

University of Montana

ScholarWorks at University of Montana

Graduate Student Theses, Dissertations, &
Professional Papers

Graduate School

1989

Assessment of need for a city/county jail in Great Falls Cascade County Montana

Mark L. Macek

The University of Montana

Follow this and additional works at: <https://scholarworks.umt.edu/etd>

Let us know how access to this document benefits you.

Recommended Citation

Macek, Mark L., "Assessment of need for a city/county jail in Great Falls Cascade County Montana" (1989). *Graduate Student Theses, Dissertations, & Professional Papers*. 9194.
<https://scholarworks.umt.edu/etd/9194>

This Thesis is brought to you for free and open access by the Graduate School at ScholarWorks at University of Montana. It has been accepted for inclusion in Graduate Student Theses, Dissertations, & Professional Papers by an authorized administrator of ScholarWorks at University of Montana. For more information, please contact scholarworks@mso.umt.edu.

COPYRIGHT ACT OF 1976

THIS IS AN UNPUBLISHED MANUSCRIPT IN WHICH COPYRIGHT
SUBSISTS. ANY FURTHER REPRINTING OF ITS CONTENTS MUST BE
APPROVED BY THE AUTHOR.

MANSFIELD LIBRARY
UNIVERSITY OF MONTANA
DATE: 1989

Assessment of Need for a City/County Jail
in
Great Falls, Cascade County, Montana

By

Mark L. Macek

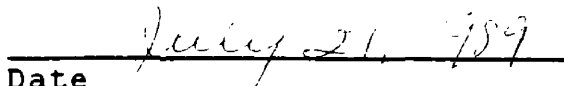
B. S., Montana State University, 1981

Presented in partial fulfillment of the requirements
for the degree of
Master of Business Administration
University of Montana
1989

Approved by


Chairman, Board of Examiners


Dean, Graduate School


Date

UMI Number: EP39996

All rights reserved

INFORMATION TO ALL USERS

The quality of this reproduction is dependent upon the quality of the copy submitted.

In the unlikely event that the author did not send a complete manuscript and there are missing pages, these will be noted. Also, if material had to be removed, a note will indicate the deletion.



UMI EP39996

Published by ProQuest LLC (2013). Copyright in the Dissertation held by the Author.

Microform Edition © ProQuest LLC.

All rights reserved. This work is protected against unauthorized copying under Title 17, United States Code



ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 - 1346

ACKNOWLEDGEMENTS

The author would like to thank Sheriff Barry Michellotti, Lt. Frank Tuss, Patty Dalke, and Sharon Leppellere from the Cascade County Sheriff's Department for their help in obtaining information regarding the Cascade County Jail. The author would also like to thank Police Chief Bob Jones and Capt. Kathy Adcox of the Great Falls Police Department for their help in obtaining information on the Great Falls City Jail. Input from these people was instrumental in the creation of this paper.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	ii
LIST OF ILLUSTRATIONS.....	v
LIST OF TABLES.....	viii
ABSTRACT.....	ix
Chapter	
1. INTRODUCTION.....	1
Discussion of the Problem	
Limitations of the Paper	
Major Goals for the Paper	
2. CURRENT ISSUES.....	4
Current Facilities	
Legal Issues	
State Wide and Legislative Issues	
Logistics	
Criminal System Process	
3. METHODS OF RESEARCH.....	17
Population Analysis	
Jail Standards Comparison	
Cost Analysis	
4. ANALYSIS OF THE RESEARCH.....	25
Population Analysis	
Jail Standards Comparison	
Cost Analysis	

Chapter	Page
5. ANALYSIS OF THE RESULTS.....	52
Population Analysis	
Jail Standards Comparison	
Cost Analysis	
Conclusion	
Appendix	
A. CURRENT FACILITY LAYOUT DRAWINGS.....	58
B. DAILY POPULATION ANALYSIS GRAPHS.....	61
C. COST ANALYSIS GRAPHS.....	71

LIST OF ILLUSTRATIONS

Figure	Page
1. Source of Inmates - Cascade County Jail.....	26
2. Average Daily Population - City of Great Falls Jail/Cascade County Jail (07/82 - 12/88).....	28
3. Average Daily Population - City of Great Falls Jail/Cascade County Jail (07/82 - 09/87).....	29
4. Average Daily Population - City of Great Falls Jail/Cascade County Jail (10/87 - 12/88).....	30
5. Total Expenditures City of Great Falls Jail (July 1984 - December 1988).....	43
6. Cost/Inmate/Day Expenditures City of Great Falls Jail (July 1984 - December 1988).....	45
7. Total Expenditures Cascade County Jail (July 1981 - December 1988).....	47
8. Cost/Inmate/Day Expenditures Cascade County Jail (July 1981 - December 1988).....	48
9. Layout Drawing - Great Falls City Jail.....	59
10. Layout Drawing - Cascade County Jail.....	60
11. Average Population City of Great Falls Jail (By Day of the Week 1985-1988).....	63
12. Average Population City of Great Falls Jail (By Day of the Month 1985-1988).....	64
13. Average Population City of Great Falls Jail (By Month 1985-1988).....	65

LIST OF ILLUSTRATIONS

Figure	Page
14. Average Population City of Great Falls Jail (By Year 1985-1988).....	66
15. Average Population Cascade County Jail (By Day of the Week 1985-1988).....	67
16. Average Population Cascade County Jail (By Day of the Month 1985-1988).....	68
17. Average Population Cascade County Jail (By Month 1985-1988).....	69
18. Average Population Cascade County Jail (By Year 1985-1988).....	70
19. Salary Expenditures City of Great Falls Jail (July 1984 - December 1988).....	75
20. Utility Expenditures City of Great Falls Jail (July 1984 - December 1988).....	76
21. Food Expenditures City of Great Falls Jail (July 1984 - December 1988).....	77
22. Other Expenditures City of Great Falls Jail (July 1984 - December 1988).....	78
23. Salary Expenditures Cascade County Jail (July 1981 - December 1988).....	79
24. Rep./Maint. Expenditures Cascade County Jail (July 1981 - December 1988).....	80
25. Prof. Serv. Expenditures Cascade County Jail (July 1981 - December 1988).....	81

LIST OF ILLUSTRATIONS

Figure		Page
26.	Food Expenditures Cascade County Jail (July 1981 - December 1988).....	82
27.	Utility Expenditures Cascade County Jail (July 1981 - December 1988).....	83
28.	Other Expenditures Cascade County Jail (July 1981 - December 1988).....	84
29.	Revenue Cascade County Jail (July 1981 - December 1988).....	85
30.	Total Expenditures Less Revenue Cascade County Jail (July 1981 - December 1988).....	86
31.	Cost/Inmate/Day Less Revenue Cascade County Jail (July 1981 - December 1988).....	87

LIST OF TABLES

Table	Page
1. Population Forecast Methods.....	31
2. Comparison of Great Falls City Jail with ACA and MSSA Standards.....	38
3. Comparison of the Cascade County Jail with ACA and MSSA Standards.....	39
4. Cost Forecasting Methods.....	42
5. Coefficients of Determination Independent Variable: Avg. Daily Pop.....	50

ABSTRACT

Macek, Mark L., M.S., June 1989
Business Administration

Assessment of Need for a City/County Jail
in Great Falls, Cascade County, Montana (87 pp.)

Director: Dr. James Novitzki

This paper discusses both the Cascade County Jail (County Jail) and the Great Falls City Jail (City Jail) from three points of view: (1) jail population; (2) national and state jail standards; and (3) cost of operation.

Many jails in the United States are facing the ever increasing problem of jail inmate overcrowding. Overcrowding in itself is not as important as the effect that it has on the constitutional rights of the inmates. National Standards have been set by the American Correctional Association to establish basic guidelines for the physical and operational aspects of jail facilities. Overcrowding leads to violation of space requirements for inmates and if taken to extremes can lead to a violation of an inmates Eighth Amendment Rights with regard against cruel and unusual punishment.

Cascade County and the City of Great Falls have some serious problems with regard to current jail facilities. The county facility suffers from overcrowding and may provide an unsafe environment for both inmate and staff during periods of overcrowding. The City of Great Falls Police Department has a large impact on the population of the County Jail.

This paper has come to a conclusion that a new facility is needed but, there is much further work that needs to be performed to define the scope of the new facility, its operation, and the changes that will occur in the judicial system and alternatives to incarceration, both of which may have a substantial impact on inmate population.

To Julie, Jenna, and Krista

CHAPTER 1
INTRODUCTION

Discussion of the Problem

This paper discusses both the Cascade County Jail (County Jail) and the Great Falls City Jail (City Jail) from three points of view: (1) jail population; (2) national and state jail standards; and (3) cost of operation.

Many jails in the United States are facing the ever increasing problem of jail inmate overcrowding. Overcrowding in itself is not as important as the effect that it has on the constitutional rights of the inmates. National Standards have been set by the American Correctional Association to establish basic guidelines for the physical and operational aspects of jail facilities. Overcrowding leads to violation of space requirements for inmates and if taken to extremes can lead to a violation of an inmates Eighth Amendment Rights with regard to cruel and unusual punishment. A 1979 article published by the National Institute of Corrections says, "Nowadays, any facility which is overcrowded is likely to be sued."¹

¹William C. Collins, "An Administrator's Guide to Conditions of Confinement Litigation," (College Park: National Institute of Corrections, October 1979), 1.

Limitations of the Paper

Over the past eighteen months a steering committee has investigated the possibilities of a new regional jail to be located in North Central Montana. In addition to Cascade County and the City of Great Falls, Toole, Glacier, and Teton Counties are interested in the regional concept. According to available statistics, the average daily population of these counties would be less than 5 percent of the population of a joint City-County facility. It is the opinion of the author that an additional 5 percent of bed space could be incorporated into a new facility very easily and that the current problems of the Great Falls City Jail and the Cascade County Jail are of more relevance. Therefore, the regional concept is not investigated in this paper.

Major Goals for the Paper

Based on the above mentioned problems, this paper investigated the need for a new jail facility in Great Falls, Montana. It may make sense for the facility to be a joint City-County facility especially keeping in mind the decision by the City to make the County hold all state statute offenders as provided by Montana Law. The purpose of this paper is to provide an objective study to determine if such a facility makes financial and logistical sense.

The following chapters describe the methodology and results of the paper. Chapter 2, Current Issues, discusses the current status of the City and County jail facilities and some of the legal issues surrounding the operation of these facilities. The chapter also reviews some of the state wide jail issues and legislative issues that may have an impact on the future of the local jails. Chapter 3, Methods of Research, reviews the research methods used to perform an assessment of need for a new facility. Chapter 4, Results of the Research, analyses the results of the research described in Chapter 3 with regard to the population analysis, jail standards comparison, and the cost of operation analysis. Chapter 5, Analysis of the Results, reviews the results of the research and states conclusions based on those results.

CHAPTER 2
CURRENT ISSUES

Current Facilities

The Cascade County Jail was constructed in 1913 at a cost of \$85,000 and originally designed to hold thirty-two inmates. The jail has undergone some changes over the years to accommodate the increasing inmate load. The detention areas have not changed significantly. The basement level (see Figure 10 in Appendix A) has been remodeled to accommodate work release inmates as well as provide space for indoor recreation. At times more than seventy people are held in the facility. In order to meet current American Correctional Association (ACA) Standards, the population load for the facility would be approximately 51 inmates based on analysis which is discussed in Chapter 3. During 1988, the average daily population was 61 inmates at an average cost of \$38.00 per day per inmate.²

As well as being overcrowded, the facility seems unsafe and may present many liability problems for Cascade County and its taxpayers. The building consists of a sandstone

²Frank Tuss, Cascade County Jail Administrator, interview by author, 12 February 1989, Great Falls.

exterior shell with an internal wood structure on the north half of the building (the administrative area) and a pre-stressed concrete structure on the southern half of the building (the inmate cell areas). An inspection of the facility was performed by the American Civil Liberties Union (ACLU) in 1985 in which they pointed out the following problems:

PHYSICAL PROPERTIES OF THE JAIL

1. CONSTRUCTION: The jail was built of stone in 1909. Being of stone there is minimal insulation.
.....

4. VENTILATION: The jail is air conditioned and vented naturally; however, the ventilation is not completely adequate. . . .
.....

7. PHYSICAL LAYOUT: On the first level are the administrative offices, dispatcher's desk, booking room, interrogation room, attorney/inmate booth. There is a large common room with a capacity of 40; at the time of the inspection there was a population of 24 inmates. Also on the first level is an isolation cell. The lower level houses an exercise room, a common room for eight inmates, all of whom are trustees, several supply rooms, and the kitchen area. The upper level includes three small rooms for female inmates, several cells which can be used for juvenile inmates or as isolation units, and ten cells with a connecting walkway, as well as numerous storage, supply, and unused rooms.

SANITATION

.....

4. TOILETS/BATHING AREAS: The connected cells and the individual cells all have urinals and small sinks. The connecting cells have a shower area at the end of the walkway. The trustees in the lower level have their own shower and bathing areas. The large common room on the ground level has a small enclosed shower, affording minimal privacy. Female inmates have their separate shower and bathing areas. The issue of

privacy needs attention and improvements.

5. EATING AREAS: Eating areas are small, especially in the individual and connecting cells.

6. SLEEPING AREAS: All individual and connecting cells are built for two people and are very crowded. The women's rooms are small to the point of being stifling. Complaints about cleanliness are directed towards fellow inmates.

INMATE SAFETY

1. FROM OTHER INMATES: In normal population periods inmates who pose a threat to the safety of other inmates can be isolated. This does create a problem during times of overpopulation.
.

3. EMERGENCY EVACUATION: There is no set plan or set of priorities for an emergency evacuation at this time. The stairwell to the upper level is narrow and built of wood, creating it's own hazard. Much of the upper level is also built of wood. A fire in the stair well or on the upper level would endanger all inmates on the upper level since there is only one stairway.

INMATE NEEDS/SERVICES:

.

2. PRIVACY: The men's shower facilities, both in the large common cell and in the individual and connecting cells, afford little privacy to the inmates. Shower curtains were torn and curtains can be missing for days before a replacement is provided. Privacy in the large common cell is non-existent, except for the questionable privacy of the shower. No bunk areas are enclosed, and the inmates must dress and undress in front of each other. The female inmates have separate shower facilities, but lack of privacy is a problem here also.
.

6. MEDICAL AND DENTAL NEEDS: There are no medical facilities at the jail. Inmates have the right to call their private doctor; if the haven't one they will be seen by the physician on call at the hospital. The inmates have no complaints about being refused medical attention.
.

10. INMATE SEGREGATION: Juvenile inmates are kept at the jail for short periods of time only, and there are usually enough empty cells for their segregation. During periods of over population, keeping juvenile inmates might pose a problem because of the shortage of individual cells.³

Lt. Frank Tuss, the Jail Administrator, objected to certain aspects of the report and clarified other points made by the ACLU. Regarding the physical properties of the jail, the large common room is designed to hold twenty-five inmates not forty. The lower level common room which was reported to house only trustees also holds work release and twenty-four hour DUI offenders. The maximum security area which was reported to have ten cells has twelve cells.

In response to the ACLU comments on inmate safety and emergency evacuation, the jail does now have an emergency evacuation plan and only the north half of the building has an internal structure made of wood. This half of the building is used for administration, storage and inmate education and art classes. The southern half of the building which houses the inmate population is constructed of pre-stressed concrete beams and slabs. However, the inmates may still be at risk due to the internal wood structure on the north half of the building in case of a fire. The facility also no longer keeps juvenile offenders

³H. Greye Verstraete, ACLU of Montana Staff Assistant, "Report on the Inspection of the Cascade County Jail," 30 March 1985.

as of late 1987.⁴

A study done in 1982 by Davidson & Kuhr Architects and the NBBJ Group found the building to be energy inefficient. They made the following comment:

A major deficiency of the building is its lack of insulation. Review of original plans and examination of the building indicate that no insulation has been installed in any of the exterior walls or roof of the building. Furthermore, it would be impractical to try and add wall insulation to detention areas because of the vulnerability to vandalism inherent in furred wall assemblies. Basement walls were also not insulated at the time they were furred out. Existing roof construction is approximately R-3.36, and wall construction is approximately R-4.0.⁵

In summary, the Cascade County jail suffers from its age, energy inefficiency, inadequate ventilation, inmate privacy, inmate safety, staff safety, staff inefficiency (due to facility design), overcrowded conditions, and lack of on-site medical attention and assessment. These conditions place the taxpayers of Cascade County at risk if Cascade County were to be sued.

The City of Great Falls Jail has been in its current location since 1974 (12 First Avenue South). In an interview with Bob Jones, Chief of Police, the following points were made with regard to the physical aspects of the facility:

⁴Lt. Frank Tuss, Cascade County Jail Administrator, interview by author, 4 April 1989, Great Falls.

⁵Davidson & Kuhr Architects, P.C., The NBBJ Group, "City/County Adult Detention Facility Report," 22 March 1982, 10.

1. Energy efficiency of the building is poor due to brick construction of the exterior shell and the use of non-energy efficient single pane windows.
2. More square footage is needed in the inmate dining and exercise areas.
3. Attorney/Client conference areas are inadequate.
4. All juveniles previously being held in Cascade County are now being held in this facility. Because they must be separated from the adult population, this severely limits the ability of the jail to hold adult prisoners when a juvenile is being held.
5. The facility has space for twenty seven inmates maximum although ACA standards for space requirements are exceeded when more than 17 inmates are incarcerated. There is a main cell which will hold ten inmates; three cells which hold four inmates; two cells which hold two inmates (normally women); and one combatant cell which is padded and holds one inmate.⁶

In general, the City of Great Falls Jail has adequate space for holding prisoners. There were an average of 12 inmates per day in the facility during 1988 at an estimated average cost per day per inmate of \$24.00 (estimated by Chief Jones). In October 1987, City Judge Robert Tucker discovered that the City was not required to hold inmates being held or convicted under state statutes.⁷ This finding and subsequent action substantially increased the amount of people being held at the Cascade County Jail (adding more burden to their over-crowding problems) and reduced the

⁶Jones, Robert, City of Great Falls Police Chief, interview by author, 12 February 1989, Great Falls.

⁷Robert Tucker - City Judge, to Dave Gliko - City Attorney, 27 October 1987, Inter-Office Memorandum, "Potential Liability Problem."

inmate population at the City Jail. According to Chief Jones, inmate and staff safety are not a concern at the City facility because of its physical layout.

The current City Jail is adequate for the needs of Great Falls as its responsibilities are currently defined under state statutes. A problem does exist when the County Jail is overcrowded to the point that no more people are accepted. The population load then backs up to the City Jail and eventually offenders are being turned loose because there is no where to keep them. The City has had to release approximately 10 inmates earlier than normal since March, 1989.

Legal Issues

Liability is the major legal issue concerning the current County facility. Cascade County is self insured and the fear of the County Commissioners is that something will happen to an inmate or staff person as a result of the condition of the existing facilities resulting in a large lawsuit. "The jail does not meet many Federal Standards or proposed State Standards for incarceration of inmates," says Frank Tuss, the Cascade County Jail Administrator.⁸ If the County is sued and found at fault it may be the taxpayers who will pay the price. The cost of such a lawsuit may

⁸Lt. Frank Tuss, Cascade County Jail Administrator, interview by author, 12 February 1989, Great Falls.

involve an amount that would approach the cost of constructing a new facility.

An article issued by the National Institute of Corrections which was mentioned previously states:

"Cruel and Unusual Punishment" has taken on a new meaning to many correctional administrators in recent years as the Eighth Amendment's prohibition against cruel and unusual punishment has been applied to the conditions of confinement in many of America's prisons and jails. No longer is the Eight Amendment limited to prohibiting the use of such things as the rack and screw, nor to providing the source for lofty, abstract debates over the death penalty. The cruel and unusual punishment clause may now provide the vehicle for a court to scrutinize, in minute detail, the nuts and bolts of a correctional facility or system and virtually to take over the operation of a facility or system which fails to meet constitutional minima.⁹

The problems that Cascade County is facing are evident in most of the counties in Montana. Two authorities on Montana jails, Pete Howard and H.Grey Verstraete, say that the best thing that many counties can do with their jails is "get a bulldozer."¹⁰ Pete Howard is a past Sheriff of Teton County and current Justice of the Peace for Teton County. He has been involved with the Montana State Sheriff's Association and the Montana Board of Crime Control in trying to establish and implement state wide standards for jails. H. Grey Verstraete is a Staff Assistant for the ACLU located

⁹Ibid., idem, "An Administrator's Guide to Conditions of Confinement Litigation," 1.

¹⁰Associated Press, "Few Montana Jails Meet Standards," Great Falls Tribune, 7 June 1988, 11A.

in Billings, Montana and has also been involved in the formulation of jail standards in Montana. Although counties realize that there are many problems regarding their facility age, design, staff, and space requirements, they do not have the funds to correct the problems. Many county citizens don't really care about the condition of inmates and their rights, they are comfortable with "locking them up and throwing away the key."

Cascade County Sheriff's Department personnel tried unsuccessfully to get a jail construction bond issue on the election ballot through petition drives both in 1983 and 1985. The existing liability situation places County officials in a position where they must educate their citizens and take the actions necessary to solve the problems at hand.

State Wide and Legislative Issues

The State of Montana has done a significant amount of work in evaluating current jail problems. In late 1983, the Montana Board of Crime Control established a Jail Committee. The function of this committee was to study the problems associated with local jails and their impact on local and state government.

The committee was to also make recommendations for solving the problems found and prepare legislation for the 1985 state legislative session. With a grant from the

National Institute of Corrections (NIC), the committee set off on its task and selected nine sample counties that they determined would give a representative idea of the problems faced by the entire state.

The study evaluated the jails using the jail standards adopted by the Montana Sheriff's Association and concentrated in four major areas: (1) cost to comply with the proposed jail standards; (2) true daily operating costs of the jails (many counties have jails attached to their Sheriff's Offices and costs are lumped together with the Sheriff's general operating costs); (3) population analysis of the jails on a given day; and (4) development of criteria for the secure detention of juveniles and estimates of the number of youth detained in adult jails on a statewide basis.

The results of this study are summarized as follows: (1) the cost of compliance for making all jails in the State of Montana acceptable under the proposed standards of the MSA would be approximately \$47.1 million. This figure could be substantially higher if the jails were forced to comply with the standards of the ACA ; (2) the cost of daily operation of jails facilities ranged from a low of \$39.42 per inmate per day to a high of \$116.27 per inmate per day with the average being \$63.42 per inmate per day; (3) the amount of cell space is not the problem, the distribution of cell space is, due to the tradition of each county having its own

jail (There is an average daily population of 411 inmates in the all of the jails statewide and there are 1,125 cells); (4) local attitude and sentencing policy has an impact on the length of stay which varies widely from county to county; (5) a significant change in jail population is not expected in the near future; (6) existing funding constraints hamper attempts for proper funding of jail construction and operation; (7) the high cost of jail construction and operation puts severe pressures on county budgets; (8) multi-county jails may offer some relief from these budget constraints; and (9) there were many administrative and legal constraints to the construction and operation of a multi-county facility.¹¹

The 1989 Montana Legislature reviewed and voted down several bills regarding Montana jails. The major road block still appears to be in the area of funding. Financial help is needed by the counties from the state for adequately constructing and staffing jail facilities.

Also, the current lease constraints in the state statutes allow for counties to set up lease contracts with terms of 5 years or less.¹² This time constraint limits possible private enterprise participation in constructing

¹¹Jail Committee of the Montana Board of Crime Control, MONTANA JAILS (Helena: State of Montana Board of Crime Control, Jail Committee, April 1985)

¹²M.C.A. Section 7-5-2306 (1987).

and leasing back the facility to the controlling entity because of the risk involved of financing such a project with no long term guarantee for a lease. The lease term should be extended to 20 or possibly 30 years to allow local governments the option of using private enterprise for construction. The advantages and disadvantages of private participation in such public facilities will not be discussed in this paper. The North Central Montana Regional Correctional Facility Steering Committee, which has been commissioned by the Cascade County Commissioners and the City of Great Falls Commissioners, is investigating changes in the applicable statutes and will be addressing them in the 1991 session of the Montana Legislature.

The Montana Sheriff's Association introduced Senate Bill 282 through Senator Gage to set up a jail standards commission which would establish and administer jail standards on a state wide basis. The bill made it through both the House and Senate but was defeated in the Appropriations Committee. The fact that there will be no state standards for at least another two years does not relieve jail facilities from being reviewed under current American Correctional Association Standards. Many counties feel that they are safe from being asked to comply with standards because there are no state standards when in fact ACA standards can be used to evaluate their facility.

Logistics

The logistics of providing a jail facility is of major importance when determining the need for a new facility in Great Falls. If it is evident that there is a need for a new jail, should it be a combined facility? Many factors have to be evaluated in depth to come to a firm conclusion. This paper addresses the current cost of operation of each facility and identify where costs saving may result if a joint City-County facility is constructed.

Criminal System Process

Many factors affect the population of the City and County Jails. The jails themselves are at the mercy of the Sheriff and Police Departments by the number of arrests made. They are also at the mercy of the courts depending on the amount of bail set for inmates and the number of people sentenced to serve time in the facilities. The Sheriff's Department, Police Department, and Judges are in turn responsible to the citizens of Great Falls and Cascade County to protect them from criminals and criminal actions. This paper does not investigate the Arrest or Judicial Systems although they are likely to have a significant impact on the population of both the City and County Jails.

CHAPTER 3
METHODS OF RESEARCH

This paper utilizes three major areas of research to evaluate the need for a new jail facility. They are: (1) a population analysis of both the City and County facilities; (2) an evaluation of each facility using American Correctional Association Standards (ACA) and proposed state standards developed by the Montana State Sheriff's Association; (3) an analysis of the cost of operation of each facility and an estimate of the cost of operation of a new facility which would conform to national and proposed state standards.

Population Analysis

A daily population for both the City and County Jail was evaluated from January 1, 1985, through December 31, 1988, to determine if there were significant differences in the population of each day of the week, each day of the month, and each month of the year.

The daily population numbers for the City were taken from the daily work logs at midnight for the City Jail. The count was taken at this time because this is when the population is likely to be at its maximum according to Capt.

Kathy Adcox.

The daily population numbers for the County Jail were taken from the daily jail roster. The roster is developed on a daily basis by the jail staff. The cut off time for the jail roster is 8:00 A.M. These daily population numbers from January 1, 1985, through December 31, 1988 were entered into the spreadsheet and transferred to the statistical software. The statistical software was used to determine the arithmetic mean of the population by day of the week, day of the month, month of the year, and year. The results of these calculations were then written down and keyed into the graphical software for development of bar graphs.¹³ Briefly, the population of the County Jail was relatively constant for each day of week, day of the month, and month of the year as compared to the City Jail population which showed more variation. The results of the analysis are discussed further in the Population Analysis section of Chapter 4.

Monthly averages of the daily population from July, 1982 through December, 1988, which had previously been calculated by both the City and County, were used to determine population forecasts as well as the correlation between

¹³ LOTUS 1-2-3 Version 2.01 (Cambridge, M.A.: Lotus Development Corporation). NCSS - Number Cruncher Statistical Software Version 5.10 (Kaysville, Utah: Dr. Jerry L. Hintze). Harvard Business Graphics Version 2.00 (Mountain View, C.A.: Software Publishing Corporation).

inmate population and cost categories for each facility.

A computer spreadsheet was used as a basis for developing population and cost analysis data tables. This expedited the development of data tables for the paper and also allowed exporting of the data to computerized statistical analysis software and graphical presentation software.¹⁴ These data tables are not included as part of this paper. They are available free of charge from the author upon written request.

Jail Standards Comparison

As mentioned in Chapter 1, inmate overcrowding can lead to a violation of an inmates Eighth Amendment Rights regarding cruel and unusual punishment. This paper compares the physical characteristics of both the City and County Jails with the current standards for local detention and holding facilities. These standards have been developed by the American Correctional Association to help jail administrators and local government officials provide a safe and adequate facility for both inmates and staff. Although jail standards have been developed for Montana by the Montana State Sheriff's Association, these standards have been taken before the state legislature several times without success. Therefore, there are no established state guidelines.

¹⁴Ibid.

The major emphasis of comparison is in the physical space allowed for each inmate in various parts of each facility. The number of sinks, toilets, and drinking fountains will also be compared. Mention is made of each facility administrator's perception of the general overall condition of their facility and its design for inmate and staff safety. The proper amount of staff is important for both inmate and staff safety.¹⁵

The findings in this area are supported with text as well as shown in tabular form in the Jail Comparison section of Chapter 4.

Cost Analysis

The cost of operation of each facility was developed by evaluating their budgets and financial records. The City Jail cost of operation has been developed by working with Capt. Kathy Adcox in reviewing monthly expense ledgers from July 1984 through December 1988. Salary costs were calculated by determining who was working in the jail during the period of time and proportioning their salary accordingly. The total cost of salaries was determined for the year and equally divided by month. The salary cost does include gross wages as well as employer contributions.

The cost of the utilities (electricity, water, and gas)

¹⁵American Correctional Association, STANDARDS for Adult Local Detention Facilities, Fourth Printing, (College Park, Maryland: 1987).

was estimated on a percentage of the total building utility cost. The jail occupies 7.91 percent of the total space in the Great Falls Police Department. This percentage was multiplied by the total cost of each utility to determine the amount applicable to the operation of the jail. Because the amount of water used by the inmates is greater as compared to the rest of the building, 10 percent was added to the 7.91 percent square foot factor. Inmates expend a larger share of the water because of shower and 24 hour lavatory use. Therefore, 17.91 percent of the total water cost was applied to the jail. Also, monthly water charges were not available except for fiscal year 1987-1988 (the City and County fiscal years run from July 1 through June 30). As an approximation, the monthly figures for 1987-1988 were decreased by 5 percent per year for the months prior to that period and the months following the 1987-1988 fiscal period were increased by 5 percent. These approximations had negligible impact on the total costs for the jail because of the their amount as compared to the total expenditures. Meal cost for inmates were actual monthly costs taken from the monthly ledgers.

Other costs include telephone costs, equipment maintenance, building maintenance and supplies, inmate medical costs, office supplies, jail supplies, operating supplies, and printing and publishing supplies. The telephone cost per month was determined by the bookkeeper at

the Police Department as the cost of the lease of one phone per month. Equipment maintenance cost was estimated at 15 percent of the total for the year and spread equally over each month. Building maintenance services and supplies were estimated by multiplying the total yearly expenditure for the Police Department by the percentage of the building that the jail occupies in square feet which is 7.91 percent. Medical expenditures were actual expenditures for the jail which were minimal.

Office supplies were estimated at 5 percent of the yearly total for the Police Department. Jail operating supplies were taken from actual yearly costs. Operating Supplies were estimated at 5 percent of the yearly total of the Police Department. Printing and publishing costs were estimated at 8 percent of the yearly Police Department total. These total costs for the year were then spread equally over twelve months. Each of the percentages used in the above calculations were developed by going through the 1987-1988 budget year expenditures to determine what percentage the jail expenditure was of each category. These percentages were then applied to other years. In the case of the final six months of 1988, the total expenditures were divided by six rather than twelve in the appropriate expense categories mentioned above.

The expenditure information for the County Jail was more easily obtainable and more accurate than the information

from the City Jail. The accounting system used by the County has budget categories for jail expenses and this actual information was available by month for the following categories; salaries, office supplies, operating supplies, food, janitorial supplies, recreational supplies, inmate clothing and personal supplies, repair and maintenance supplies, printing and duplicating supplies, utilities, professional services, repair and maintenance services, other purchased services, insurance, jail improvement, and jail revenue. For the purposes of this paper some of the categories of expense were combined. This combination will be described in the following chapter.

In the case of both the City and the County expenditure information, the data was entered into the spreadsheet software and calculations of total expenditures and cost per prisoner per day were performed. Naive, moving average, and exponential smoothing models were used to develop forecast values for the data. The forecasting model with the least mean squared error was used for each cost category.

In establishing the expected cost to operate a new facility, this paper will use existing actual information on the operation of the new jail facility constructed in Billings, Montana. This facility houses the County inmates for Yellowstone County as well as the inmates formerly housed by the City of Billings. The total expenditures and inmate days will be used to calculate the cost per prisoner

per day. The cost per prisoner per day will then be applied to the population projections of the City of Great Falls and Cascade County facilities to estimate a total operational budget.

CHAPTER 4

ANALYSIS OF THE RESEARCH

Population Analysis

The number of inmates incarcerated in the Cascade County Jail during 1988 was 2,178. Figure 1 shows the distribution of who brought the inmates to the facility. The Great Falls City Police Department transported 46 percent of the total number of inmates to the facility. The Cascade County Sheriff's Department was responsible for 31 percent. The Montana State Highway Patrol was responsible for 14 percent. The Federal Government, other counties, other states, and other agencies which consist of the Great Falls Pre-Release Center, the Montana State Prison, and people turning themselves in, consisted of a minor percentage of the bookings into the facility.

The total number of inmates incarcerated into the City of Great Falls Jail in 1988 was 7,656. It was estimated by Chief Jones that 93 percent of these incarcerations were a result of City Police arrest and the other 7 percent consisted of juvenile arrests by other agencies and Montana

Source of Inmates Cascade County Jail (1988)

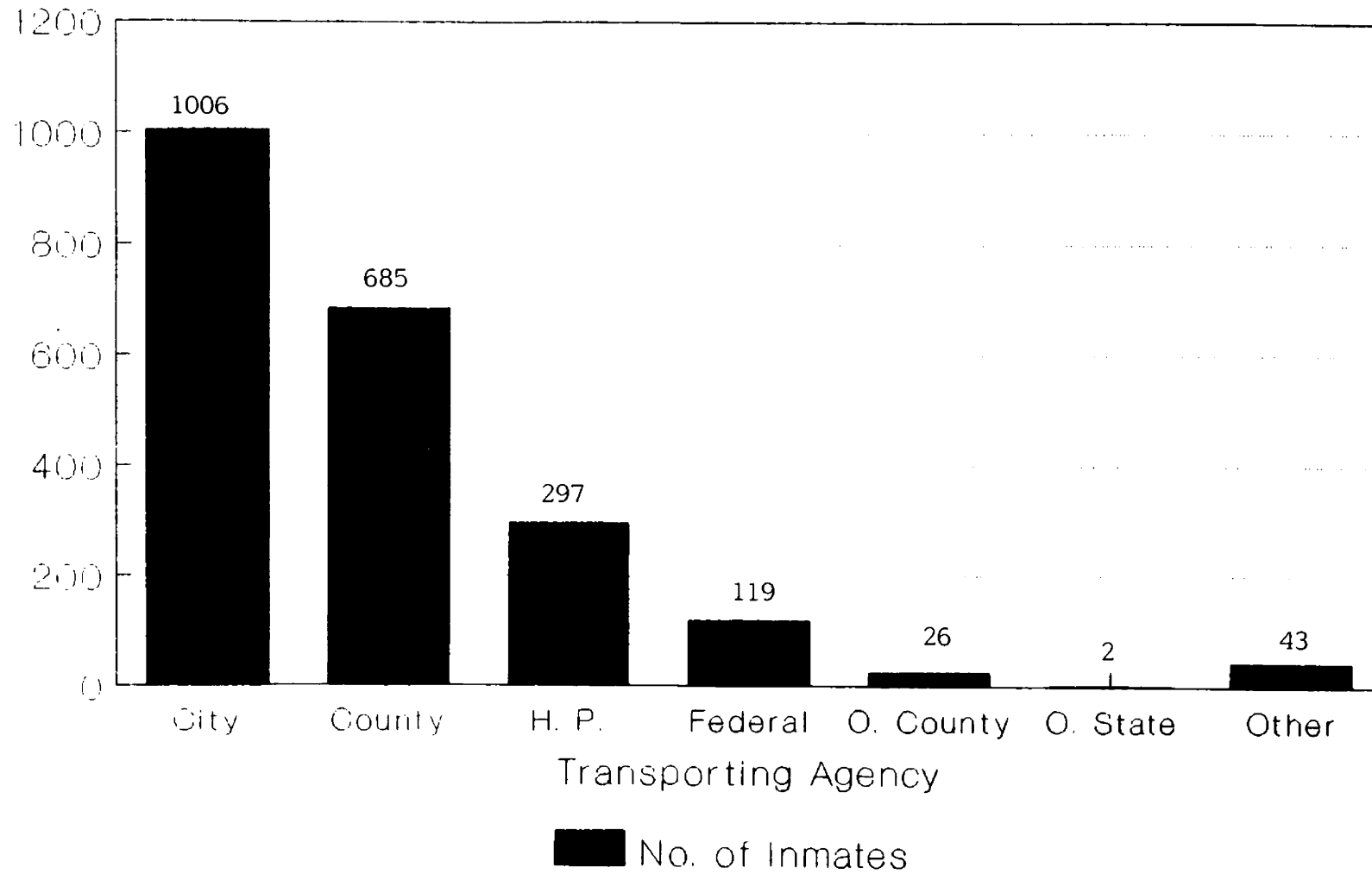


Figure 1.

State Highway Patrol DUI arrests.¹⁶

The monthly averages for inmate population for both the City and County were analyzed and the total time period of the analysis (July, 1982 through December, 1988) is plotted in Figure 2. An interesting point that can be seen from looking at Figure 2 is the increase in population of the County Jail and the corresponding decrease in population of the City Jail during the last quarter of 1987. This is when the City Judge, Robert Tucker, determined that the City Jail should no longer hold inmates incarcerated under Montana State Statues. As a result of the apparent impact of this decision on the population of the facilities the total analysis period is broken down into two periods. The time period before Judge Tucker's decision (July, 1982 through September, 1987) is plotted in Figure 3 which shows a fluctuating and increasing County population as well as a steadily increasing City population. The time period after Judge Tucker's decision (October, 1987 through December, 1988) is plotted in Figure 4 which shows an rapid increase of 38 inmates per day for the county from October, 1987 to May, 1988. The figure also indicates a rapid decrease in City population of 10 inmates per day from October, 1987 to December, 1987. In each of the three previous figures the actual populations are shown along with the calculated

¹⁶Jones, Robert, City of Great Falls Police Chief, interview by author, 5 May 1989, Great Falls.

Average Daily Population (by Month) City of Great Falls Jail and Cascade County Jail (7/82 - 12/88)

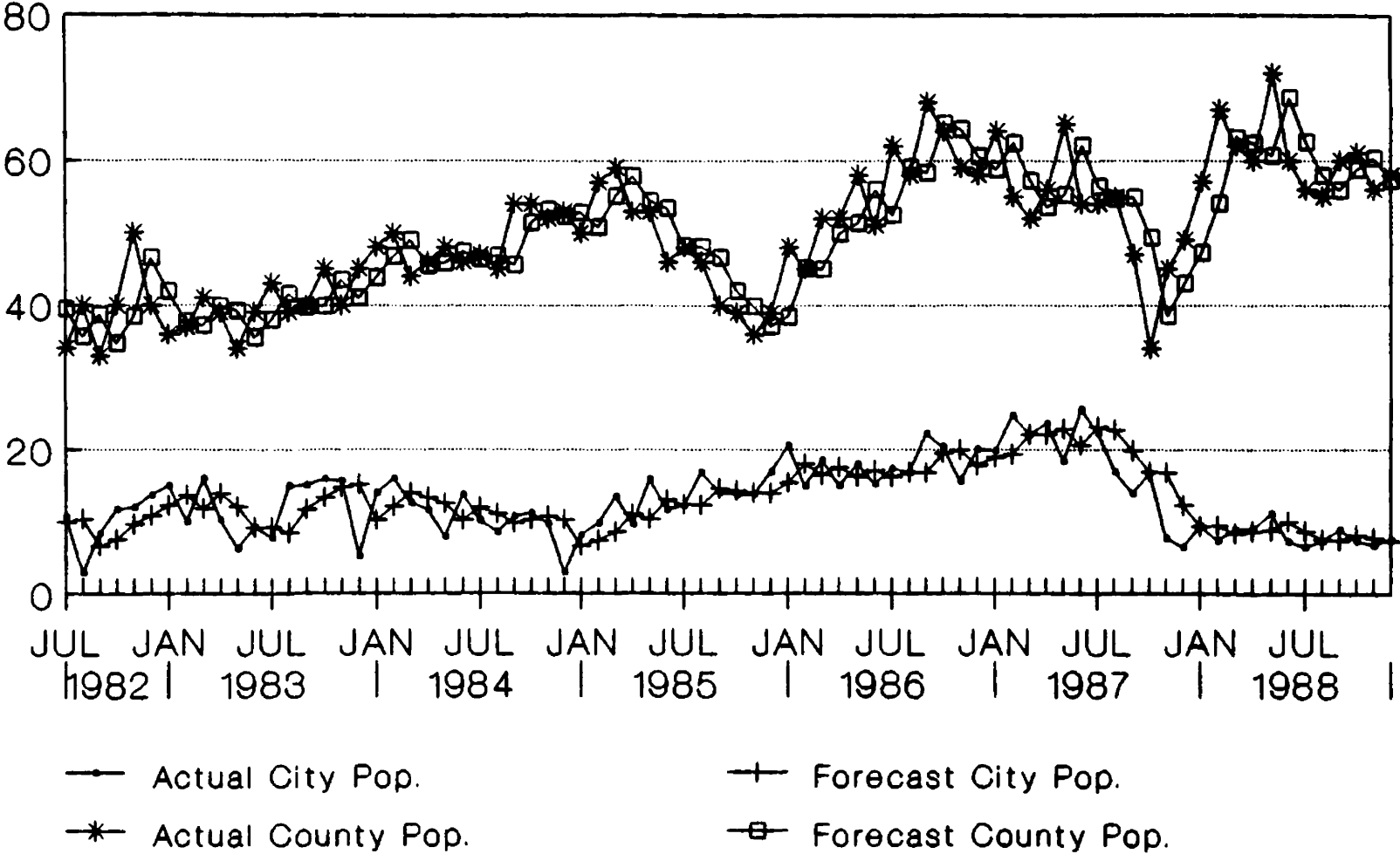


Figure 2.

**Average Daily Population (by Month)
City of Great Falls Jail and
Cascade County Jail (7/82 - 9/87)**

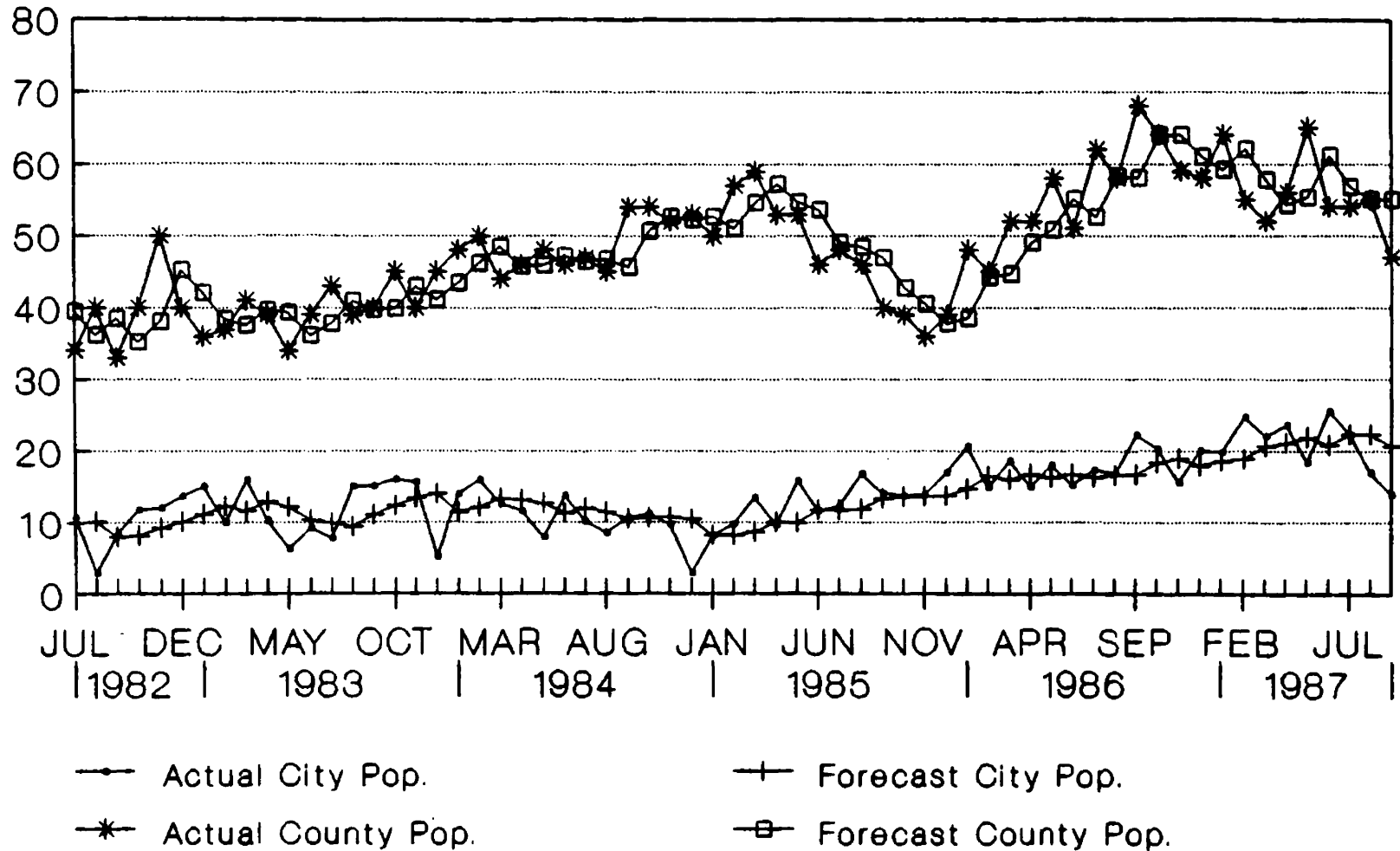


Figure 3.

**Average Daily Population (by Month)
City of Great Falls Jail and
Cascade County Jail (10/87 - 12/88)**

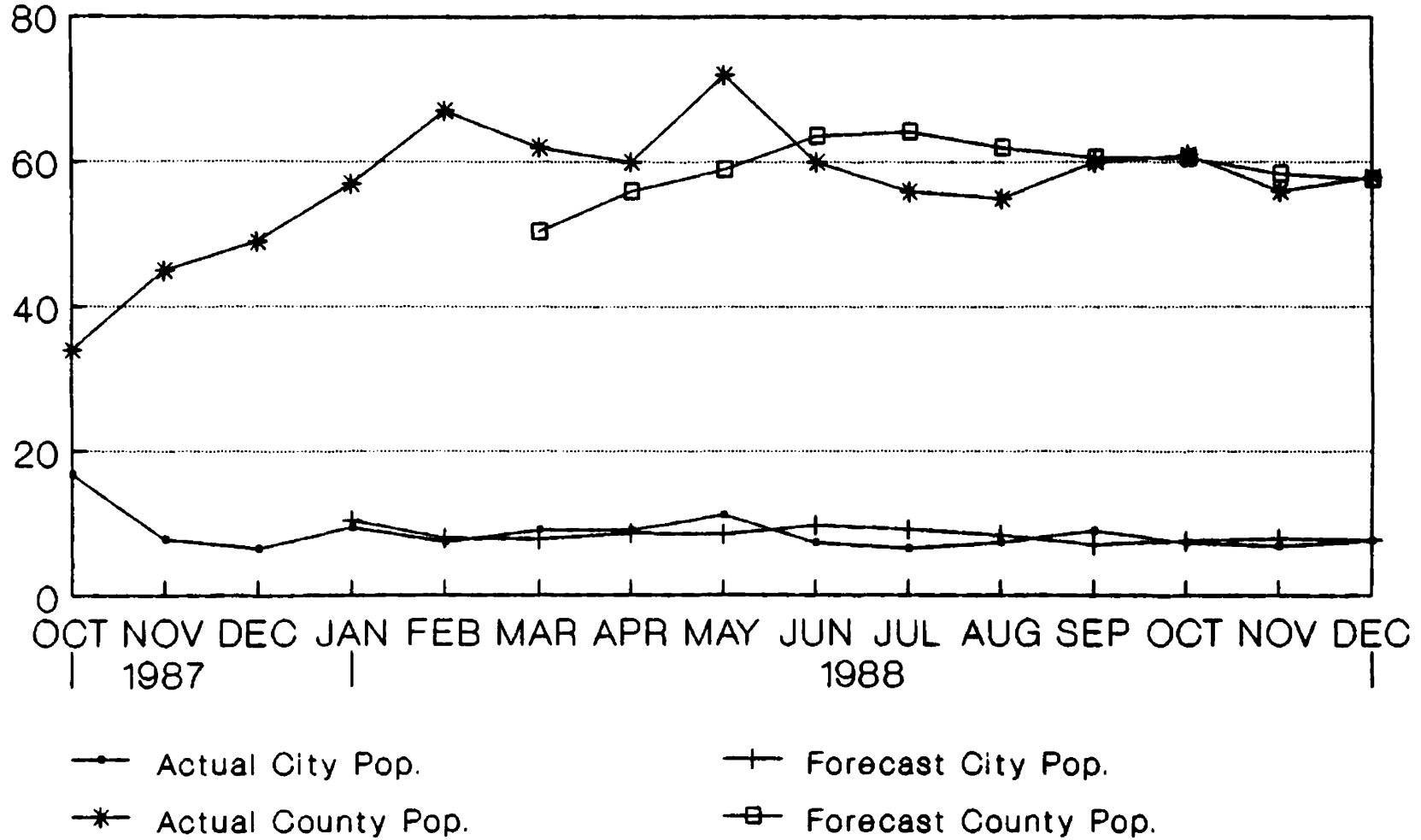


Figure 4.

forecast populations for each facility. In determining the forecast populations, a series of forecasting models were developed using the LOTUS 1-2-3 spreadsheet program. These models included a 3 month moving average, 4 month moving average, 5 month moving average, naive, linear regression, and exponential smoothing with the smoothing constant (alpha) which varied from 0.0 to 1.0. The mean absolute error (MSE), mean absolute deviation (MAD), and the mean absolute percentage error (MAPE) were calculated for each model on each set of data to determine which model has the least error for the forecasts. The lowest MSE was used as the determining factor for choosing the best forecast. Table 1 indicates the forecast method chosen for each set of data.

Table 1.--Population Forecast Methods.

Data Period	Shown in Figure	Forecast Method
County Population		
07/82 through 12/88	2	Exp. Smoothing (alpha=.5)
07/82 through 09/87	3	Exp. Smoothing (alpha=.3)
10/87 through 12/88	4	3 Month Moving Average
City Population		
07/82 through 12/88	2	Exp. Smoothing (alpha=.7)
07/82 through 09/87	3	Exp. Smoothing (alpha=.6)
10/87 through 12/88	4	5 Month Moving Average

The coefficient of determination was also calculated to determine the relationship of the City Jail population to

the County Jail population. In comparing the County population (dependent variable) as a function of the City population (independent variable) the calculated R^2 values were: 0.0243 for the total time period from July, 1982 through December, 1988; 0.2312 from July, 1982 through September, 1987; and 0.1678 from October, 1987 through December, 1988. Although the jail populations are more correlated during the period before Judge Tucker's decision than they are after the decision, the relationship between the populations during each of the periods is very low and not statistically significant.

Daily population information for the Great Falls City Jail was analyzed to determine arithmetic mean values over four years (January, 1985 through December, 1988) for average daily population by day of the week, day of the month, month of the year, and total for each year. Graphs were developed using the mean value calculations and are shown in Appendix B. For the City Jail, Saturday and Sunday evenings were the times when the facility was the fullest. The rest of the week had an average population of between thirteen and fourteen inmates. This type of fluctuation was expected by Capt. Adcox and Chief of Police, Bob Jones. Fluctuations in population by day of the month indicate that the highest periods appear to be the fifth of the month, seventeenth of the month, and the twenty seventh of the month. Capt. Adcox had the opinion that these peak periods

might coincide with welfare or other government payments to low income people. This aspect is beyond the scope of this paper and will not be reviewed here. The average population by month of the year data shows that March and May are the peak months and November and December are the lowest population months. Also the average population by year data indicates that there was an increase in population of 4.90 from 1985 to 1986, the population remains similar from 1986 to 1987, and there is a sharp decrease of 10.04 in population per day from 1987 to 1988. This sharp decrease again reflects on the impact of Judge Tucker's decision not to incarcerate state statute offenders in the City Jail.

The daily populations for the Cascade County Jail from 1985 through 1988 were also analyzed to determine arithmetic mean values over the four years for average daily population by day of the week, day of the month, month of the year, and total for each year. Graphs representing the results of this analysis are located in Appendix B. The population for each day of the week is quite constant at about 54 inmates. This was unexpected by Lt. Tuss who estimated that Monday would be a high day and Wednesday would be a low day. The data also shows stability in inmate population by day of the month. Analysis of the data by month of the year shows that May is a peak month for the County Jail. October, November, and December are low inmate population months. These characteristics are similar to the City Jail. The monthly

population is also relatively constant when compared to the City Jail's monthly average population. In looking at the average daily population for each year, there was an increase of 9.25 from 1985 to 1986, a decrease of 3.93 from 1986 to 1987, and an increase of 8.01 from 1987 to 1988.

In summary, the inmate population of the City Jail fluctuates much more than the County Jail inmate population and the decision of Judge Tucker has had a substantial impact on both facilities. The projected future populations of both facilities were calculated using linear regression equations developed for the time period between October, 1987 and December, 1988. The equation for the City population is: $Y=10.71 + (-0.27)X$. The Y intercept is at 10.71 and the average population will drop 0.27 inmates every month. The equation for the County population is: $Y=49.43 + (0.92)X$. The Y intercept is at 49.43 and the population will increase 0.92 inmates every month on the average.

As a result of projecting out the above linear regression calculations, the City population falls below zero in January, 1991. This is unrealistic because of the impact of the period of rapid decrease in population as a result of Tucker's decision on the linear equation. To more accurately forecast the City population, the linear equation for the city population prior to Tucker's decision was calculated to be: $Y=8.15 + (0.19)X$. The slope value of 0.19

of this equation is combined with the Y intercept value (10.71) of the linear equation for the period after Tucker's decision to form the new equation: $Y=10.71 + (0.19)X$. This equation shows the City population increasing at a rate similar to the growth experienced over the period from July, 1982 through September, 1987. Judge Tucker's decision caused a step down in population and a Y intercept value of 10.71. The forecasted population values for the City Jail population are: (December 1990) 18; (December 2000) 41; (December 2010) 64; (December 2020) 87. In the next section, the jail standards comparison establishes a maximum inmate population of 17 or less in order for the City facility to comply with current ACA standards. Based on the linear regression forecast, the average daily inmate population will exceed 17 in July, 1990. The forecasted population for the Cascade County Jail indicates approximately 74 inmates in December of 1989, close to 85 in December of 1990, about 195 in December of 2000, approximately 306 in December of 2010, and close to 416 at the end of the year 2020. In the next section, the jail standards comparison establishes a maximum inmate population of 51 or less in order for the County facility to comply with current ACA standards. Based on the linear regression forecast, the average daily inmate population exceeded 51 in November, 1987. At peak times there are as many as eighty inmates in the facility. Based on the linear regression

forecast the daily average population will exceed 80 inmates in July, 1990. This forecast is unrealistic for two reasons. There is a substantial amount of weight placed on the rapid increase in population because of Tucker's decision and because there were not enough data points for an accurate forecast. Another evaluation of the City and County population data will have to be done a number of months into the future, disregarding the period of rapid change, to obtain more accurate population forecasts. The forecasts do not take into consideration that there will be any changes in the judicial system and its impact on inmate population or the impact as a result of alternatives to incarceration that may be used in the future. These population forecasts also do not include any assumptions for contracting with the Federal Government for holding federal prisoners on a contract basis. Both of these areas are beyond the scope of this paper.

Jail Standards Comparison

Both the City and the County Jails were compared to current ACA and proposed MSSA Standards. The results of the comparison are shown in Tables 2 and 3. The results shown are of the square footage requirements versus the actual amounts by area for each facility. Other actual conditions such as the number of toilets, showers, and drinking fountains per inmate were compared to current standards but,

not were grossly different.

Under normal conditions, the Great Falls City Jail (see Appendix A Figure 9 for a layout drawing of the City Jail) operates very close to ACA square footage per inmate requirements in all areas except for the dining and holding cells. All inmates are fed in holding cell number one and the amount of space required per inmate is 35 square feet. Under normal conditions the actual square feet per inmate is 22.40 and under maximum conditions the actual square feet per inmate is 13.44. Holding cell number two has a normal square feet per inmate of 37.88 and under maximum conditions the amount decreases to 25.25. Also, the male cell number one falls short of the ACA Standards of 50 square feet per inmate both under normal and maximum use conditions. The Montana State Sheriff's Association Standards were not defined for holding facilities. The maximum number of inmates that can be held in the facility in order to remain within ACA guidelines is 17 or less. The jail is in good condition physically according to Chief of Police, Bob Jones.

Table 3 shows a summary of the comparison of the actual square footage by area of the Cascade County Jail. The major problem areas are located on the upper floor (see Figure 4 in Appendix A) in the maximum security area. The cells which now hold two inmates should hold only one to comply with standards. The square footage required under

ACA Standards is 50 square feet per person and under proposed MSSA standards is 70 square feet per person. Under

Table 2.-- Comparison of the Great Falls City Jail with ACA and MSSA Standards.

Facility Area	Area SF [†]	Normal Capacity	Normal SF [†] per Occupant	Maximum Capacity
Male Cell #1	123	3	41.00	6
Male Cell #2	119	2	59.50	4
Male Cell #3	139	2	69.50	4
Holding Cell #1 (Dining)	336	15	22.40	25
Holding Cell #2	303	8	37.88	12
Woman/Juvenile Cell #1	118	2	59.00	2
Woman/Juvenile Cell #2	141	3	47.00	3
Isolation Cell	58	1	58.00	1

[†]Square Foot

Table 2.-- Continued.

Facility Area	SF [†] per Occupant at Maximum	Minimum SF [†] Required (ACA)	Minimum SF [†] Required (MSSA)
Male Cell #1	20.50	50.00	Not Defined
Male Cell #2	29.75	50.00	Not Defined
Male Cell #3	34.75	50.00	Not Defined
Holding Cell #1 (Dining)	13.44	35.00	Not Defined
Holding Cell #2	25.25	50.00	Not Defined
Woman/Juvenile Cell #1	59.00	50.00	Not Defined
Woman/Juvenile Cell #2	47.00	50.00	Not Defined
Isolation Cell	58.00	50.00	Not Defined

[†]Square Foot

normal and maximum load conditions the square footage per inmate is actually 23.50 for the large cells and 32.00 for the single cells. The day rooms located outside of the maximum security cells allow close to 80 square feet

Table 3.-- Comparison of the Cascade County Jail with ACA and MSSA Standards.

Facility Area	Area SF [†]	Normal Capacity	Normal SF [†] per Occupant	Maximum Capacity
Main Floor				
Main Holding Cell	2120	23	92.17	25
Hospital Room	90	1	90.00	1
Kitchen	290	NA	NA	NA
Atty/Client Conf.	60	2	30.00	2
Upper Floor				
Juvenile Room 1	132	2	66.00	4
Juvenile Room 2	169	2	84.50	4
Female Room 1	157	2	78.50	4
Female Room 2	154	2	77.00	3
Female Room 3	117	2	58.50	3
Behav. Mod. Room	30	1	30.00	1
Maximum Security				
Large Cells (each)	47	2	23.50	2
Small Cells (each)	32	1	32.00	1
Dayroom East	200	11	18.18	11
Dayroom West	200	12	16.67	12
Art Room	238	4	59.50	4
GED Room	238	6	39.67	6
Lower Floor				
Trustee/Work Release	592	6	98.67	8
Indoor Recreation	286	6	47.67	6
Indoor Exercise	346	6	57.67	6
Outdoor Exercise	1536	25	61.44	25

[†]Square Foot

per inmate. Thirty-five is required by ACA standards and thirty-six is required by proposed MSSA standards. All other areas of the facility are within the required parameters except the kitchen area. The kitchen has an area of 290 square feet. The ACA Standards say that the kitchen should be at least 500 square feet in size.

Frank Tuss, the Jail Administrator, feels the general

Table 3.-- Continued.

Facility Area	SF [†] per Occupant at Maximum	Minimum SF [†] Required (ACA)	Minimum SF [†] Required (MSSA)
Main Floor			
Main Holding Cell	84.80	50.00	70.00
Hospital Room	90.00	60.00	70.00
Kitchen	NA	500.00	Not Defined
Atty/Client Conf.	30.00	NA	Not Defined
Upper Floor			
Juvenile Room 1	33.00	70.00	70.00
Juvenile Room 2	42.25	70.00	70.00
Female Room 1	39.25	70.00	70.00
Female Room 2	51.33	70.00	70.00
Female Room 3	39.00	70.00	70.00
Behav. Mod. Room	30.00	70.00	70.00
Maximum Security			
Large Cells (each)	23.50	60.00	70.00
Small Cells (each)	32.00	60.00	70.00
Dayroom East	18.18	35.00	36.00
Dayroom West	16.67	35.00	36.00
Art Room	59.50	35.00	36.00
GED Room	39.67	35.00	36.00
Lower Floor			
Trustee/Work Release	74.00	50.00	70.00
Indoor Recreation	47.67	35.00	35.00
Indoor Exercise	57.67	35.00	36.00
Outdoor Exercise	61.44	15.00	Not Defined

[†]Square Foot

condition of the facility is good considering the age of the facility and the number of inmates being housed in the facility. The areas addressed by the ACLU in chapter one are important considerations as well in determining the condition of the facility. The maximum number of inmates that could be held in the facility in order to comply with current ACA guidelines is 51 or less. There are currently close to eighty prisoners being held in the facility. Overcrowding, physical conditions, and living conditions in the facility are important considerations in weighing the possibility of conditions of confinement litigation.

Cost Analysis

Actual monthly expenditures for both the City and County Jails were analyzed using forecasting models which included 3 month moving average, 4 month moving average, 5 month moving average, linear regression, naive, and exponential smoothing. The exponential smoothing model was evaluated with the smoothing constant which varied from 0.0 to 1.0. MSE, MAD, and MAPE were used to determine the accuracy of the forecasts and the model with the lowest MSE was chosen as the most accurate forecast. Table 4 shows the forecasting model chosen for each cost category for the City and the County. Graphs were developed showing the actual and forecast data for each cost category. They are

described in the following paragraphs.

In general, the cost of operation for the City Jail dropped during the period being evaluated as shown in the graph of total expenditures (Figure 5). This was due primarily to a reduction in salary expense. According to Capt. Adcox the decrease is primarily a result of the replacement of Police Department Staff with private citizens for operation of the jail. The Police Department Staff had a salary of close to \$28,000 per individual per year as

Table 4.--Cost Forecasting Methods.

Cost Category	Forecast Method
City Expenditures	
Salary	Exp. Smoothing (alpha=0.9)
Jail Utilities	Naive
Food	Exp. Smoothing (alpha=0.6)
Other	Exp. Smoothing (alpha=1.0)
Total	Exp. Smoothing (alpha=0.8)
Cost/Inmate/Day	Exp. Smoothing (alpha=0.3)
County Expenditures	
Salary	4 Month Moving Average
Repair/Maint.	Linear Regression
Professional Serv.	Linear Regression
Food	Exp. Smoothing (alpha=0.2)
Utilities	Linear Regression
Other	Linear Regression
Total	3 Month Moving Average
Cost/Inmate/Day	3 Month Moving Average
Revenue	Linear Regression
Total - Revenue	Exp. Smoothing (alpha=0.20)
Cost/Inmate/Day - Rev.	Linear Regression

**Total Expenditures
City of Great Falls Jail
(July 1984 - December 1988)**

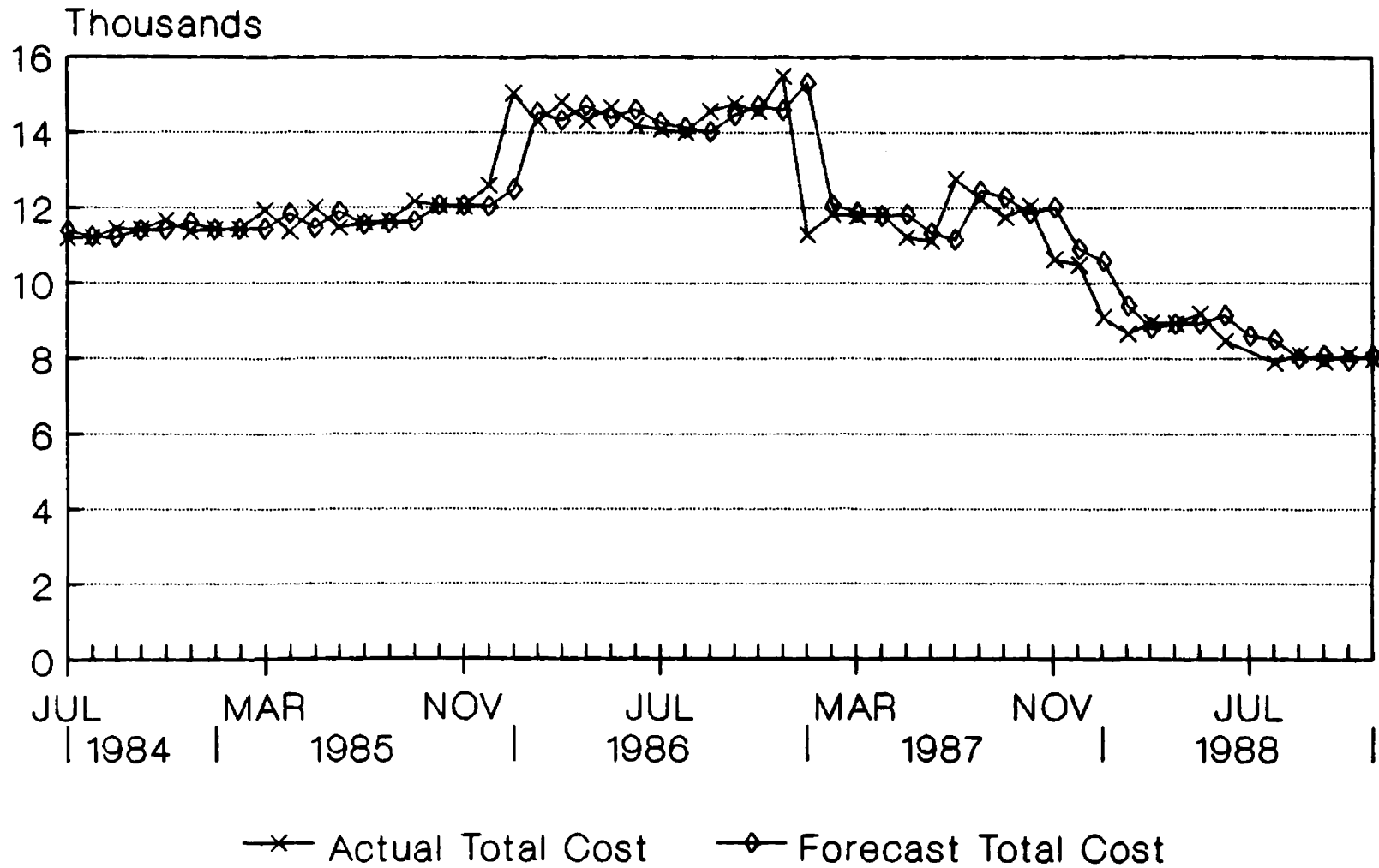


Figure 5.

compared to \$15,000 per year for a private individual according to Police Department salary records provided by Capt. Adcox. There is one person on duty in the jail at all times. As shown in Figure 6, the cost per inmate per day dropped from January, 1985 to August, 1987. The cost per day then began to rise which coincides with the reduction of population in the facility as a result of Judge Tucker's decision. Graphs showing actual and forecast salary, utility, food, and other expenditure data are shown in Figures 17 through 20 in Appendix C. Salary expenditures, as explained, have been reduced because of the switch from Police Department staff to private citizens for jail operation. Utility expenditures vary greatly depending on the time of year. The cost for utilities was commonly below \$100 per month during July, August and September and as high as \$350 per month during the winter months. The variation in utility cost supports Chief Jones' point that the building is energy inefficient. Food expenditures appear to be correlated with inmate population. They rose during the period from \$900 in July, 1984 to \$3886.90 in July, 1987 (an increase of 332 percent) and started to decrease in the last quarter of 1987 which again coincides with the Judge Tucker decision. The daily average population rose during the same period by 120 percent. Other expenditures for the facility decreased from an average of \$959.61 during the 1984-1985 fiscal year to \$530.82 during the first half of the 1988-

**Cost/Inmate/Day Expenditures
City of Great Falls Jail
(July 1984 - December 1988)**

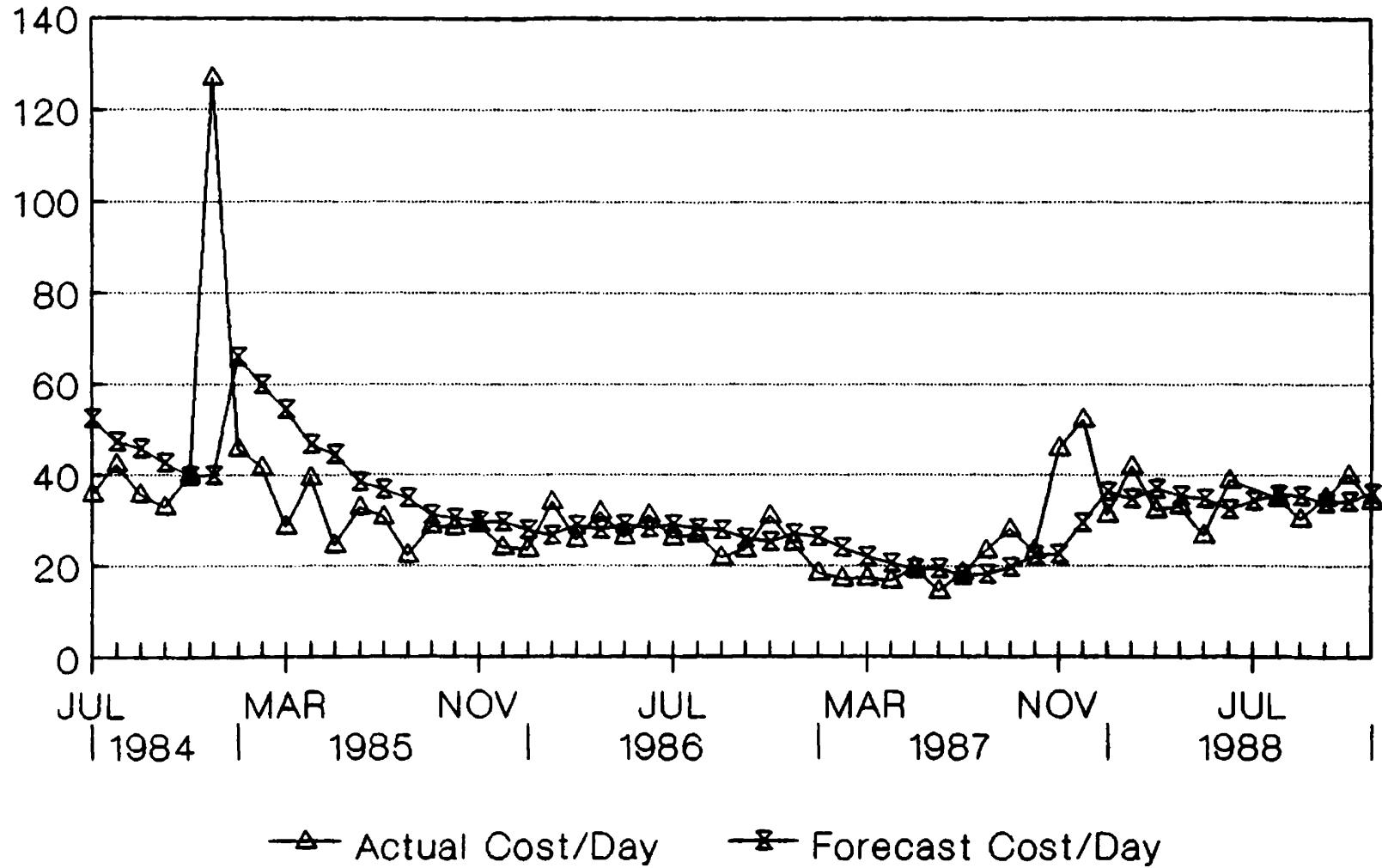


Figure 6.

1989 fiscal year.

The cost analysis of the Cascade County Jail shows a different picture than the City Jail. Total expenditures (shown in Figure 7) in general rose during the period from July, 1981 to June 1986 then began to decrease until January, 1988 when it started to increase again. This fluctuation does follow the pattern of fluctuations in the County Jail population. The cost per inmate per day is shown in Figure 8. In reviewing this figure with Figure 2, which shows the average daily population for the month, there appears to be an inverse relationship between population and the cost per inmate per day. This makes sense because most of the expenditures are either fixed or semi-variable and do not respond directly to fluctuations in inmate population. The cost per inmate per day in December, 1988 was \$22.51.

Actual and forecast data for salary, repair/maintenance, professional services, food, utilities, and other expenditures as well as revenue, total expenditures less revenue, and cost per inmate per day less revenue are graphed and shown in Figures 21 through 29 in Appendix C. Salary expenses rose from \$18,156.57 in July, 1981 to a high of \$28,308.01 in June, 1986 due to an increase in the amount of staff. These expenses have declined to \$22,111.18 in December, 1988 due to budget cutbacks and staff reduction. Repair and maintenance costs and professional services which

Total Expenditures Cascade County Jail (July 1981 - December 1988)

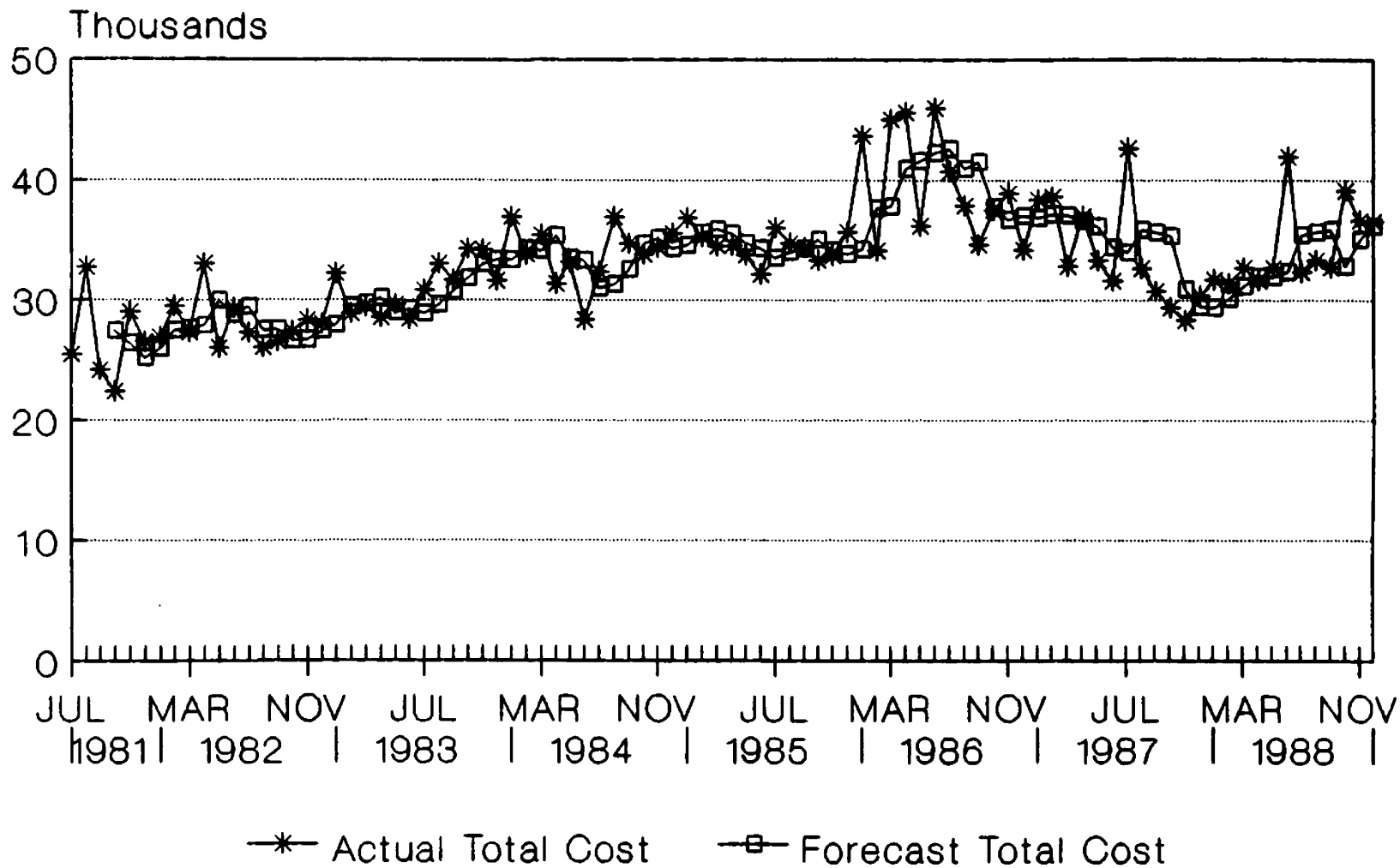


Figure 7.

**Cost/Inmate/Day Expenditures
Cascade County Jail
(July 1981 - December 1988)**

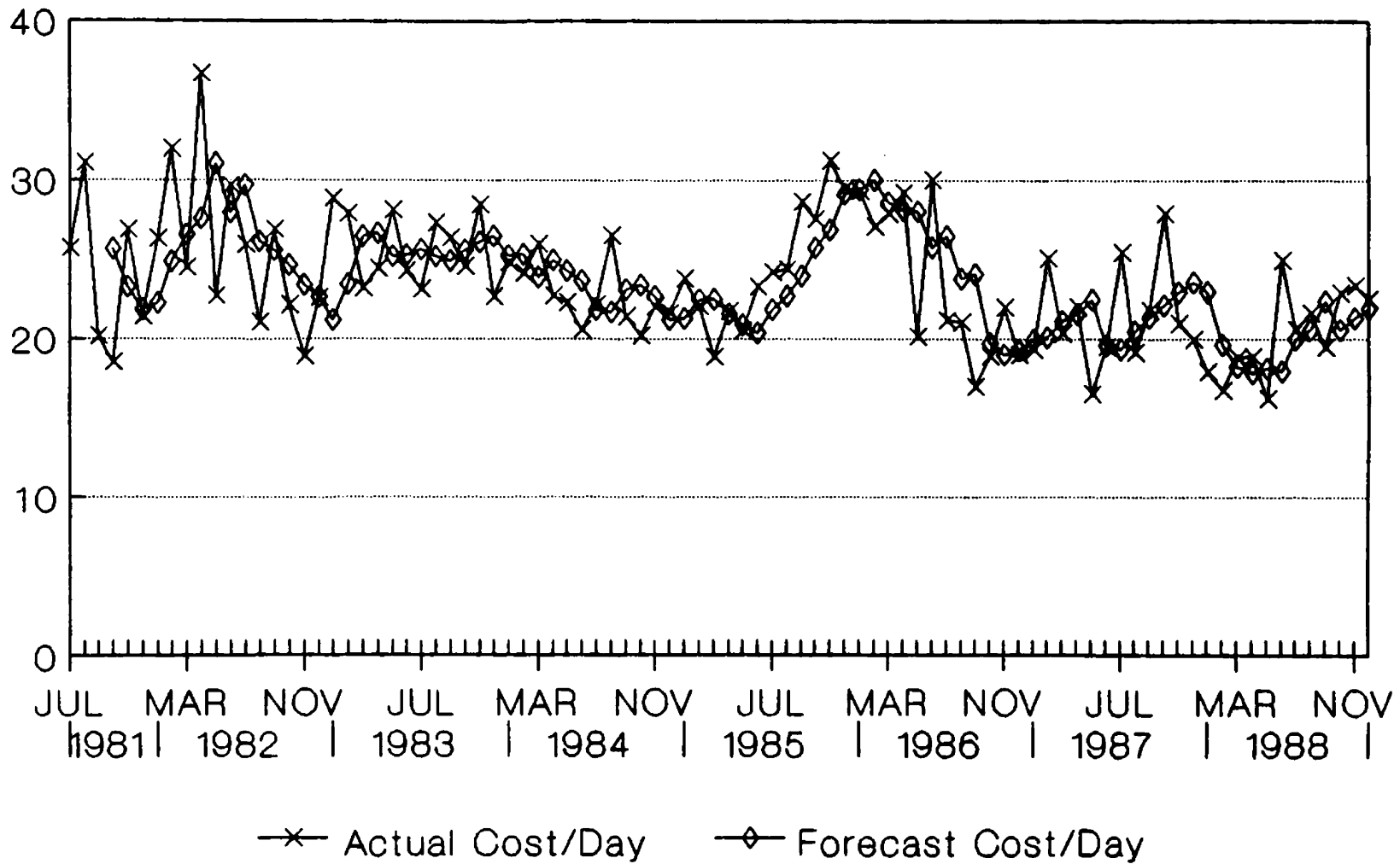


Figure 8.

include medical costs for the inmates have, on the average (using linear regression forecasts) risen from July, 1981 to December, 1988. The forecasted values for repair and maintenance rose 69.23 percent while the forecasted values for professional services rose significantly for the period. Because of the fluctuations in professional service cost, monthly averages by year were calculated. The calculated average monthly costs were: (1981) \$233.41; (1982) \$248.62; (1983) \$297.67; (1984) \$237.98; (1985) \$677.16; (1986) \$4236.60; (1987) \$3519.56; (1988) \$2037.96. These calculations illustrated a significant increase which was largely due to medical expenditures. Food costs appear to fluctuate with the inmate population and were \$6,325.01 in December, 1988. Also, utility costs have risen by 26.23 percent and there was a 37.66 percent increase in other operating costs. The facility gains a certain amount of revenue from holding federal inmates, Highway Patrol inmates, and inmates from other counties. The trend in general growth of the total costs after offsetting the costs with revenue is similar to the normal total cost trends.

Some of the cost categories for the City and County data appeared to be related to the population in their respective facilities. The coefficients of determination, R^2 , were calculated for each of the cost variables (dependent variables) as a function of the population (independent variable). Table 5 shows the results of those calculations.

For the Great Falls City Jail, food expense, and total expenses are more closely related to the population than salary expense and utility expense. Other expenses showed almost no relationship to population. Cost per inmate per

Table 5.--Coefficients of Determination
(Independent Variable: Avg. Daily Population).

Cost Category (Dependent Variable)	Coefficient of Determination (R ²)
City Expenditures	
Salary	0.1864
Jail Utilities	0.0300
Food	0.4809
Other	0.0140
Total	0.4389
Cost/Inmate/Day	-0.4699
County Expenditures	
Salary	0.0605
Repair/Maint.	0.0162
Professional Serv.	0.1003
Food	0.2468
Utilities	0.0398
Other	0.0049
Total	0.2912
Cost/Inmate/Day	-0.4910

day showed an inverse relationship to population. For the Cascade County Jail, food expense and total expenses showed somewhat of a relationship to population. Repair and maintenance expense, professional services, utility expense, and other expenses showed little correlation. The cost per inmate per day shows an inverse relationship to population that is similar to that calculated for the City. The food

costs of the City are probably more correlated to population than that of the County because the City contracts for food services. The county prepares its own food and purchases food items in bulk. This concept carries over to the difference in correlation of total expenditures to population. The food expenditures are a large percentage of the City's total. In the case of each of the City and County costs, none of the relationships were considered statistically significant. This indicates that many of the costs incurred by both facilities are fixed or semi-variable and have little relationship to inmate population.

CHAPTER 5
ANALYSIS OF RESULTS

Population Analysis

The Cascade County Jail currently has an inmate population fluctuating between seventy and eighty inmates. The City of Great Falls Jail currently has an inmate population that fluctuates between twelve and twenty-seven inmates.

The population of the City Jail fluctuated more than the County Jail. The County population is probably more stable because the County Jail is kept at almost full capacity most of the time. The inmates stay for a longer period of time in the County Jail than the City Jail, which is considered to be a 72 hour holding facility. The County Jail is considered to be a detention facility and normally houses inmates for up to a year.

The trend in average daily population for the Cascade County Jail is on the rise. The decision to incarcerate all Montana State Statute offenders in the County Jail has had a major impact on the populations of both facilities. The

City of Great Falls Jail was housing close to thirty inmates before this finding in October, 1987. It was housing between ten and twelve afterwards. The County Jail has an inmate population of well over its design capacity and the total has risen to well over seventy inmates per day on peak days. This has an impact on the ability for the staff and inmates to be able to live and work in a humane and safe environment.

Jail Standards Comparison

The Cascade County Jail was built in the early 1900's and originally designed to house 32 inmates. The jail has undergone some changes over the years to accommodate the increasing inmate load. The detention areas have not changed significantly. The basement level (see Figure 10 in Appendix A) has been remodeled to accommodate work release inmates as well as provide space for indoor recreation. The maximum load that would be allowed if the facility conformed to current ACA standards would be 51 inmates. It now holds well over seventy inmates during peak time periods. This has a very real impact on the amount of personal living space afforded to each individual. The maximum security areas of the County Jail violate the square footage requirement for inmates confined to those types of areas of detention facilities. These facts along with the wood construction of the north side of the building could leave

the County open to liability problems as supported in the first chapter. A fire in the north end of the building could leave the inmates in the south side of the facility no way out.

The City of Great Falls Jail operates under ACA standards as long as the population stays between twelve and fifteen inmates. When the County Jail fills up to capacity, the overflow backs up into the City Jail and overcrowding becomes a problem. This problem started occurring in March, 1989 and appears to be a problem that will continue.

Cost Analysis

The cost of operation of the Cascade County Jail has increased steadily over the past several years largely as a result of increasing population. All costs of operation have contributed to this but, the majority of the increase comes from increased repair/maintenance costs, professional service costs, food costs, and utility costs. The cost per inmate per day has decreased because of the increase in average daily population as compared to cost.

The cost of operation of the City Jail has decreased largely due to the reduction in salary expense because of the switch from police staff to private citizens for operating the jail.

Conclusion

Cascade County and the City of Great Falls have some

serious problems with regard to current jail facilities. The county facility suffers from overcrowding and may provide an unsafe environment for both inmate and staff during periods of overcrowding. The City of Great Falls Police Department has a large impact on the population of the County Jail because of the large percentage of inmates placed there as a result of City arrests.

The cost of building a new facility will be substantial, possibly as high as \$10 million or more. It is the opinion of the author that a facility is badly needed because of the age and overcrowding problems that are occurring in the Cascade County Jail. Based on forecasted trends, the average daily inmate population of the City Jail may exceed 17 inmates (the maximum recommended by ACA Standards) in July, 1990. The average population for the County Jail exceeded 51 (the maximum recommended by ACA Standards) in November, 1987 and may exceed 80 inmates on the average by July, 1990. These increasing populations will cause the number of early releases to increase in an effort to keep jail populations to a tolerable level.

In reviewing the number of inmates transported to the County Jail from the Great Falls Police Department, a joint City-County facility makes sense. In reviewing Figure 1, 46 percent of the inmates are a result of City Police arrest. The amount of time spent booking the individual into the City Jail, transporting them to the County Jail, and then

booking them into the County Jail is quite high on both the part of the City and County facility staff. All areas of cost could be taken advantage of through economies of scale.

In estimating the cost of operation of a new facility, the Yellowstone County Facility will be used as a model for this paper. Individual cost categories are not analyzed. The total cost of operation for the Billings facility is projected to be approximately \$1.4 million for the fiscal year 1989-1990 at a cost of \$36.00 per day per inmate.¹⁷ The Yellowstone County is a constitutional facility in that it meets ACA standards. The annual cost of operating a new facility in Cascade County would be approximately \$1.2 million per year based on a population of 90 inmates and the Yellowstone County cost per inmate per day of \$36.00.

Many political factors come into view when trying to speculate whether or not a combined City/County Facility could actually be accomplished. For the most part, the Great Falls Police Department and the Cascade County Sheriff's Office appear to have a good working relationship. They are currently working together on a joint dispatch system that eliminated a duplication of effort. This working relationship would work well together in operating and governing a joint City/County Jail Facility. A

¹⁷Rickard Ross, Training Officer and former Jail Administrator for Yellowstone County, interview by author, April 21, 1989.

political problem area that could hamper efforts for development of such a facility would be the relationship between the City and County Commissioners. How much the City or the County should or would contribute to the development and construction of a facility may be a major source of conflict in the years to come. The City and the County are also currently experiencing hard financial times and there are real concerns about where the money would come from to build a facility.

This paper concludes that a new facility is needed. However, there is much further work that needs to be performed to define the scope of the new facility and its operation. The impact of City and County arrests as well as the impact of the Judicial System on jail population must be evaluated. Any future changes in arrest patterns, the Judicial System, or alternatives to incarceration may have a substantial impact on inmate population.

APPENDIX A

CURRENT FACILITY LAYOUT DRAWINGS

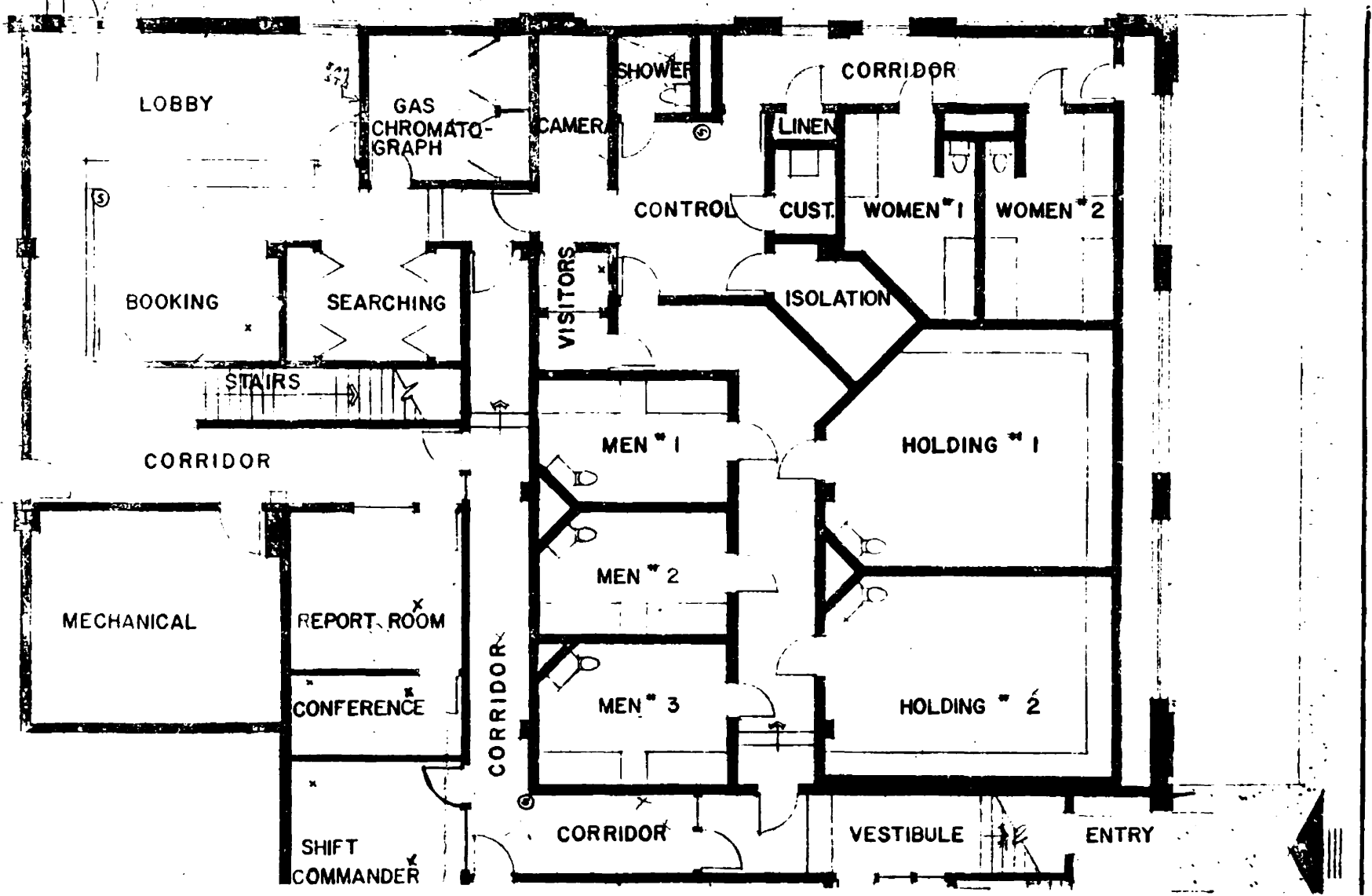


Figure 9. Layout Drawing - Great Falls City Jail (northwest corner of Great Falls Police Department Building). Photocopied with permission of the Great Falls Police Department from the "Preliminary Plan - Proposed Police Facility" by Page-Werner & Partners, 15 October 1973, Sheet 1.

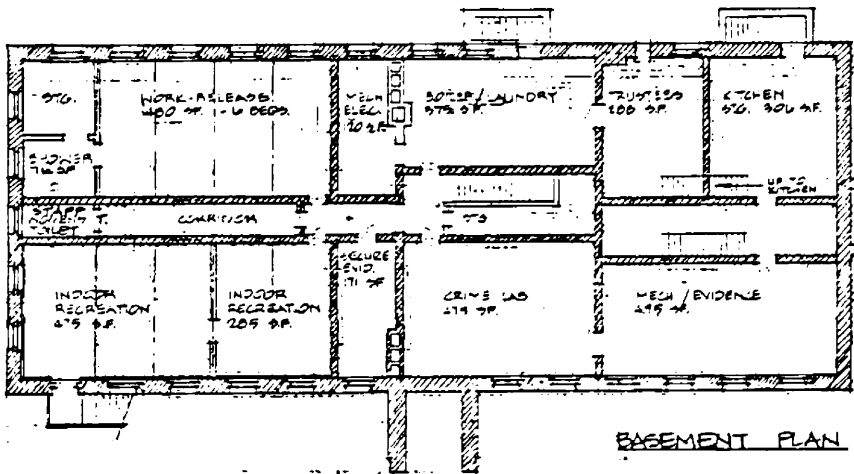
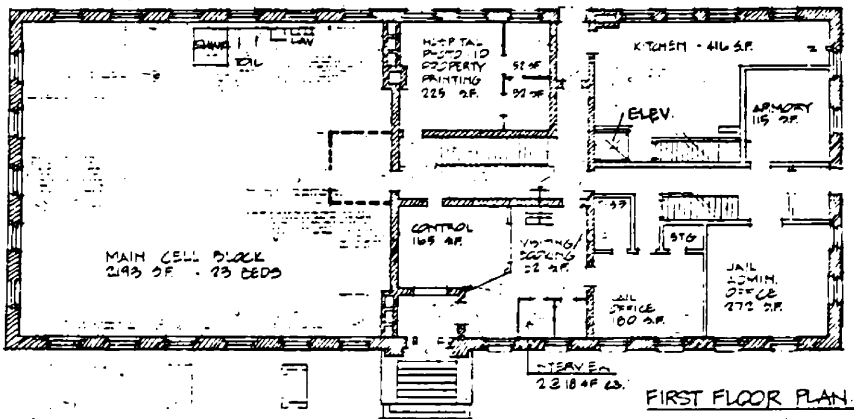
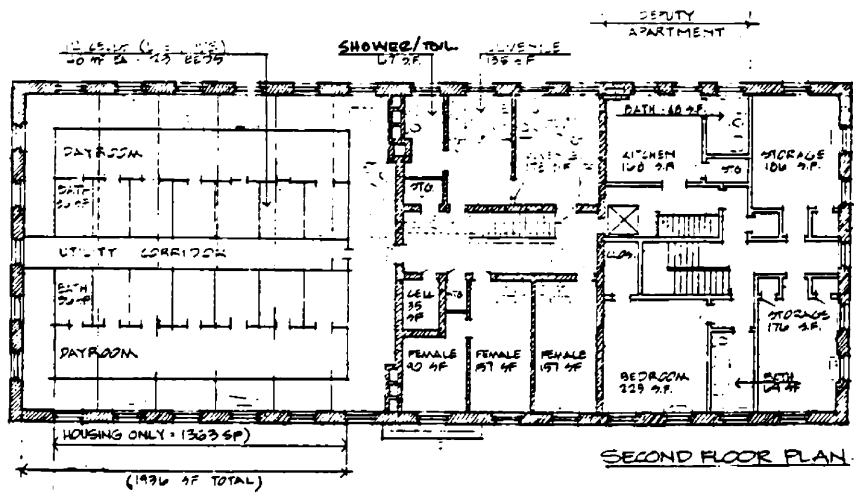


Figure 10. Layout drawing - Cascade County Jail
 Photocopied with permission of the Cascade County Sheriff's
 Office from the City/County Adult Detention Facility Report
 by Davidson & Kuhr Architects, P.C. and the NBBJ Group,
 22 March 1982, Section 1, 4.

APPENDIX B

DAILY POPULATION ANALYSIS GRAPHS

Statistical analysis was performed on the daily population data from January, 1985 through December, 1988 for the City and County Jails. This analysis determined mean average values for the population data so that an idea of population fluctuations by day of the week, day of the month, month of the year, and year could be evaluated. The results of this analysis are shown in the graphs in this Appendix.

The graphs for the City of Great Falls Jail (Figures 11-14) show the variability of the population. Saturdays and Sundays are the peak days of the week. The fifth, seventeenth, and twenty seventh are the peak days of the month. March and May are the peak months while November and December are lower population months. And, there was a substantial decrease in the average daily population for 1988 as compared to 1987.

The graphs for the Cascade County Jail (Figures 15-18) show that the population of the County Jail remains fairly constant for any day of the week, day of the month, and month of the year. May is a peak population month with October, November, and December as lower population months. An increase in the daily average population occurs in 1988 over 1987.

The Population Analysis section of Chapter 4 provides more explanation supporting the information shown in the graphs.

**Average Population
City of Great Falls Jail
(By Day of the Week 1985-1988)**

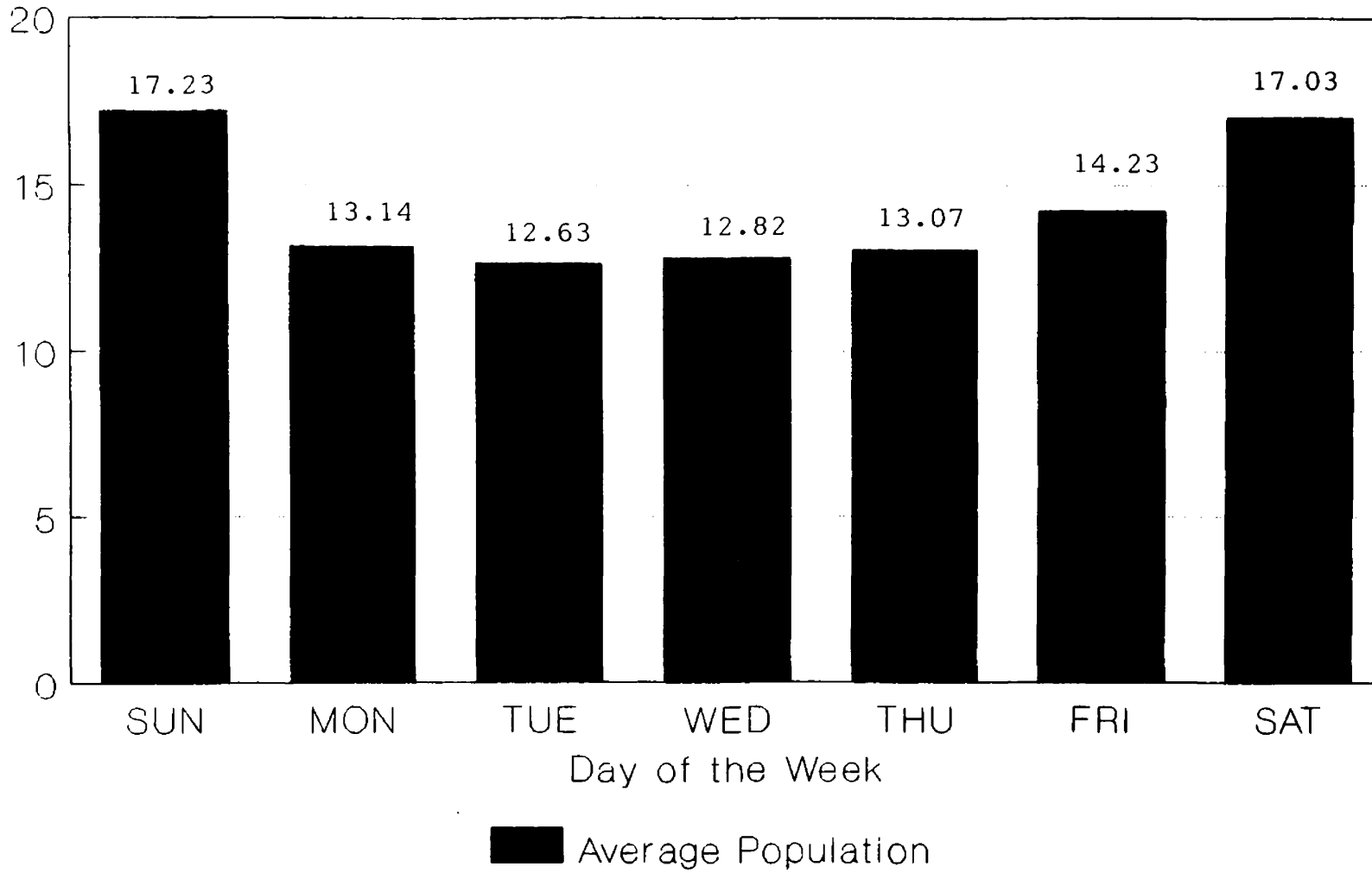


Figure 11.

**Average Population
City of Great Falls Jail
(By Day of the Month 1985-1988)**

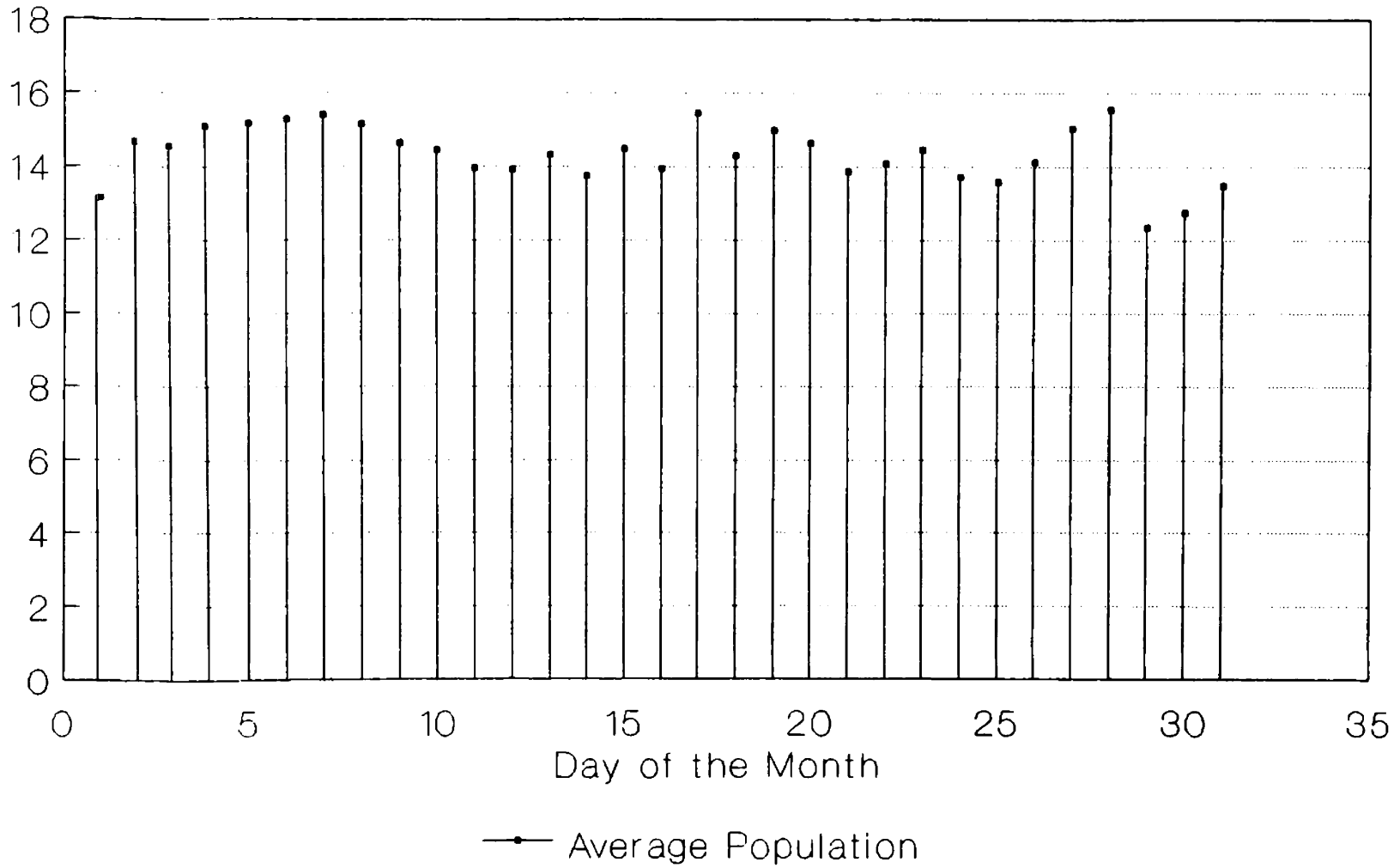


Figure 12.

Average Population City of Great Falls Jail (By Month 1985-1988)

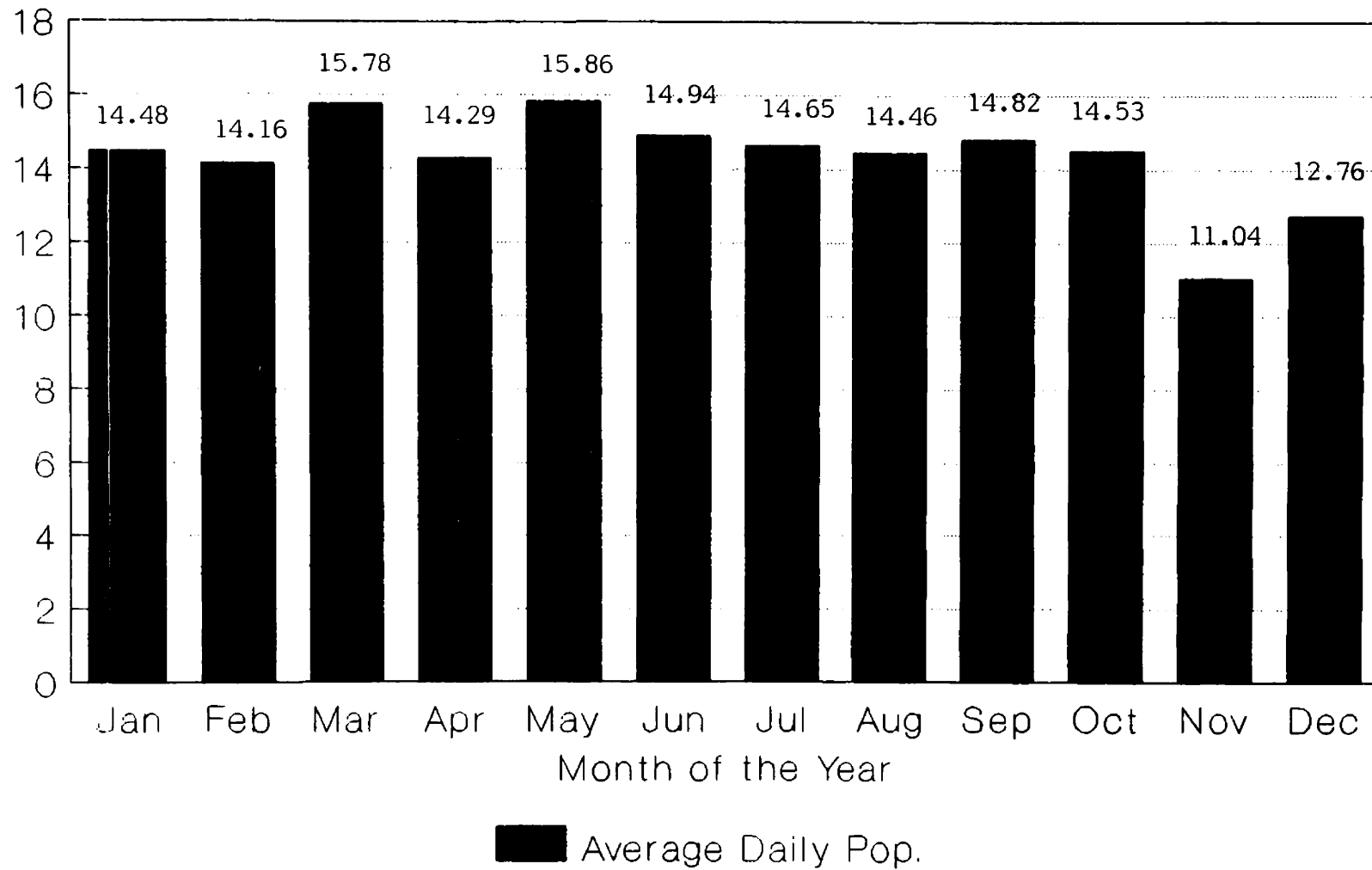


Figure 13.

**Average Population
City of Great Falls Jail
(By Year 1985-1988)**

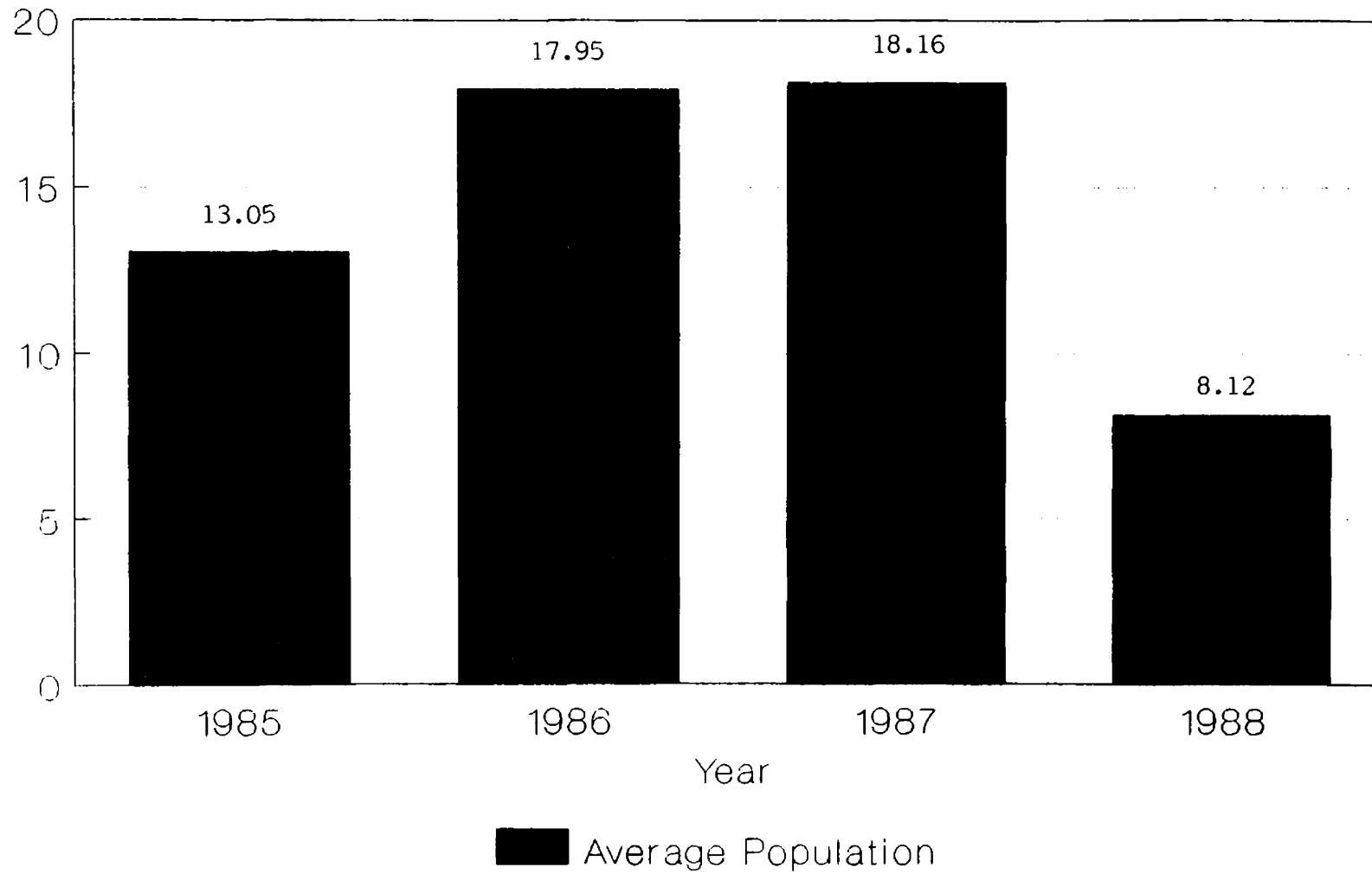


Figure 14.

**Average Population
Cascade County Jail
(By Day of the Week 1985-1988)**

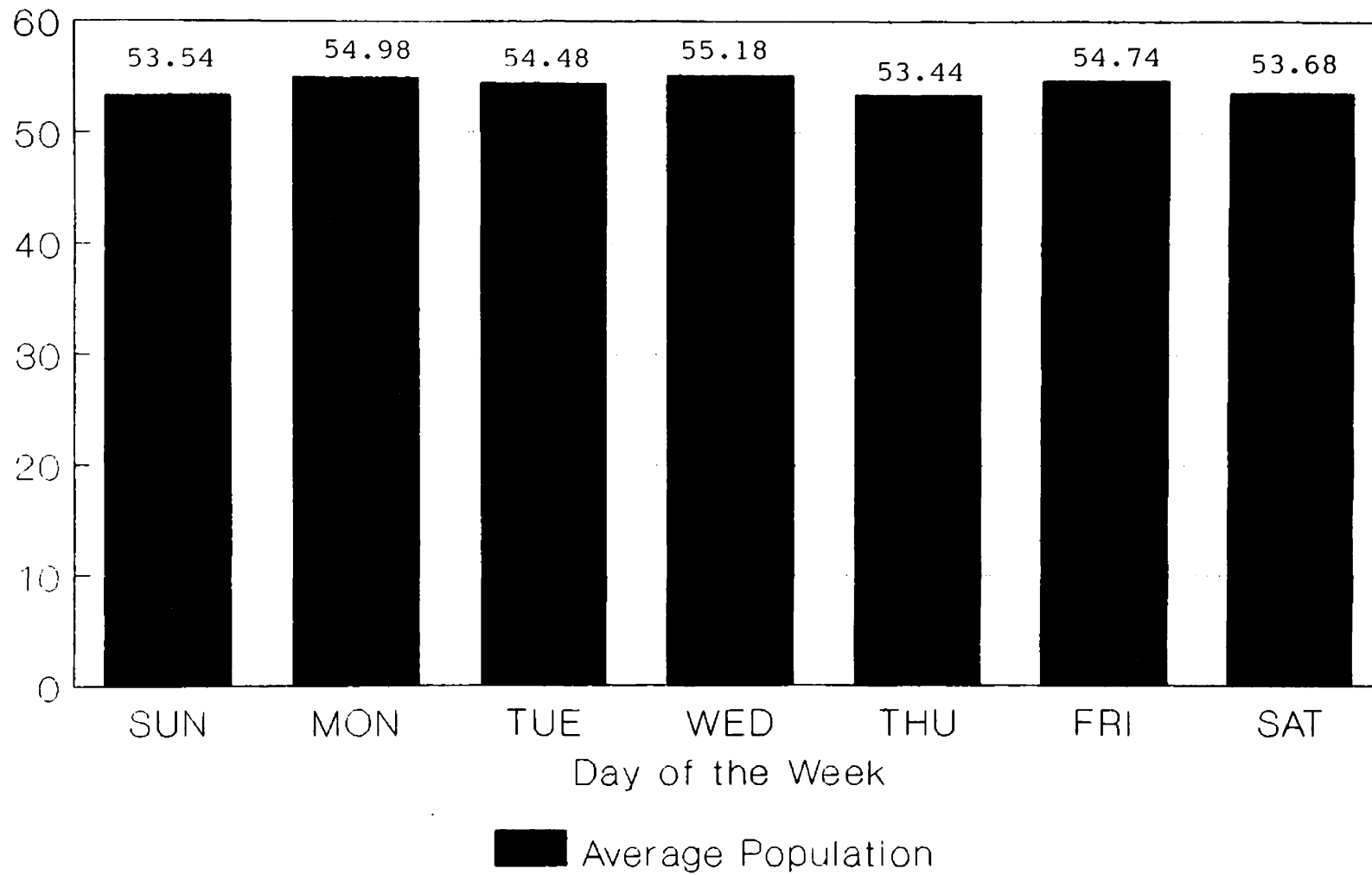


Figure 15.

**Average Population
Cascade County Jail
(By Day of the Month 1985-1988)**

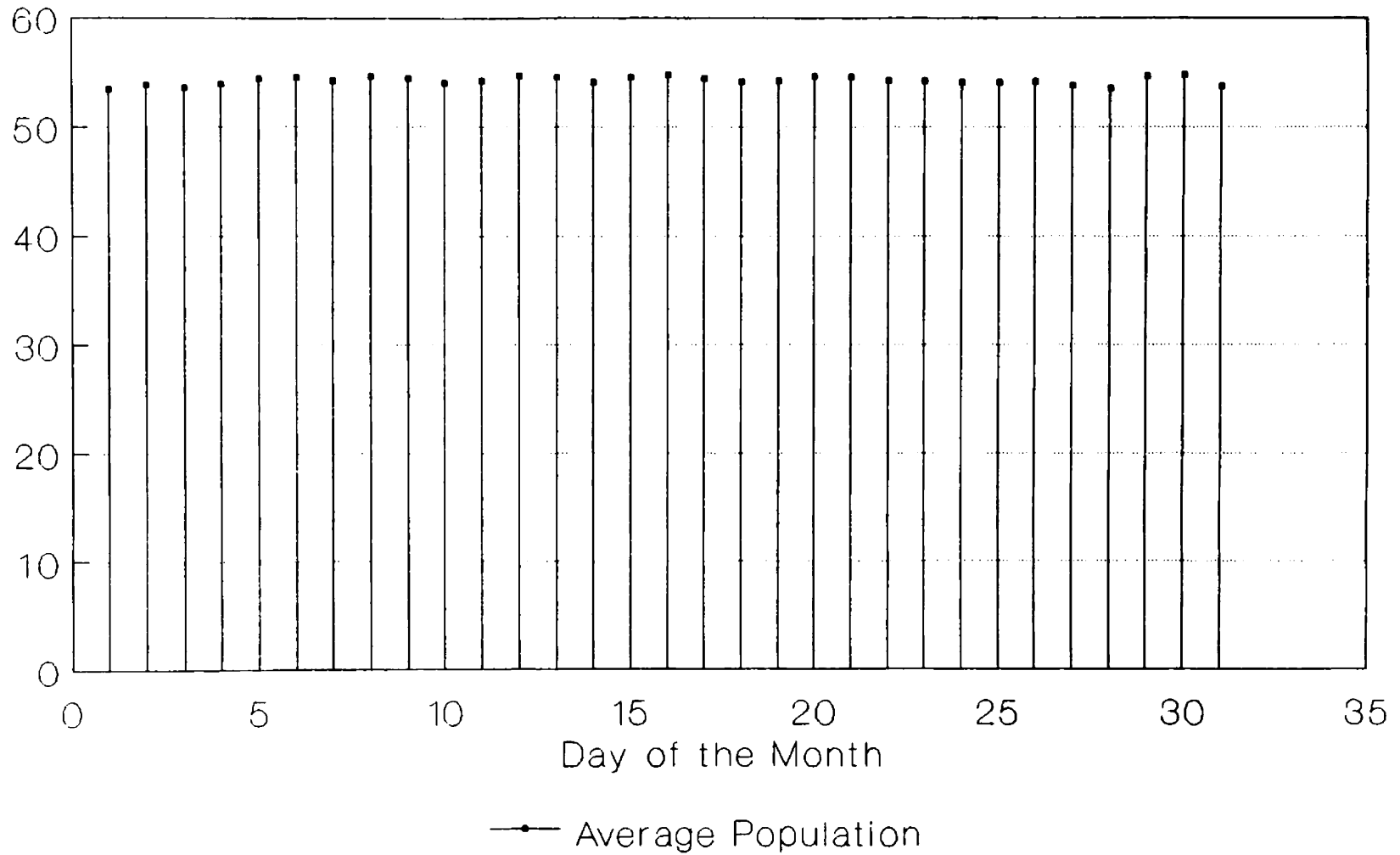


Figure 16.

**Average Population
Cascade County Jail
(By Month 1985-1988)**

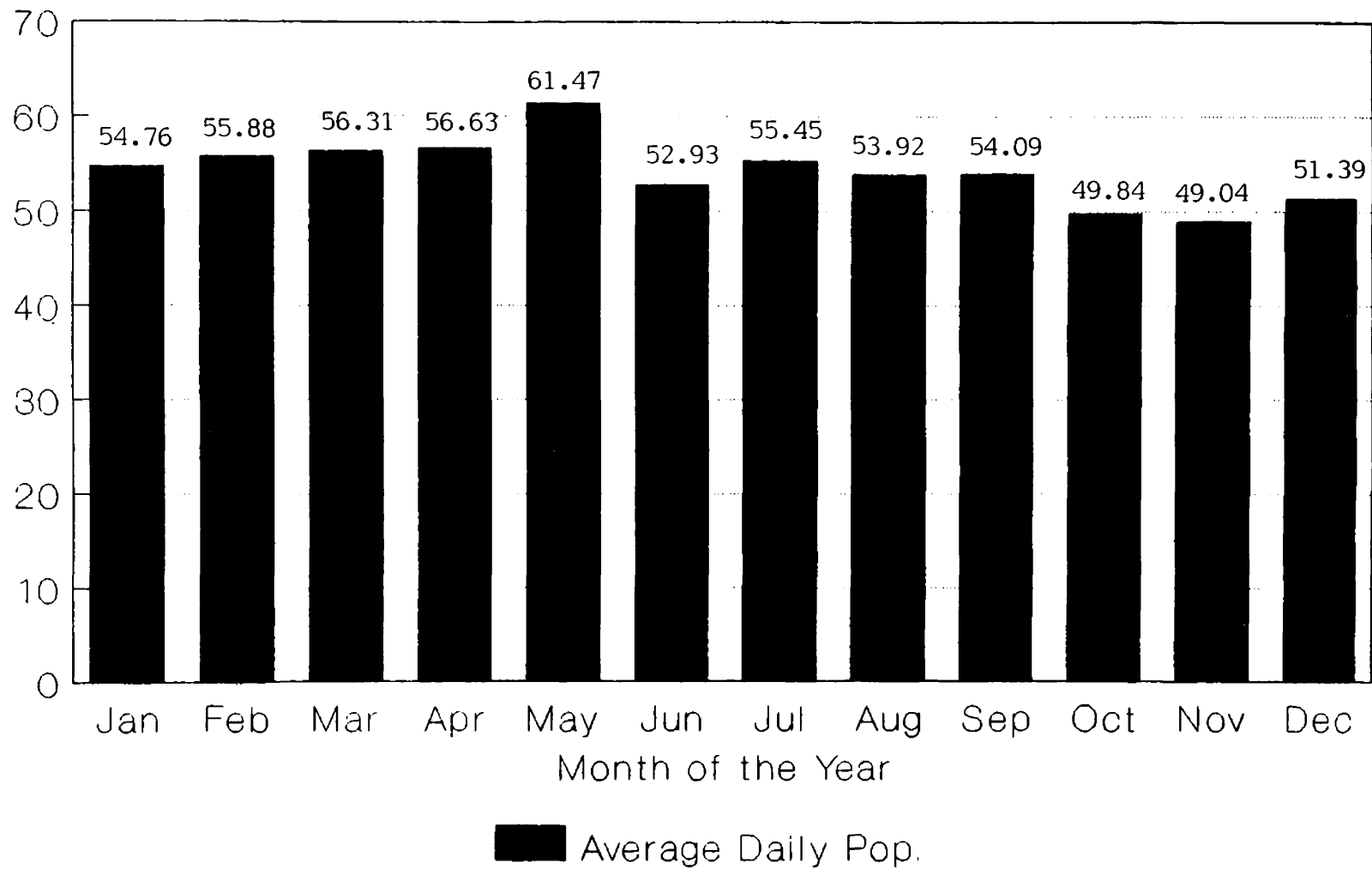


Figure 17.

**Average Population
Cascade County Jail
(By Year 1985-1988)**

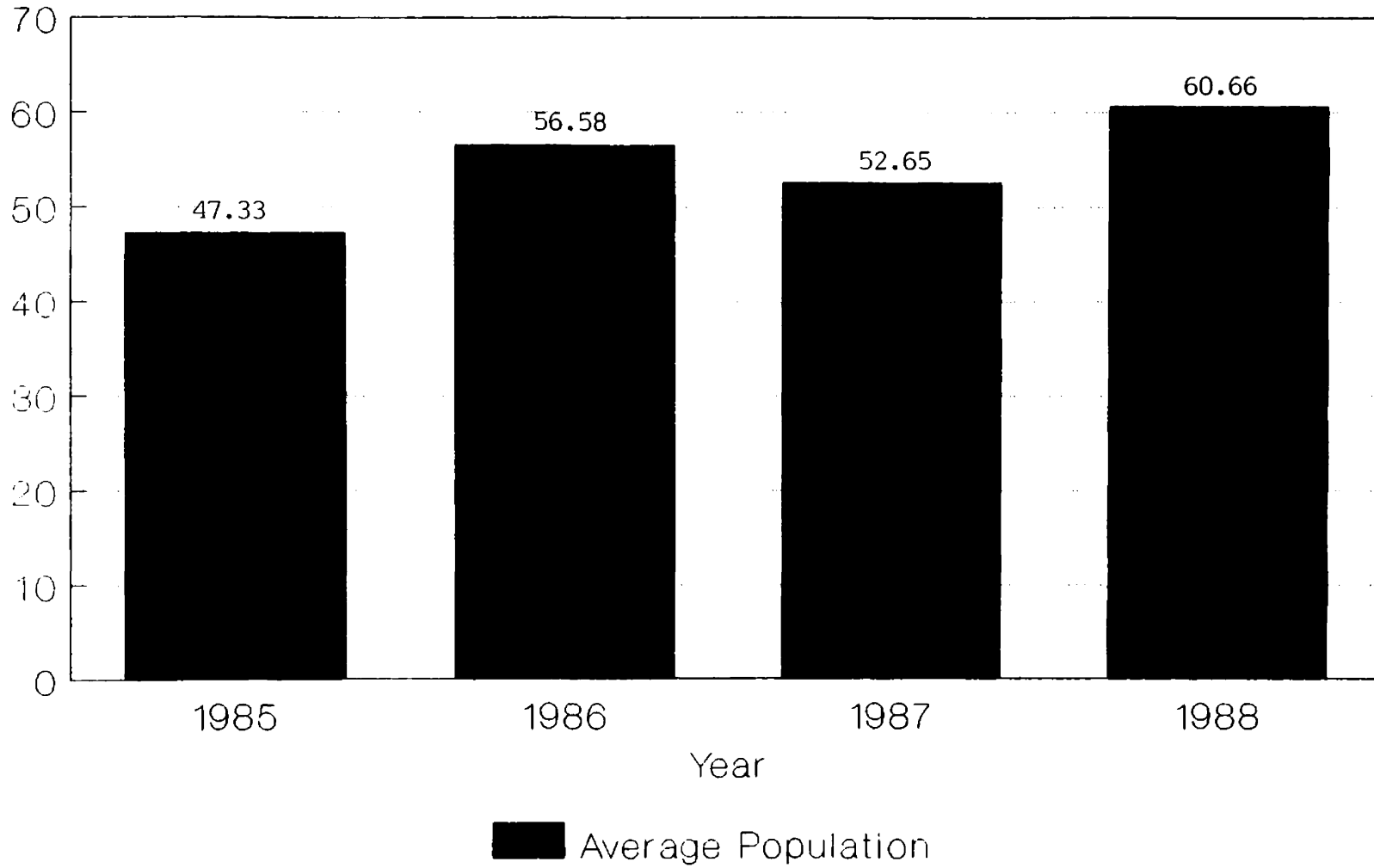


Figure 18.

APPENDIX C

COST ANALYSIS GRAPHS

Actual monthly expenditures for both the City and County Jails were analyzed using forecasting models which included 3 month moving average, 4 month moving average, 5 month moving average, linear regression, naive, and exponential smoothing. The exponential smoothing model was evaluated with the smoothing constant varied from 0.0 to 1.0. MSE, MAD, and MAPE were used to determine the accuracy of the forecasts and the model with the lowest MSE was chosen as the most accurate forecast. Graphs were developed showing the actual and forecast data for each cost category all of which are shown in this appendix except for the graphs of total expenditures and cost per inmate per day.

In general, the cost of operation for the City Jail dropped during the period being evaluated as shown in the graph of total expenditures (Figure 5 - Chapter 4). Salary expenditures (Figure 19), as explained, have been reduced because of the switch from Police Department staff to private citizens for jail operation. Utility expenditures (Figure 20) vary greatly depending on the time of year. The cost for utilities was commonly below \$100 per month during July, August and September and a high as \$350 per month during the winter months. The variation in utility cost supports Chief Jones' point that the building is energy inefficient. Food expenditures (Figure 21) appear to be correlated with inmate population. They rose during the period from \$900 in July, 1984 to \$3886.90 in July, 1987 (an

increase of 332 percent) and started to decrease in the last quarter of 1987 which again coincides with the Judge Tucker decision. The daily average population rose during the same period by 120 percent. Other expenditures (Figure 22) for the facility decreased from an average of \$959.61 during the 1984-1985 fiscal year to \$530.82 during the first half of the 1988-1989 fiscal year.

The cost analysis of the Cascade County Jail shows a different picture than the City Jail. Total expenditures (shown in Figure 7 - Chapter 4) in general rose during the period from July, 1981 to June 1986 then began to decrease until January, 1988 when it started to increase again. This fluctuation does follow the pattern of fluctuations in the County Jail population. Salary expenses (Figure 23) rose from \$18,156.57 in July, 1981 to a high of \$28,308.01 in June, 1986 and have declined to \$22,111.18 in December, 1988. Repair and maintenance costs (Figure 24) and professional services (Figure 25) which include medical costs for the inmates have, on the average (using linear regression forecasts) risen from July, 1981 to December, 1988. The forecasted values for repair and maintenance rose 69.23 percent while the forecasted values for professional services rose significantly for the period. Because of the fluctuations in professional service cost, monthly averages by year were calculated. The calculated average monthly costs were: (1981) \$233.41; (1982) \$248.62; (1983) \$297.67;

(1984) \$237.98; (1985) \$677.16; (1986) \$4236.60; (1987) \$3519.56; (1988) \$2037.96. These calculations illustrated a significant increase which was largely due to medical expenditures. Food costs (Figure 26) appear to fluctuate with the inmate population and were \$6,325.01 in December, 1988. Also, utility costs (Figure 27) have risen by 26.23 percent and there was a 37.66 percent increase in other operating costs (Figure 28). The facility gains a certain amount of revenue (Figure 29) from holding federal inmates, Highway Patrol inmates, and inmates from other counties. The trend in general growth of the total costs and cost per inmate per day after offsetting the costs with revenue (Figures 30 and 31) are similar to the normal total cost trends.

Salary Expenditures City of Great Falls Jail (July 1984 - December 1988)

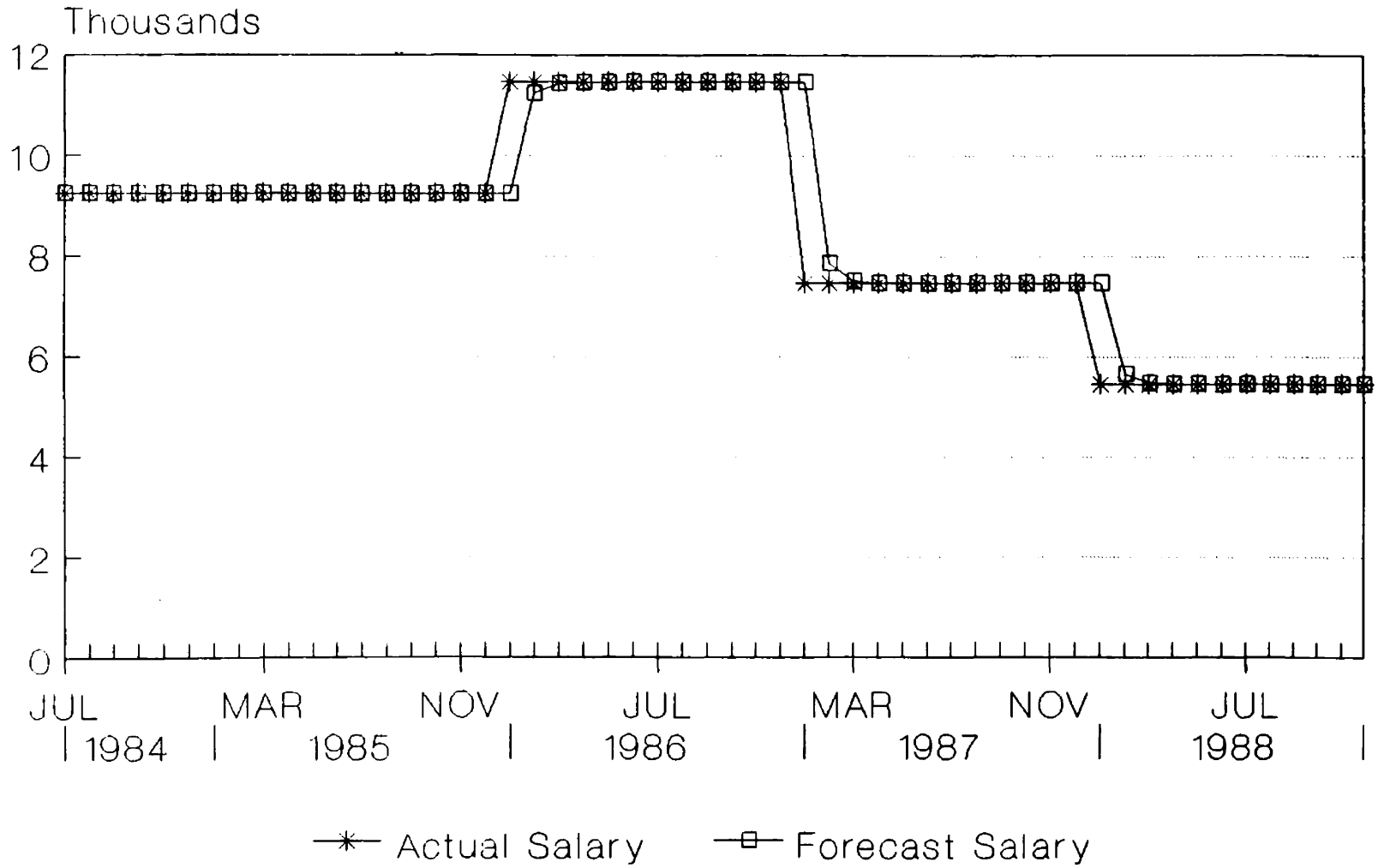


Figure 19.

**Utility Expenditures
City of Great Falls Jail
(July 1984 - December 1988)**

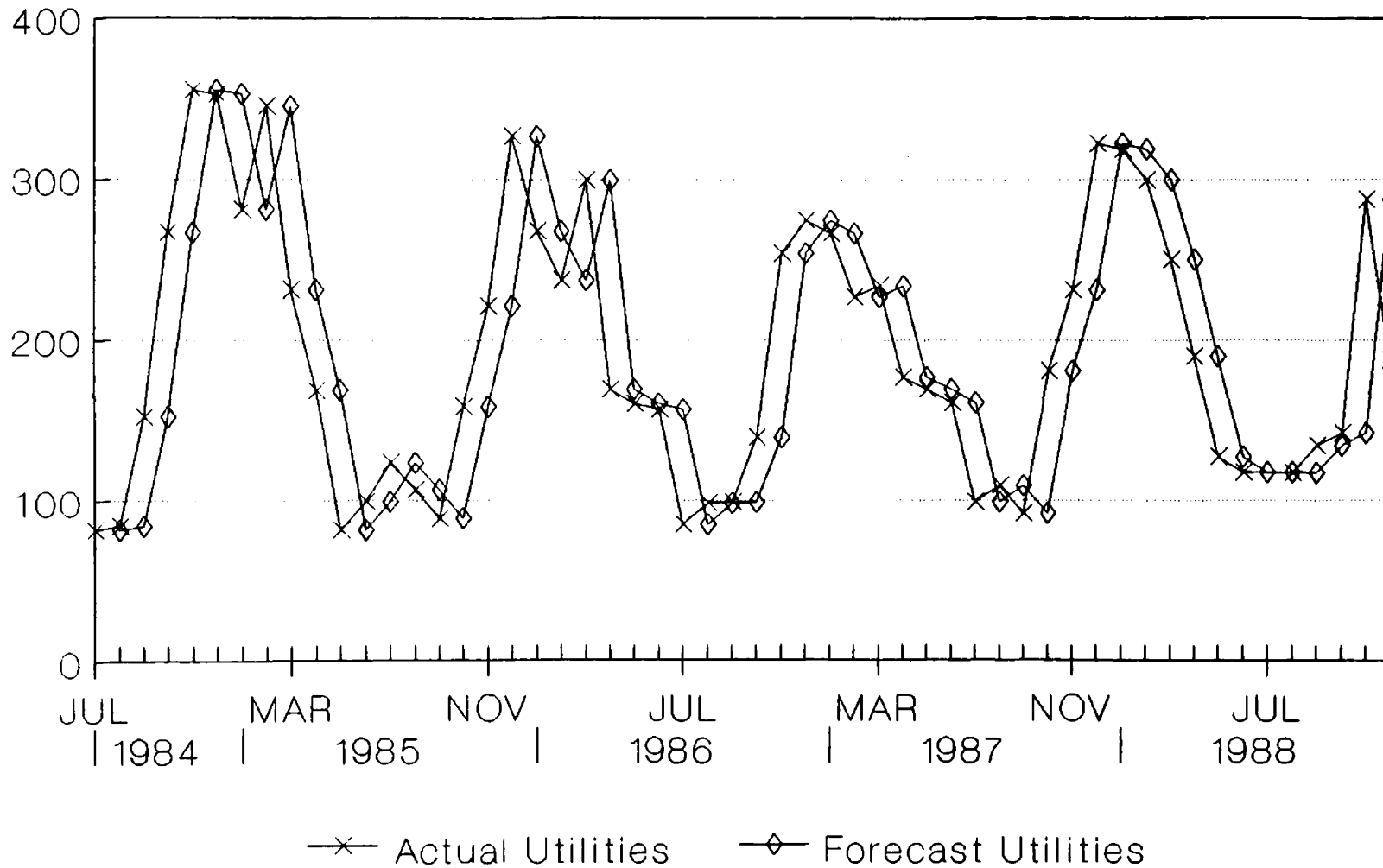


Figure 20.

**Food Expenditures
City of Great Falls Jail
(July 1984 - December 1988)**

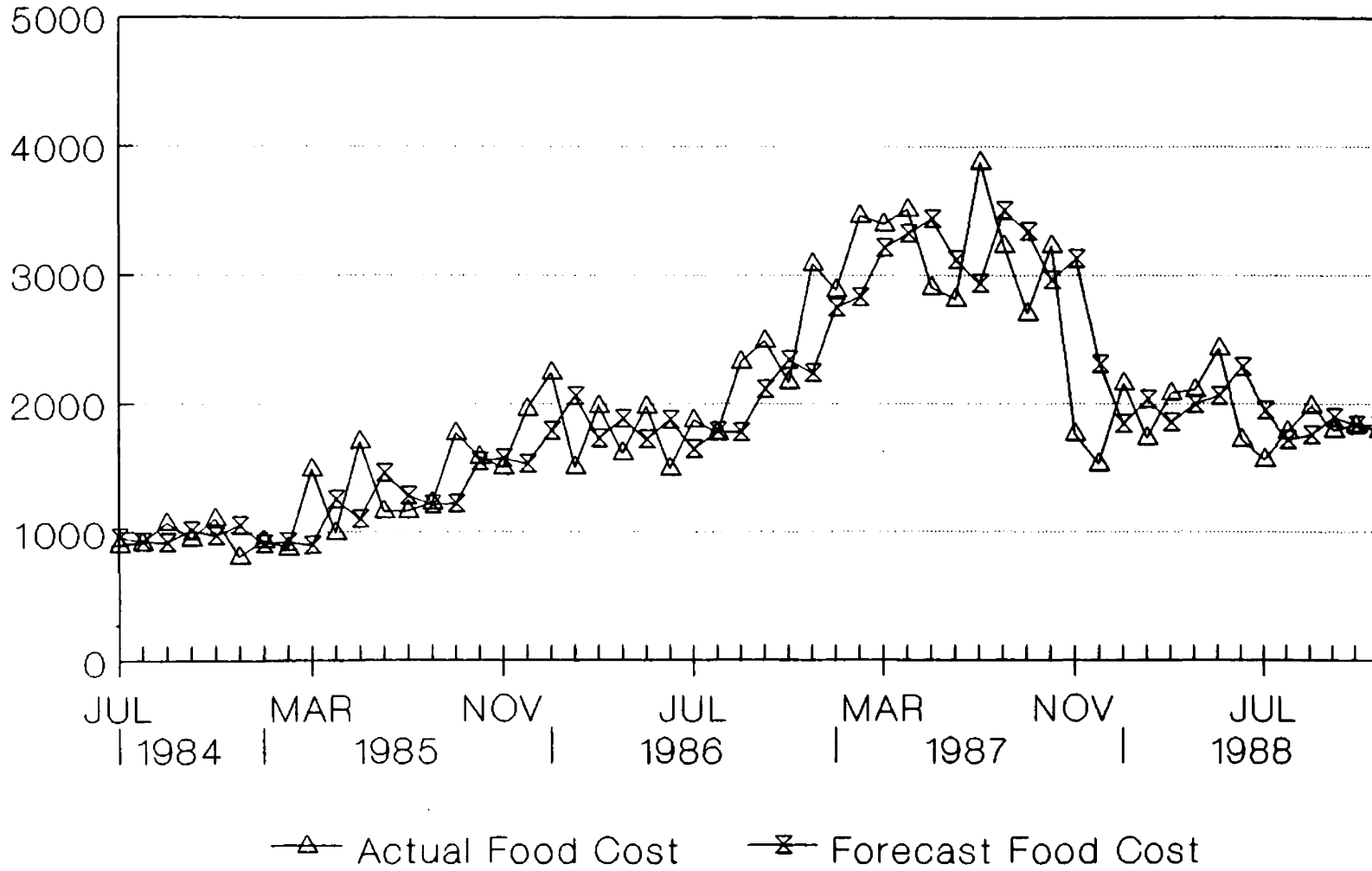


Figure 21.

**Other Expenditures
City of Great Falls Jail
(July 1984 - December 1988)**

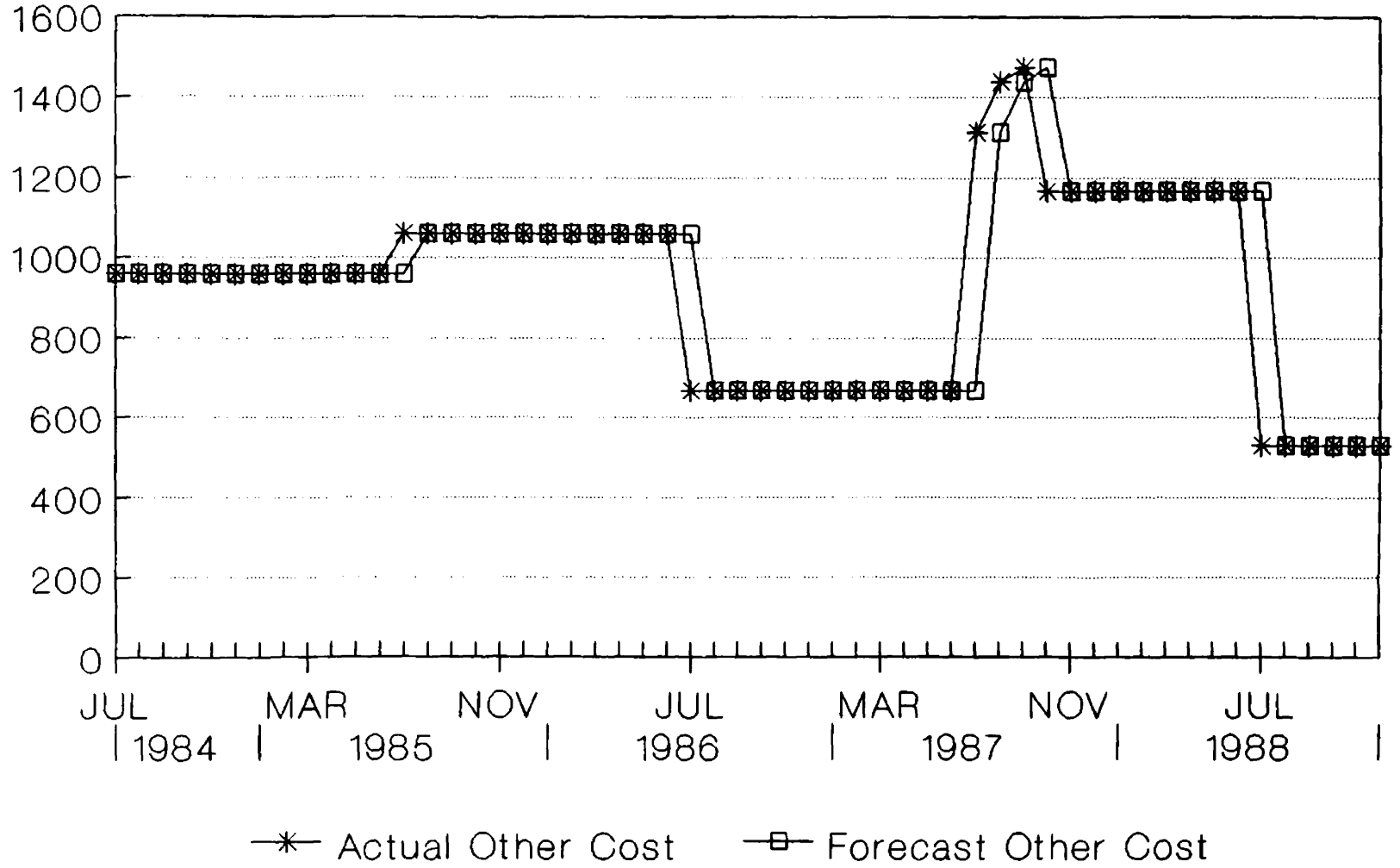


Figure 22.

Salary Expenditures Cascade County Jail (July 1981 - December 1988)

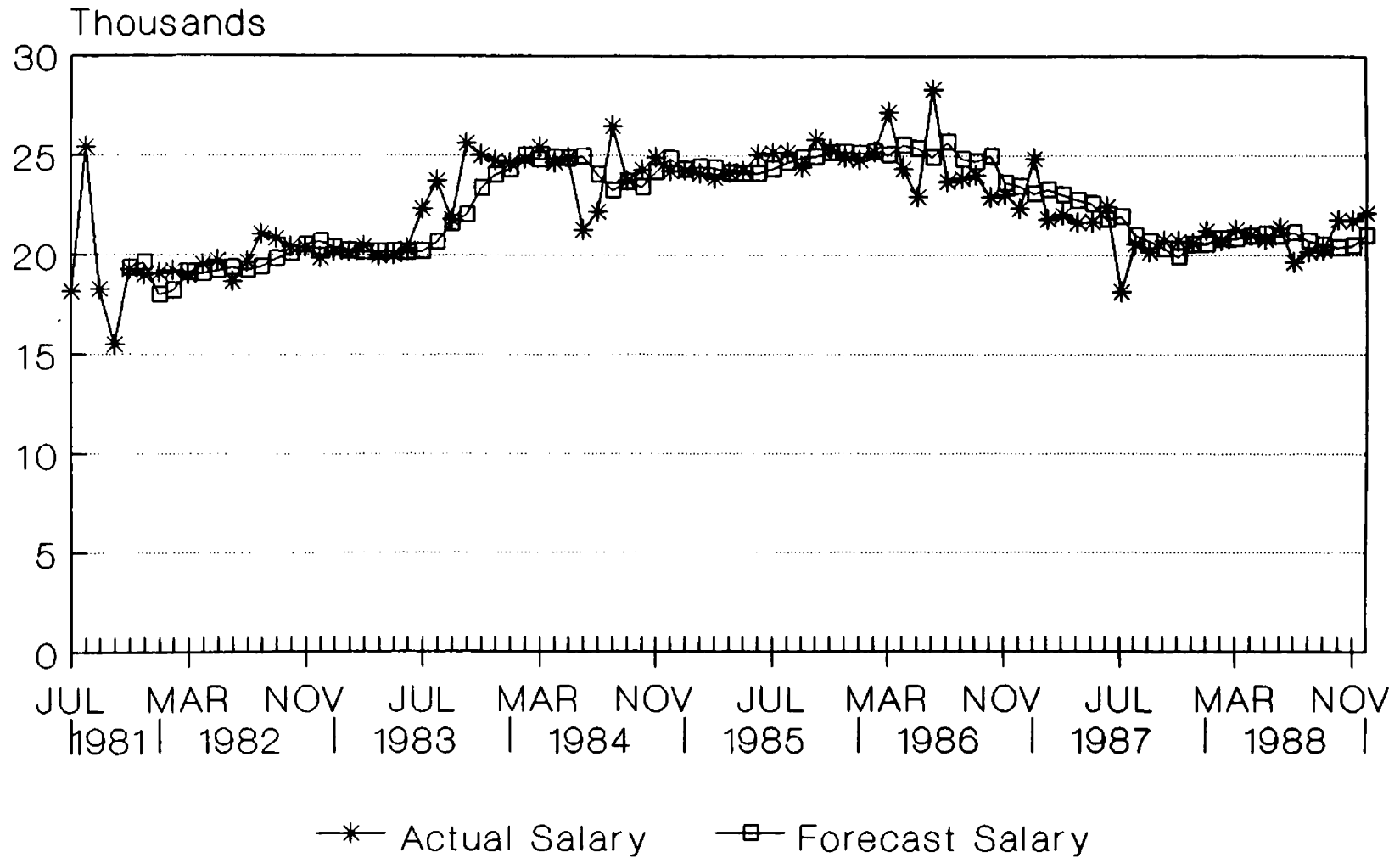


Figure 23.

**Rep./Maint. Expenditures
Cascade County Jail
(July 1981 - December 1988)**

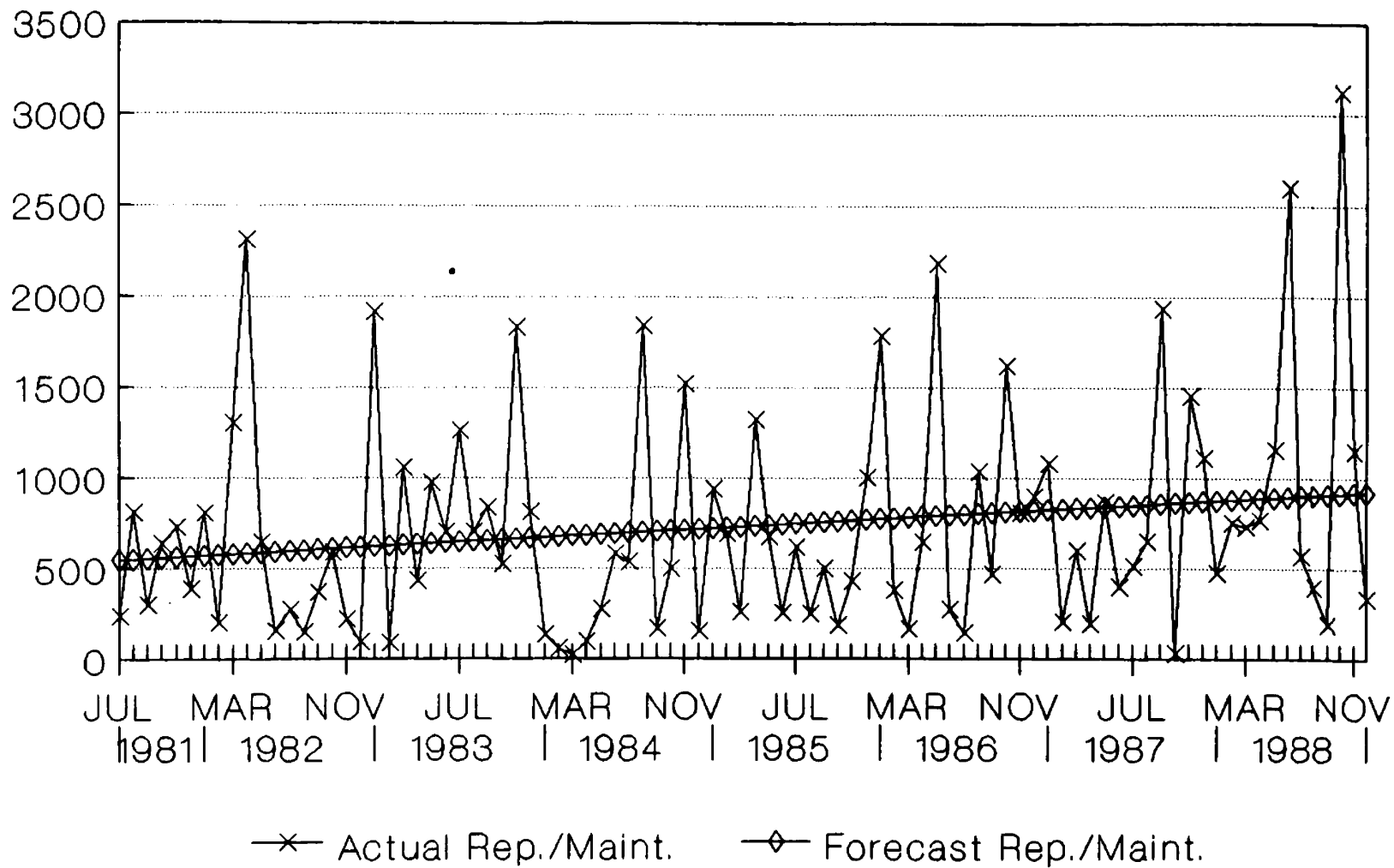


Figure 24.

**Prof. Serv. Expenditures
Cascade County Jail
(July 1981 - December 1988)**

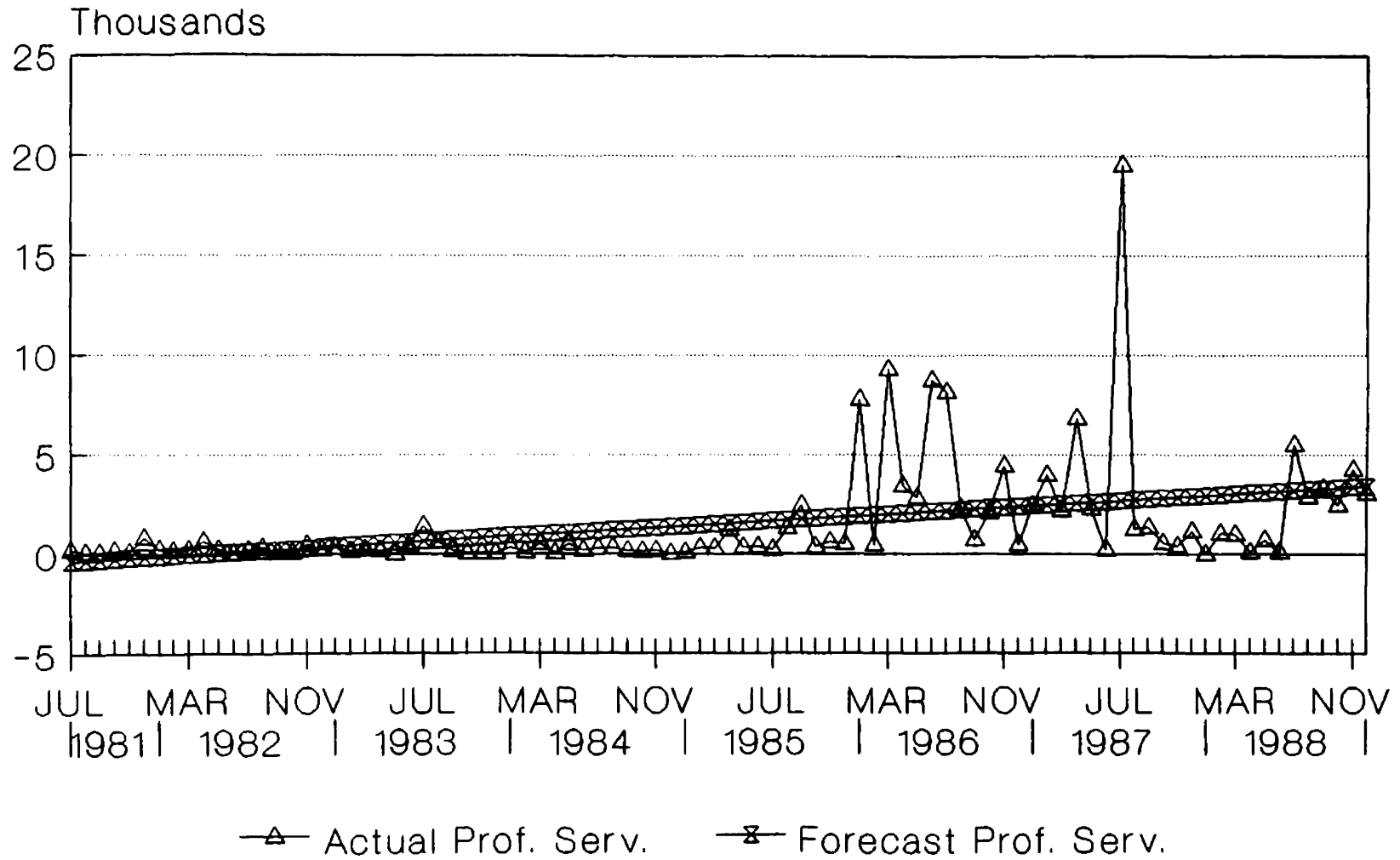


Figure 25.

Food Expenditures Cascade County Jail (July 1981 - December 1988)

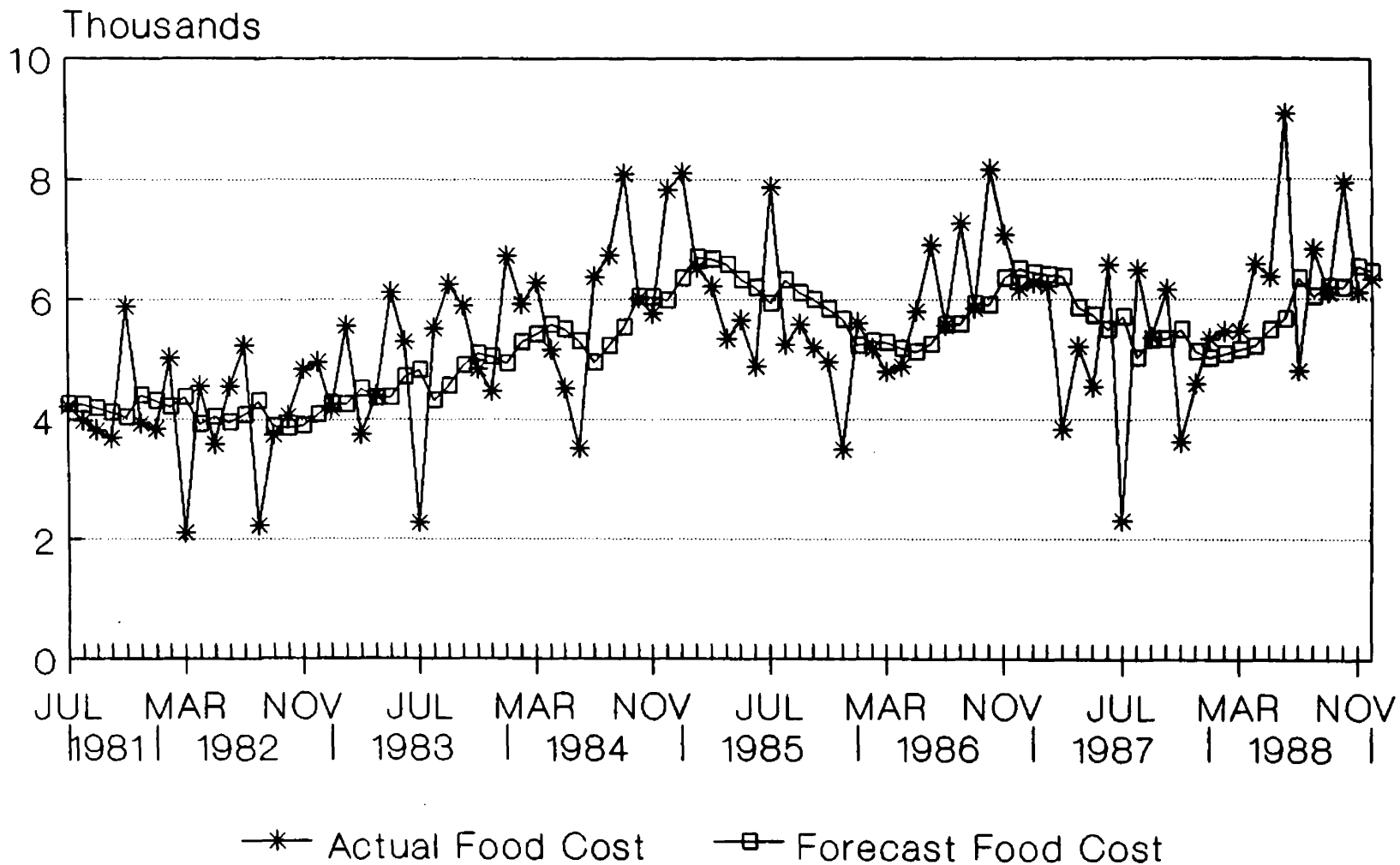


Figure 26.

**Utility Expenditures
 Cascade County Jail
 (July 1981 - December 1988)**

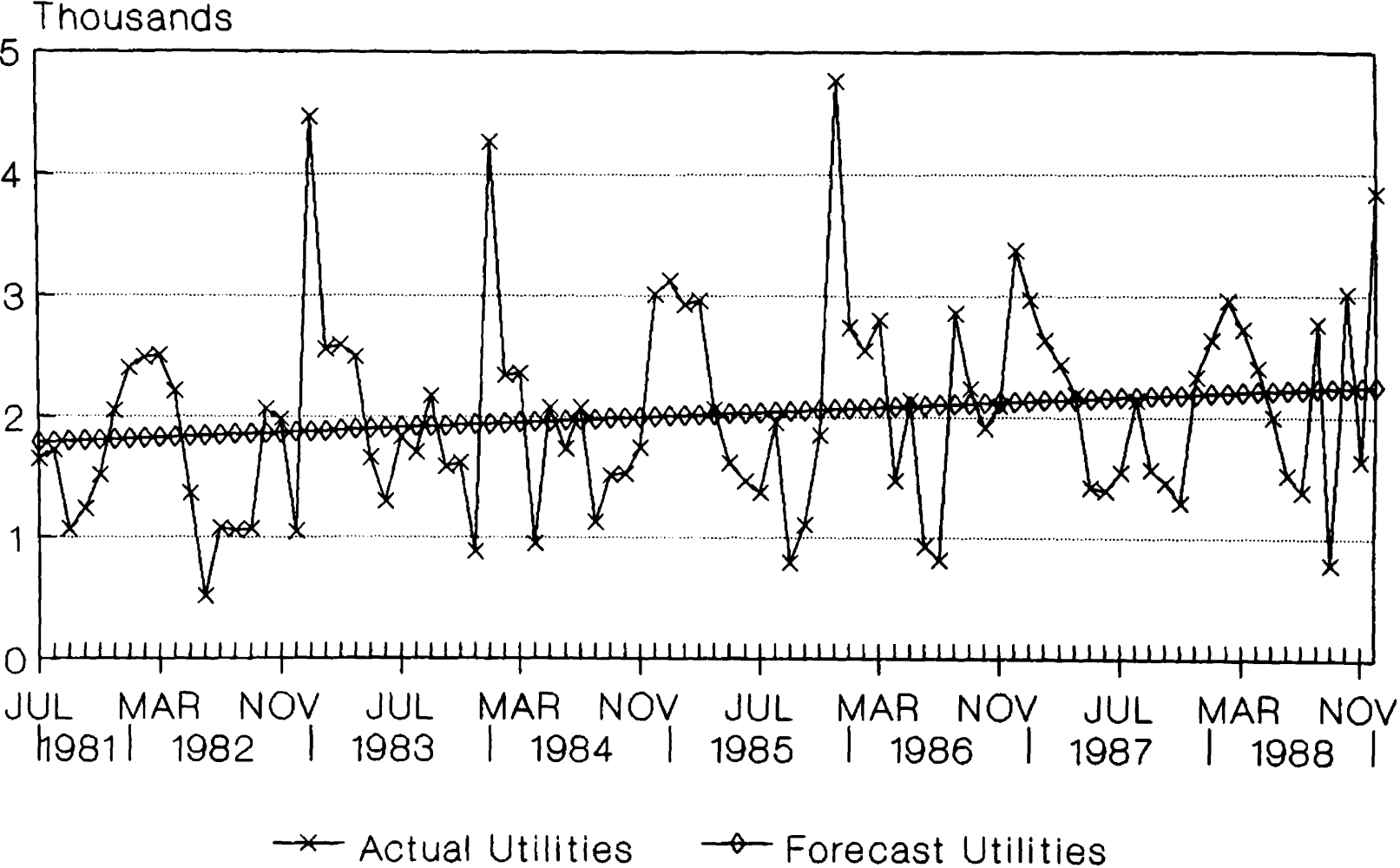


Figure 27.

**Other Expenditures
Cascade County Jail
(July 1981 - December 1988)**

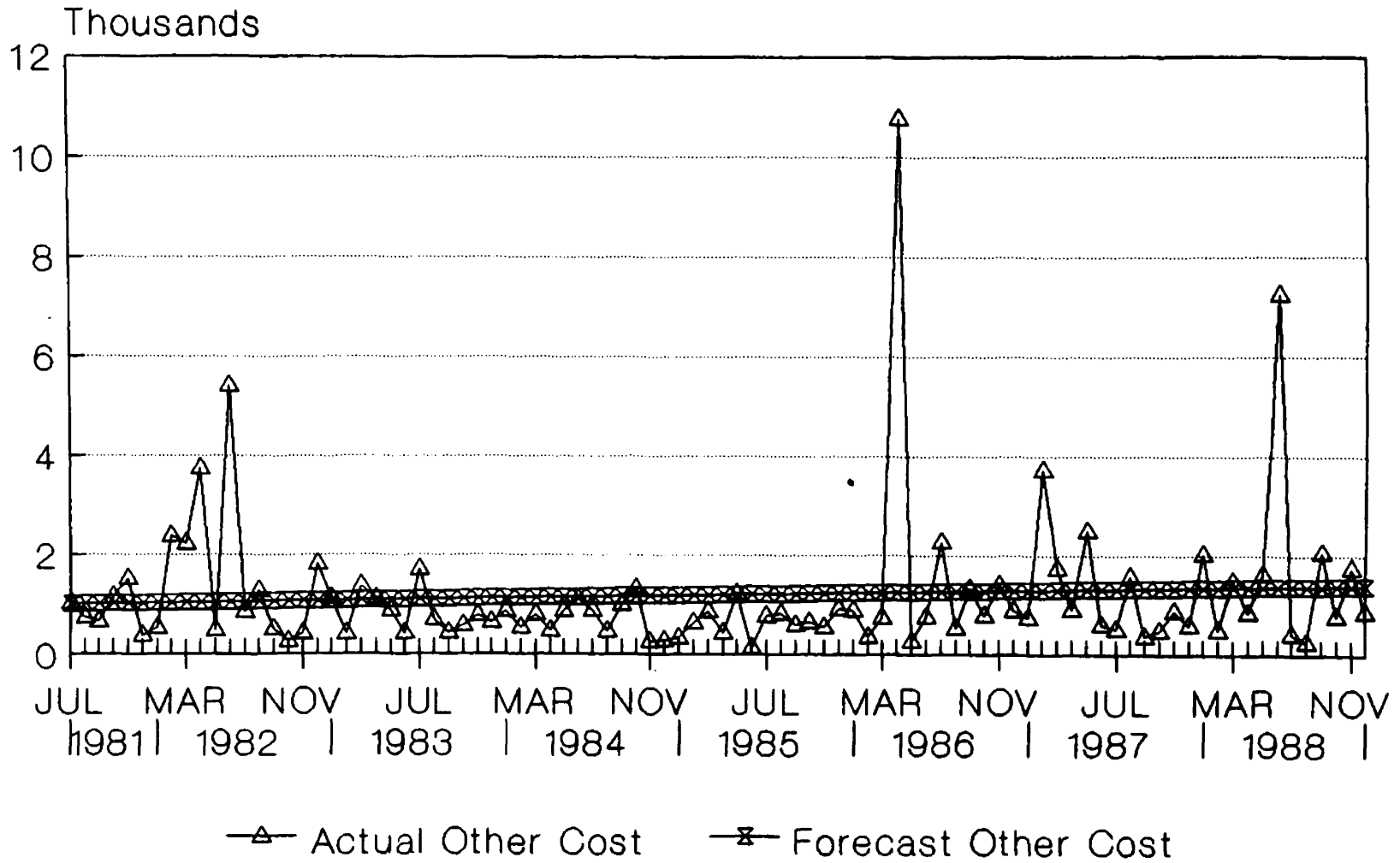


Figure 28.

**Revenue
Cascade County Jail
(July 1981 - December 1988)**

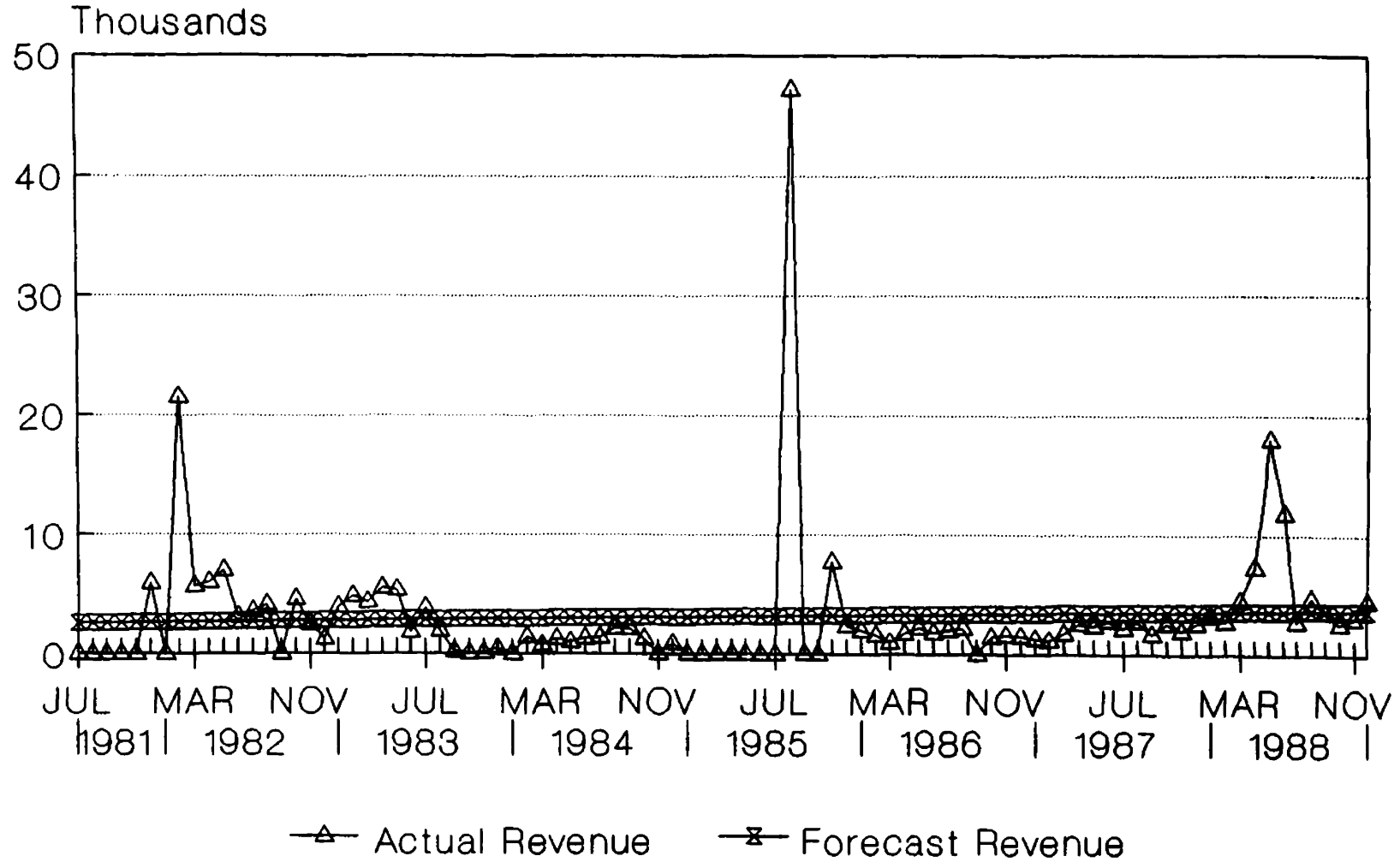


Figure 29.

**Total Expenditures Less Revenue
 Cascade County Jail
 (July 1981 - December 1988)**

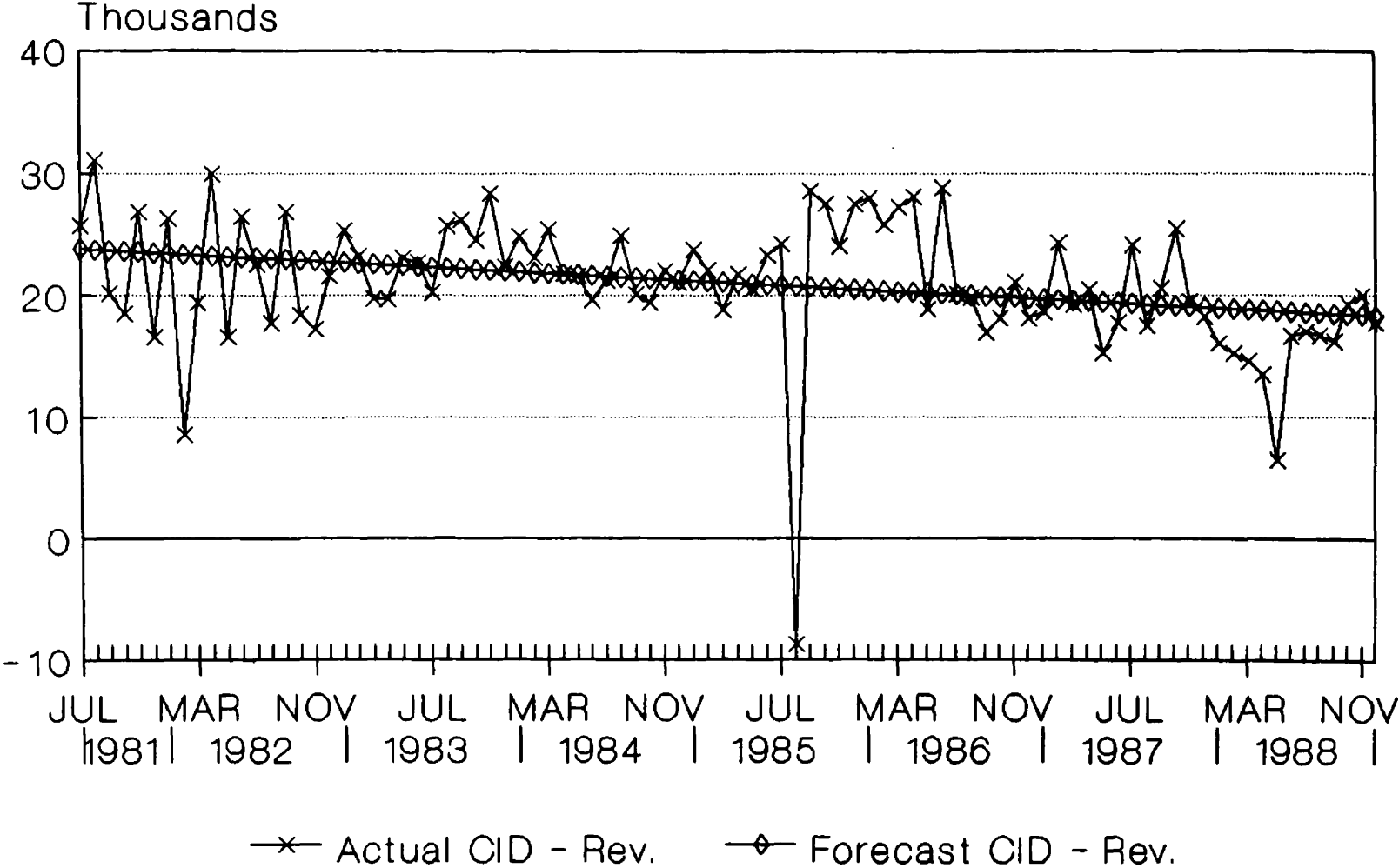


Figure 30.

**Cost/Inmate/Day Less Revenue
Cascade County Jail
(July 1981 - December 1988)**

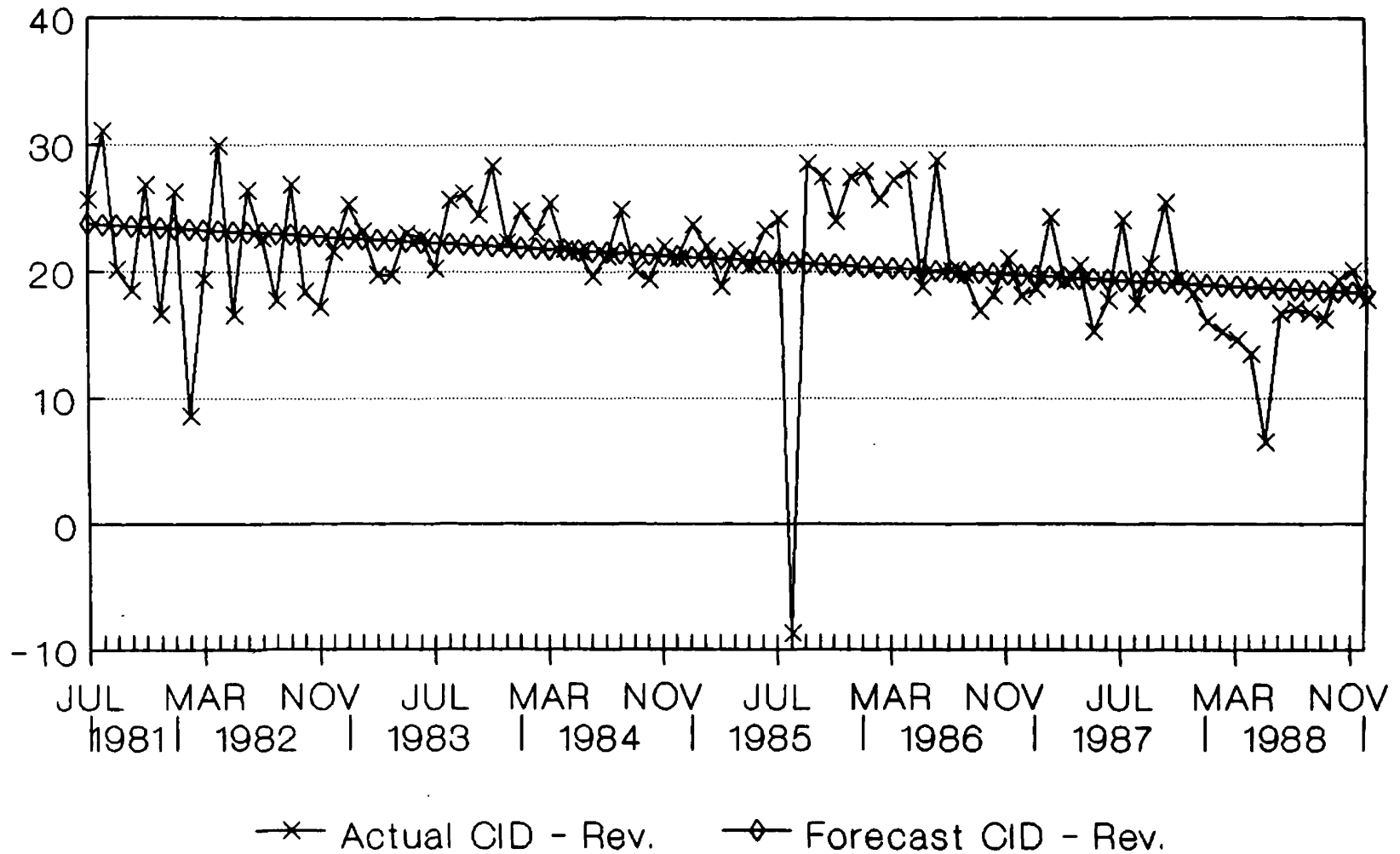


Figure 31.