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Population Projections
for. the
D.C. Department of Corrections

(1984 - 1986)

Prepared by:

Office of Planning and Program Analysis
D.C. Department of Corrections

James F. Palmer, Director

Robert Delmore
Chief, OPPA

Wardell Payne
Program Analyst

Introduction

This paper briefly describes and presents updated population projections for the District of Columbia Department of Corrections. Data elements pertaining to criminal justice trends and developments were examined to determine their probable impact on the Department's three sub-population categories: Detention, Sentenced Incarcerated, and Parole. The data was collected on a quarterly basis and analyzed by means of a statistical technique called multiple regression analysis to provide quarterly projections up to three-years ahead (January, 1984 to December, 1986). All data used in the analysis were produced by the Department of Corrections and other local criminal justice system agencies, notably Metropolitan Police Department, United States Attorney's Office, Superior Court, and Pretrial Services.

Methodology: Multiple regression analysis is a method of examining historical trends and relationships between a number of criminal justice variables and the population of interest. The "best" combination of variables, or predictors, are then selected for each of the major sub-populations. Estimated values for the selected variables are then obtained by linear regression or the straight line method and the resulting values are entered into the regression equation to produce moderately long-range projections for the three populations of interest. These projections are shown separately in Tables 1, 2, and 3, and in combination in summary Table 4. Because the CCC population has remained relatively stable, over time, the projections for this sub-group were determined by the linear regression or straight line method. These values are also included in the attached tables.

The following sections of the report contain supplemental information on the projections and on the selected variables found to impact on the Department's population.

Detention Population

The Detention population regression equation contains three variables, and their BETA weights, which indicate the relative importance of each variable in producing change and the direction of change in the population of interest.

(1) Guilty misdemeanor dispositions; (.55)

(2) Sentences imposed; (-.52)

(3) New commitments to Detention (.65)

These three variables account for 87 percent of the total variance in explaining the Detention population.

In assessing the potential impact of these factors on the Detention population, the following system trends and developments were taken into consideration:

(1) All three of the variables examined have increased substantially over the last three years, and trend lines indicate continuing increases during the next three years for these factors.

(2) The actual and projected increase in Guilty misdemeanor dispositions reflect in part the continued high incidence of Adult drug arrests in the District of Columbia and processing of certain drug cases as misdemeanants pursuant to the D.C. Uniform Controlled Substances Act. Adult drug arrests have averaged over 6000 annually since 1980 and are expected to increase by nearly 1000 cases annually through 1986.

(3) All sentences imposed increased by 43% between 1980 and 1983, while misdemeanor sentences alone increased by nearly 42% during this period. Sentenced felons continued to represent a substantial portion of the

Detention population (30%) and increased by nearly 33% over 1982. Delays in processing newly sentenced Adult felons have contributed to this situation.

(4) New Detention commitments increased by 38% between 1980-83 and by about 8% between 1982-83. However, there was a substantial drop in the number of Pretrial commitments (35%) and a major increase in the number of persons sentenced and serving (84%). This change can be attributed to greater use of non-incarcerative alternatives (i.e., diversion, bond release, community service) for persons in Pretrial status.

(5) The average time served by all Detention Commitments increased from 73.6 days in 1982 to 77.6 days in 1983. This change is sufficient to account for a difference of 240 persons in the Detention population during this period. This is mainly attributable to the average time served by sentenced prisoners in Detention, which was 82.7 days in 1983, an increase of 24% over the previous year.

Based on the latest projections involving the variables cited above, the Detention population is expected to range between 1903 and 2263 and will increase by quarterly increments of about 25 persons over the projection period. The housing compliance plan now in effect and completion of the Occoquan Facilities will relieve some of the overcrowding pressures on the Detention Facility. Accordingly, the new Detention projections were revised downward to take account of these changes and do not include the Occoquan Facilities

population. However, this will not be sufficient to offset the
combined effect of the system changes noted above, with the result
that the Detention population will continue to exceed rated capacity
by 38% to 64% through the end of CY 1986. (See Table 1)

Table 1. D.C. Department of Corrections Detention
          Population Projections: 1st Quarter, 1984
          to 4th Quarter, 1986.

Quarter/CY	Projected Detention Population
1/84 (actual)	(1855)
2/84 (actual)	(1907)
3/84	2015
4/84	2043
1/85	2069
2/85	2097
3/85	2125
4/85	2153
1/86	2180
2/86	2209
3/86	2235
4/86	2263

Sentenced Incarcerated

The Sentenced Incarcerated regression equation incorporates three variables, and their BETA weights as shown below:

(1) New commitments lagged one year; (.39)

(2) Sentences imposed; (.31)

(3) Guilty felons dispositions (.30).

These three variables account for 62.8 percent of the total variance in the sentenced incarcerated offenders. For this series of projections, the Occoquan Facilities population is included as part of the Sentenced Incarcerated population. However, a different method was used to compute the estimated values for these facilities.

As noted for the Detention population, the three variables found to have the greatest impact on the Sentenced Incarcerated population are also expected to increase steadily over the next three years. However, the resulting population changes will be modified by several system trends which may be described as follows:

(1) New commitments lagged one year reflects changes in the delay or time lapse between arrest and final disposition. In 1983, the delay averaged 8.9 months for felons and 3.1 months for misdemeanants. This represents an increase of 15% and a decline of 13%, respectively, compared to the previous year. This change combined with the mandated limit on the Central Facility population capacity will slow the movement of sentenced felons into Lorton, while movements of sentenced misdemeanants is likely to accelerate.

(2) Guilty felony dispositions increased by 25% between 1980-83

but only by 6.7% between 1982-83. This change may be
related to a decline in the number of Adult arrests
for Crime Index offenses observed over the last two
years, and greater use of plea-bargaining arrangements
at the pretrial stages.

(3) Both felony and misdemeanor sentences imposed increased
by about 10% between 1982-83. However, the average
minimum sentence of newly committed Adults in 1983 was
5.3 years, as compared to 3.1 years in 1982. Recently
enacted mandatory minimum sentencing legislation is
intended to enhance the average minimum sentence imposed
on persons convicted of serious crimes of violence and
certain drug offenses. The potential long-term impact
of the Act is not included in the projections, but it
is expected to add another 300 persons to the sentenced
incarcerated population.

As noted above, the Occoquan Facilities are included in the
projections with the Sentenced Incarcerated population (Table 2).
However, because of the limited data base and high variations
caused by the opening of Occoquan-2, a different method was used
to obtain the projected values for these facilities. Instead of
multiple linear regression analysis, a modified time series using
a secular trend technique was employed for this purpose. Trend-
line data from July, 1982 to December, 1985 was used to obtain
quarterly estimated values for the Occoquan facilities, and then
extended through 12/86 by means of univariate linear regression
analysis. These values were then added to the corresponding

quarterly estimates for the Sentenced Incarcerated population to produce the projections shown in Table-2.

The projections are presented on the assumption that the Occoquan-3 Facility will not come on line until the third quarter of FY 1985, which would correspond roughly to the mid-point of the projection period. This will increase the capacity of the sentencing institutions by 250 bed spaces, and permit the population of the Occoquan Facilities to expand beyond its current level of 750. Due to mandated limits on the capacities of Central, Maximum, and Youth Center-1, no appreciable increases are foreseen for these facilities. Therefore, the major impact of the expected population growth will be felt in the Occoquan Facilities.

Table 2. D.C. Department of Corrections
Projected Sentenced Incarcerated
Population: 1984 - 1986.

Quarter/CY	Sentenced Incarcerated Population		
	Lorton	Occoquan	
1/84 (actual)	(2585)	(768)	(3353)
2/84 (actual)	(2604)	(805)	(3409)
3/84	2617	(823)	3440
4/84	2621	(865)	3486
1/85	2625	(906)	3531
2/85	2629	(948)	3577
3/85	2634	(989)	3623
4/85	2638	(1031)	3669
1/86	2642	(1072)	3714
2/86	2646	(1114)	3760
3/86	2651	(1155)	3810
4/86	2657	(1196)	3853

Parole

The Parole population regression equation incorporates the following variables, the BETA weights indicate the relative importance and direction change for each variable.

(1) Adult arrests for Crime Index offenses (lagged 15 months); (.66)

(2) Sentenced incarcerated population; (-.67)

(3) Parole revocations; (-.35)

(4) Parole grants lagged one year (.20).

These variables combined account for 78% of the total variance in the Parole population. In assessing the potential impact of these variables on the Parole population, the following system factors and trends were also taken into account.

(1) Adult arrests for Crime Index offenses, lagged 15 months, were found to be positively associated with changes in the Parole population. Due to the long term trend effect, Adult arrests are expected to increase moderately over the projection period. From a systems standpoint, a rise in this variable will add to the level of over-crowding, and thereby increase the number of potential parolees.

(2) Since the Sentenced Incarcerated population is negatively associated with the Parole population, the projected increase in this factor will have an offsetting effect on the Parole population. Substantial increases in Adult drug arrests, guilty dispositions, and longer minimum sentences will all contribute to this change.

(3) Revocations are also negatively correlated with the Parole population and are expected to increase gradually

over the next three years. This reflects the comparatively high rate of parole failures currently averaging over 50%, along with a general "tightening-up" trend in response to community concerns.

(4) Parole grants lagged one year are expected to increase slightly during the projection period. This variable, however, accounts for only about 6% of the expected change in the Parole population, and will not be sufficient to offset the downward trend.

The net result of these changes will be a gradually declining Parole population as shown in Table 3. For all practical purposes, this population will remain static from the third quarter of 1984 to the end of the projection period.

Table 3. D.C. Department of Corrections Projected
Parole Population: 1984 – 1986

Quarter/CY	Projected Parole Population
1/84 (actual)	(2258)
2/84 (actual)	(2180)
3/84	2193
4/84	2193
1/85	2191
2/85	2190
3/85	2188
4/85	2185
1/86	2183
2/86	2184
3/86	2182
4/86	2181

Table 4. D.C. Departrment of Corrections Projected
Average Quarterly Population: 1984 – 1986

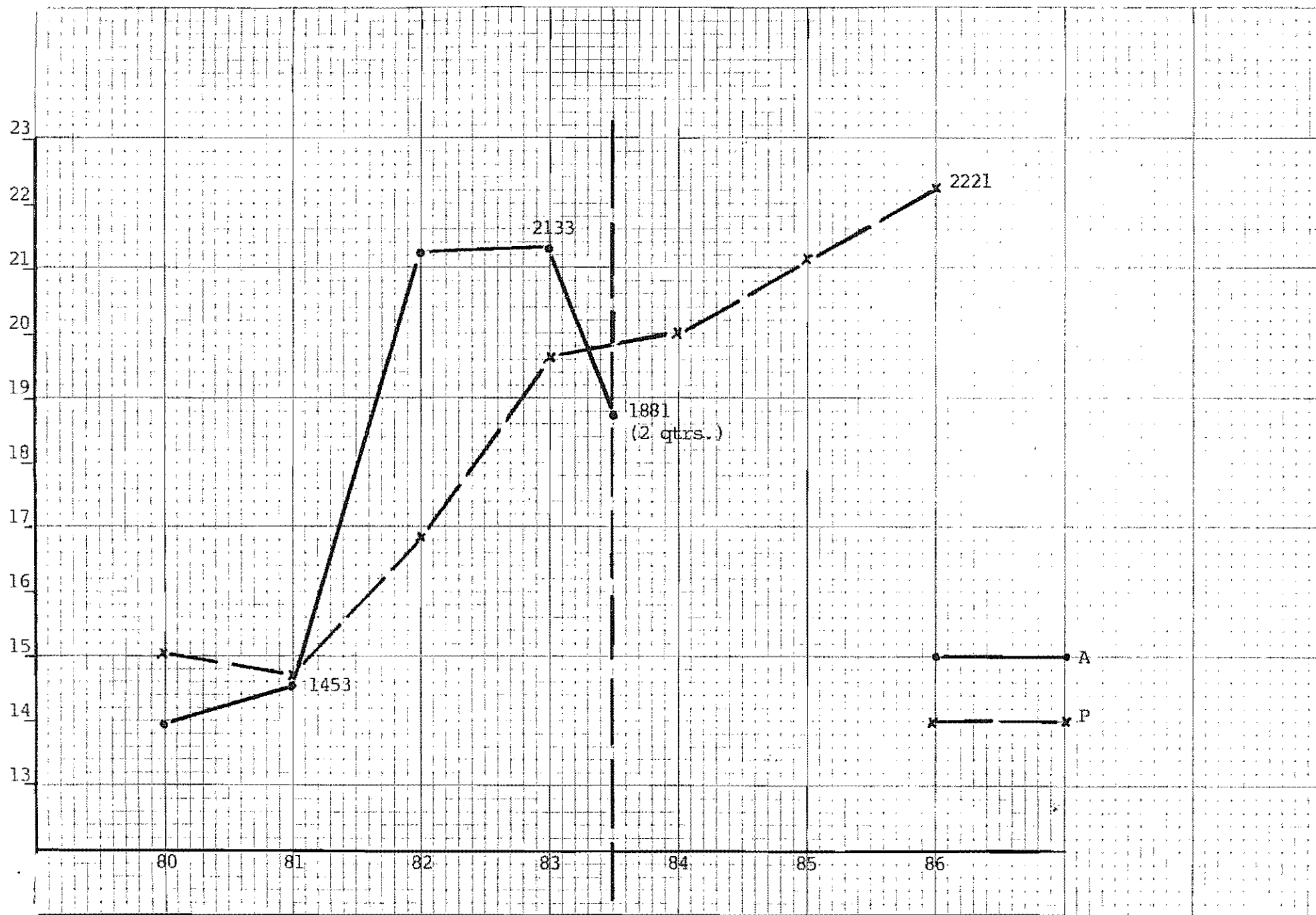| Quarter/CY | Population Sub-Group | | | | |
	Detention	Sentenced Incarcerated	Active Parole	CCC	Total
1/84 (actual)	(1855)	(3353)	(2258)	(268)	(7734)
2/84 (actual)	(1907)	(3409)	(2180)	(258)	(7754)
3/84	2015 /~~2015~~ *2099*	3440	2193	276	7924
4/84	2043 /~~2043~~ *2312*	3486 /~~3486~~ *3496*	2193 /*2028*	278/*277*	8000 /*8113*
1/85	2069 /*2393*	3531 /*3500*	2191 /*2014*	280/*296*	8071 /*82ι*
2/85	2097	3577	2190	283	8147
3/85	2125	3623	2188	285	8221
4/85	2153	3669	2185	287	8294
1/86	2180	3714	2183	289	8366
2/86	2209	3760	2182	**291**	8442
3/86	2235	3810	2182	293	8520
4/86	2263	3853	2181	296	8593

Fig. 1: Detention Services Population – past actual and projected ADP values through 1986.
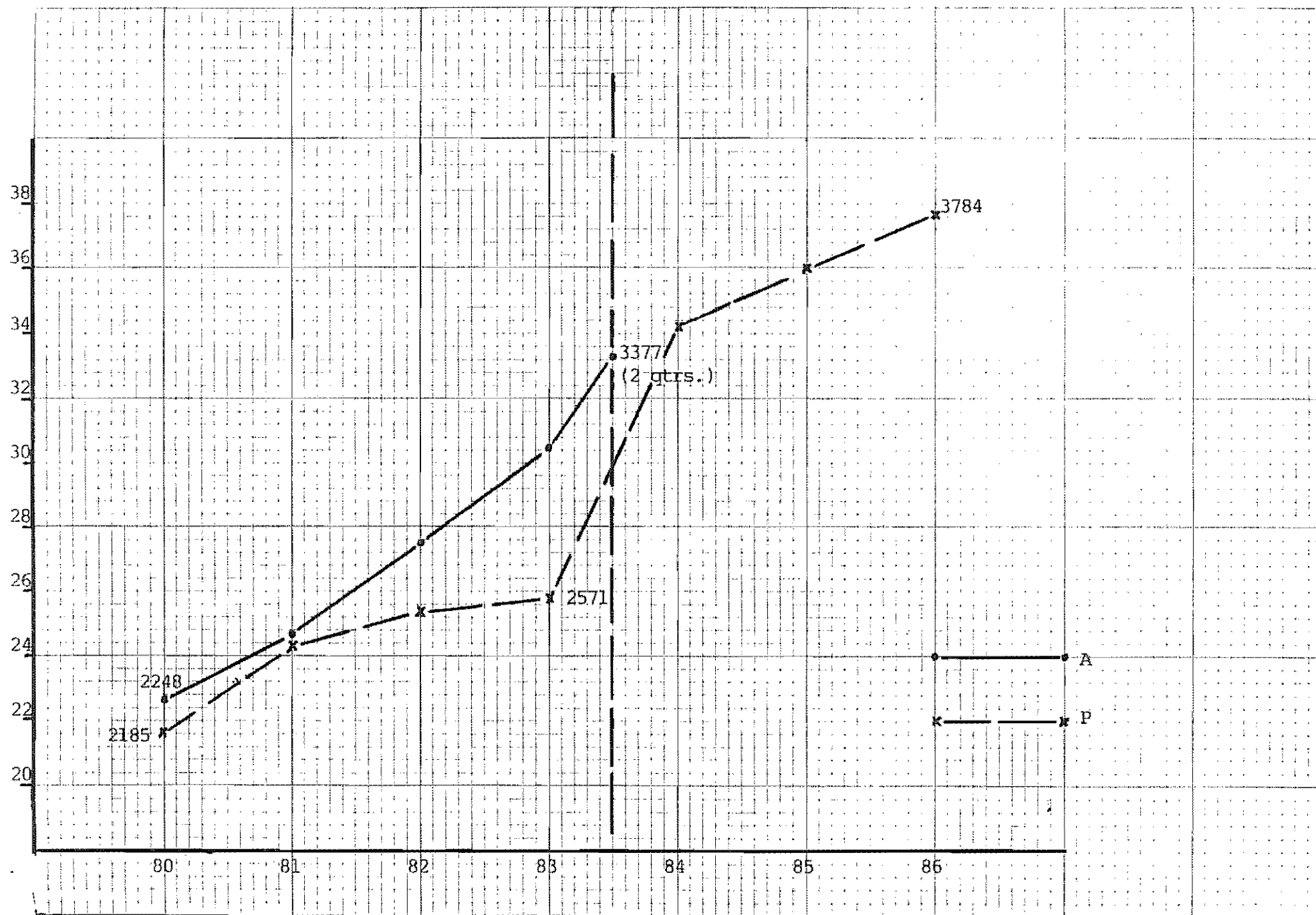
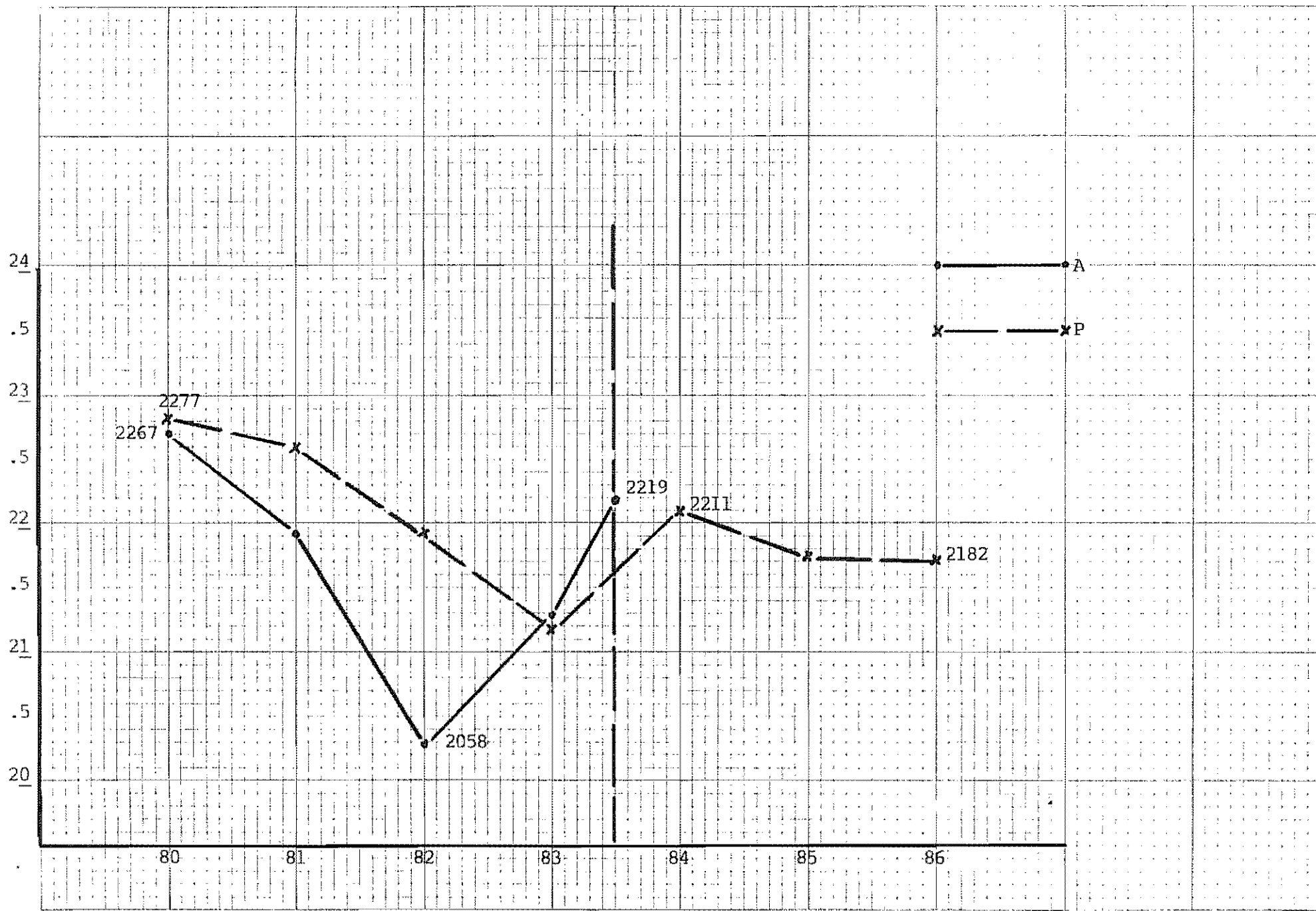Fig. 2: Sentenced Incarcerated Population – past actual and projected ADP values through 1986.

Fig. 3: Active Parole Population - past actual and projected ADP values through 1986.
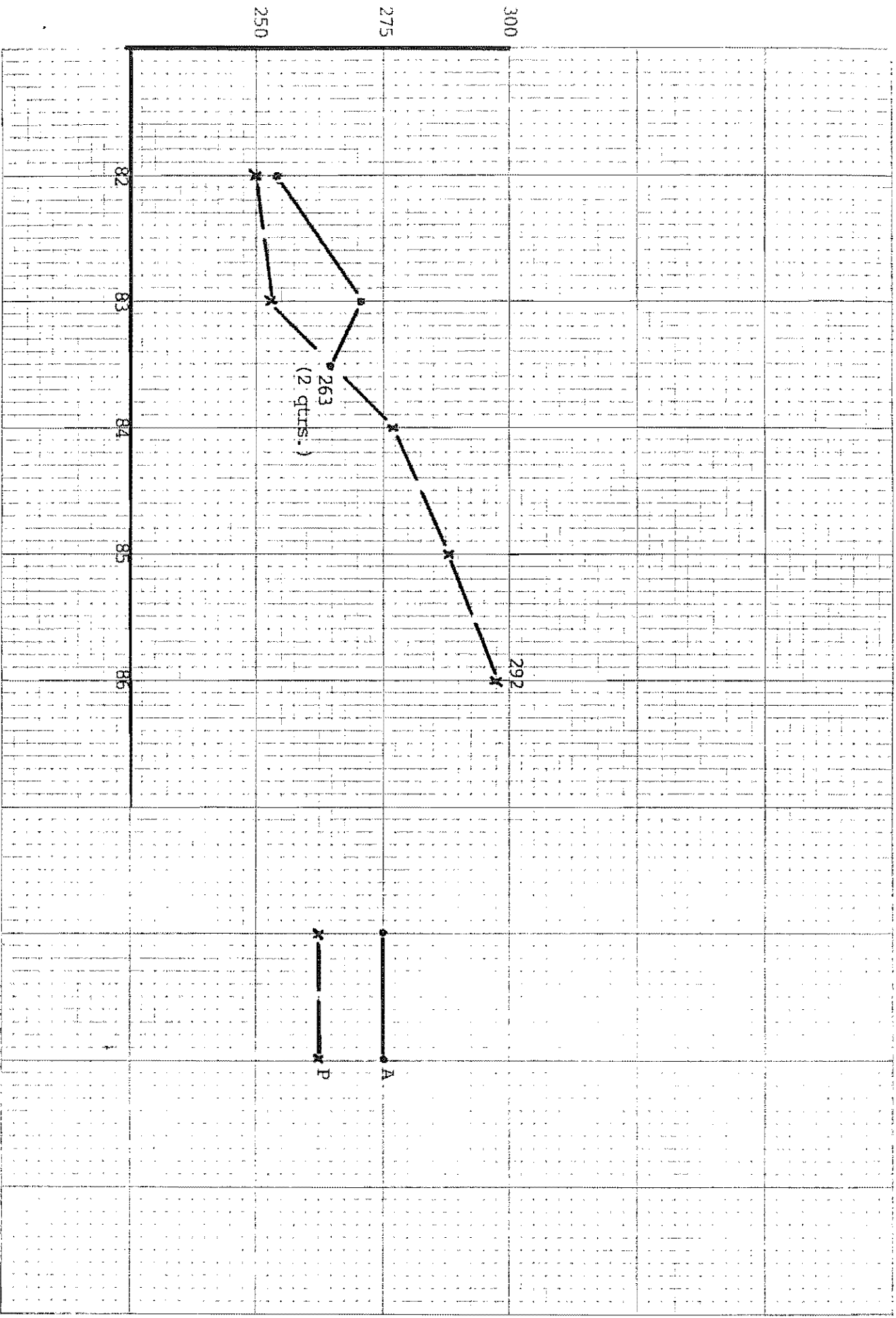
Fig. 4: CCC Population — past actual and projected values from 1982 to 1986.