It is assumed that offenders within each of the identified ID groups are handled by the criminal justice system in a similar fashion (in relation to sentencing, time served, and release decisions). Thus, specific offense categories or ID groups form the basis for all of the analysis contained in this report including the population forecast. These offense categories are murder, sex crimes, robbery, assault, burglary, property, drug, DUI, and "other" offenses. Each offender's most serious offense was used to construct the ID groups.

In addition to the construction of ID groups, sentencing information is necessary for the simulation model. There are a variety of descriptive statistics (minimums, maximums, and means) required from the sentencing data. These sentence calculations and data sources are described later in this section.

Data Sources
National Corrections Reporting Program "NCRP" (1998-2012).
NCRP admission and release data

describes the inmates who are entering and exiting from DOC facilities.

Automated Inmate Information Tracking System "Tracking" (1995-2012). Data obtained from this tracking system are used to describe the inmates who currently reside in the physical custody of DOC.

Inmate Management Information System "IMIS" (2009-2012). This is the current data system used by DOC. IMIS became effective in February 2005.

Commitments and Releases Log "CRL" (1998-2012). The data from the CRL are used to monitor the trends in commitments to and releases from DOC custody, as well as parole grant rates.

End-of-Month Log "EML" (1998-2012). The data contained in the EML includes the number of inmates in DOC custody at the end of each month.

WV Parole Board Activity Sheets (2002-2012). Various pieces of data are collected on the processing of all hearings considered by the parole board on a monthly basis.

Definitions and Calculations

Correctional Population. The 2012 correctional population forecast includes inmates sentenced to ACC, and diagnostic inmates. Also, included are offenders committed to the DOC that are housed in local or regional jails. These DOC inmate populations are included in the forecast projections and other calculations unless otherwise noted.

Anthony Correctional Center (ACC). Offenders sentenced to the ACC have a shorter length of stay compared to other DOC facilities. Young offenders are typically sentenced to 6 months to two years. Given that this population is handled differently from the general population of inmates, offenders sentenced to the ACC are separated from the general population in some analyses.

Diagnostics. These offenders can be sentenced to 60 days for a diagnostic evaluation.

Commitments. This term is used to describe the number of offenders that are ordered by the court to the custody of DOC. Commitments include all offenders sentenced to DOC custody, including inmates that may be housed in regional jails awaiting transfer to a DOC facility.

Admissions. This term refers to offenders sentenced to a DOC facility and physically entered into a DOC facility. Admissions differ from commitments in that they do not include inmates housed in regional jails pending transfer to a DOC facility.

Violent Crimes. Violent crime is composed of four offense categories, which are also referred to as ID groups. These categories include: murder, sex crimes, robbery, and assault.

Nonviolent Crimes. Nonviolent crime consists of five offense categories, or ID groups including: burglary, property, drug, DUI, and "other". For greater detail on the types of offenses contained

in each ID group, see Lester and Haas 2005, Appendices A-C.

Average Annual Percentage Change. The annual growth rate or percent change is calculated as follows: (Vpresent-Vpast)/Vpast*100. The average is derived by the number of years being assessed for change.

Average Maximum Sentence. This is a conversion of the total maximum sentence given for all offenses into months. ACC and diagnostic populations are not included in the calculation of the average maximum sentence length. Maximum sentences that exceeded 1,000 months or more are excluded.

Mean Time Served. This is the average time served in a DOC facility, converted to months. It is calculated by subtracting the release date from the date of admission. This calculation does not include any time previously spent in jail, prior to admission into prison.

Mean Percent of Maximum Sentence Served (in months). This is calculated by taking the total time served in prison and dividing that by the total maximum sentence for all offenses. Cases with zero time served and equal to 250 months or greater are excluded from total maximum sentence calculation.

Parole Decision Rates. The parole decision rates are calculated by taking the total number of cases granted and dividing that by the total number of all decisions to either grant or deny parole. Cases placed on further consideration do not count

towards the total number of decisions.

References

Lester, Theresa K. and Stephen M. Haas (2005, February). *West Virginia Correctional Population Forecast 2004-2014: A Study of the State's Prison Population.* Charleston, WV: Criminal Justice Statistical Analysis Center, Division of Criminal Justice Services, Department of Military Affairs and Public Safety. Available online at www.dcjs.wv.gov/SAC/.

Withrow, Sara. K. (December, 2008). West Virginia Correctional Population Forecast, 2007-2017: A study of the State's Prison Population. Charleston WV: Criminal Justice Statistical Analysis Center. Division of Justice and Community Services, Department of Military Affairs and Public Safety. Available online at www.dcjs.wv.gov/SAC/.

West, Heather. C. (June, 2010) *Prisoners at Yearend 2009- Advanced Counts.* Bureau of Justice Statistics, US Department of Justice.

West, Heather. C. (June, 2010) *Prison Inmates at Midyear 2009- Statistical Tables.* Bureau of Justice Statistics, US Department of Justice.

West and Sabol, (December, 2010) *Prisoners in 2009-Bulletin.* Bureau of Justice Statistics, US Department of Justice.

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