

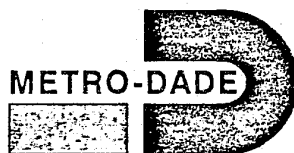
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**1991 JUVENILE
PHASE**

**J U S T I C E
I M P R O V E M E N T
M O D E L**

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Metro-Dade Department of Justice Assistance

October 12, 1993

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**U.S. Department of Justice
National Institute of Justice**

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EXECUTIVE SUMMARY

The Dade Justice Improvement Model (DADEJIM), is an informational system designed to simulate changes and forecast the impact of these changes on the Criminal Justice System. It is intended to be an analytical and managerial tool for the use of policy and decision-makers. The data presented by DADEJIM, is the synthesis of information provided by more than 47 criminal justice agencies in the Dade County/11th Judicial Circuit. These include the Information and Technology Department (ITD), the State Attorney's Office, the Public Defender's Office, Clerk of the Court, Administrative Office of the Courts, Medical Examiner's Office, Florida Department of Health & Rehabilitative Services, and all twenty-seven (27) local police departments which include Metro-Dade Police Department and the City of Miami Police Department.

The basic methodology for the model, originally developed at Carnegie-Mellon University in the 1970's, required the use of an interactive main-frame computer system. The Santa Clara County Center for Urban Analysis modified the system to work on a UNIX computer system and adapted the model for their use. Working in conjunction with Santa Clara's staff, the Department of Justice Assistance was able to further modify and adapt the JUSSIM model to fit Dade County's judicial and criminal justice system. The final product is called the Dade Justice Improvement Model (DADEJIM).

DADEJIM may be classified as an "aggregate, linear, steady-state" simulation model rather than the more traditional case by case approach; "it gives a the picture of the whole forest, not just the trees." The model is capable of bypassing departmental barriers, evaluating the impact of decisions on a system-wide basis. It incorporates sensitivity analysis as the driving force within its methodological framework. This technique involves dividing policy objectives into smaller components and then changing the quantity of one factor at a time while keeping the other variables constant. In other words, DADEJIM has the flexibility of projecting the impact of major system changes as well as hypothetical case scenarios or "what if" applications. Among its many other applications, DADEJIM is capable of providing a detailed analysis of the flows and costs of processing defendants and cases. Hence, it can easily allow one to evaluate the balance between the criminal justice system's needs and available resources.

DADEJIM can be conceptualized as a flow diagram (enclosed). The stages on the diagram represent major justice system processes. These are connected by flows representing cases and people that are processed at each stage and routed from one stage to another by connecting branches. Specific branching probabilities rather than probabilities of distributions are utilized to determine how cases are processed through the criminal justice system.

The three major model components consist of the following:

FLOWCHART - A graphic diagram depicting the movement of cases/people through the system. The stages represent major functional areas or "choke-points" of the system. The branches represent the major paths defendants/people follow as they move through the system.

CASE-FLOW - The volume of cases/people flowing into and out of each stage are attached to the connecting branches.

RESOURCES - Departmental/Agency estimates of the time and resources apportioned to each of the stages were compiled according to organizational divisions and their line item budget (when applicable). These percentages were applied to fiscal 86-87 actual expenditures. The aggregation of these figures provides resource information of the system towards Adult Felony, Adult Misdemeanor, and as in this case, Juvenile related cases, for each stage of the model. The model also requires the identification of key personnel for each stage. Key personnel is considered to be the job classification that has the most control over the volume of cases processed, or most the decision-making control in determining the outcome of a defendant.

The amalgamation of these elements provide an overview of the entire criminal justice system for a fiscal/calendar year as well as a common framework for considering justice system issues. Through this process, DADEJIM takes the initial steps in fomenting and developing a more integrated criminal justice system.

Criminal justice projections and simulations are the combat intelligence in the war on crime. Predictions of crime levels, prison populations and other criminal justice trends serve as valuable guides in the development of effective public policy. This information is particularly important when budget constraints are tight. Computer driven simulation models offer a cost-effective option for analyzing and evaluating changes in policy and the allocation of resources. DADEJIM promotes faster and more efficient decision making and changes in policy that will benefit the justice system and the community-at-large.

Dade Justice Improvement Model

Uses of the Model

- ✓ BASE CASE vs TEST CASE ANALYSIS
e.g., Internal Comparative Analysis
- ✓ Identify Emerging Problems
e.g., Measure Increase in "ICE" related Arrests
- ✓ Model Flows of Offense Groups
- ✓ Estimate resource requirements and effects of new programs
- ✓ Project Impact of Major System Changes

Dade Justice Improvement Model

Examples of Possible Model Applications

- ✓ Impact of adding 100 Metro-Dade Police Officers
- ✓ Significant New Legislation, e.g., D.U.I. Penalty Increases
- ✓ Impact of Domestic Violence Court
- ✓ Impact of Adding a New Felony Division
- ✓ Adding a New Correctional Facility with 1,000 New Beds
- ✓ Analysis of Court-Time Allocation by Police Officer Hours, Offense Grouping, and Court Stage
- ✓ Ordinance Impact Analysis

ANALYSIS
OF
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1991 DATA

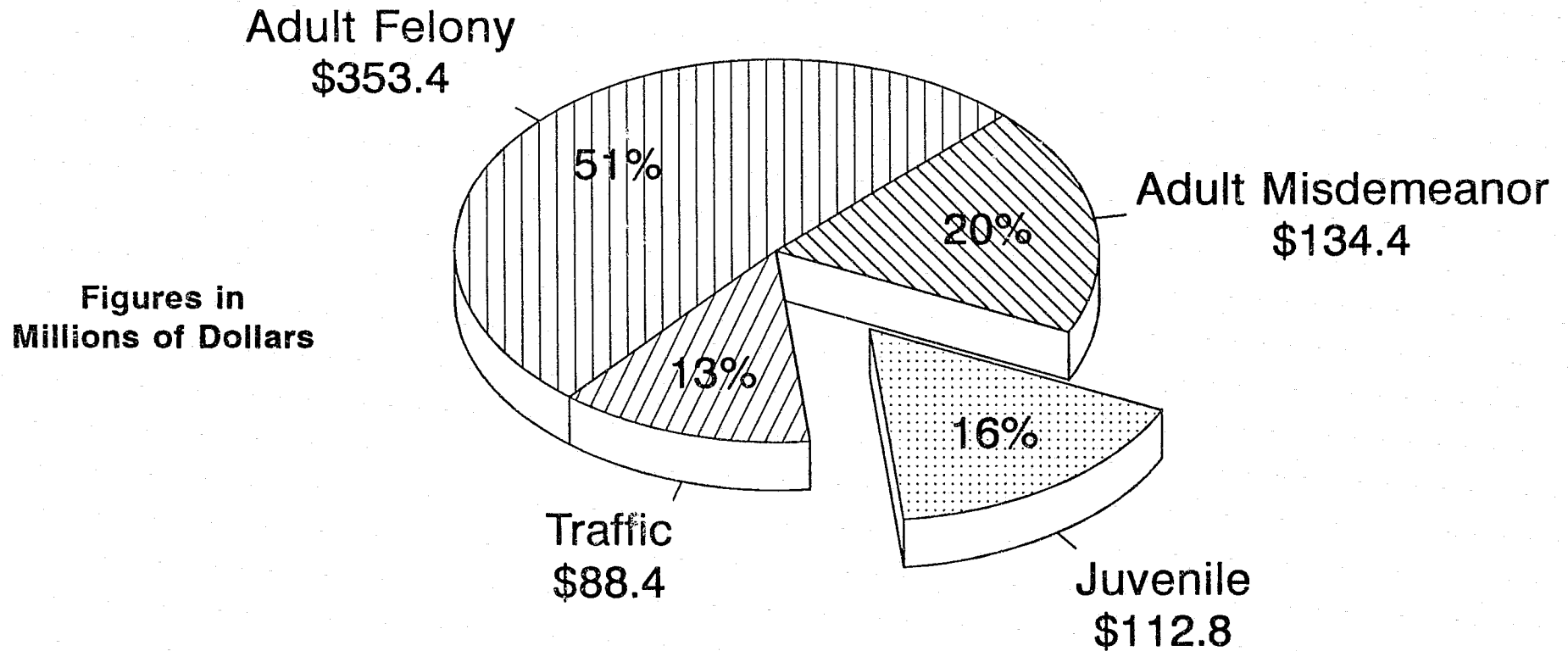
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JUSTICE
IMPROVEMENT
MODEL

DADE JUSTICE IMPROVEMENT MODEL

Justice System Expenditures 11th Judicial Circuit

Fiscal Year 1990-91

**Total
Expenditures
\$689,036,700**



DADE JUSTICE IMPROVEMENT MODEL

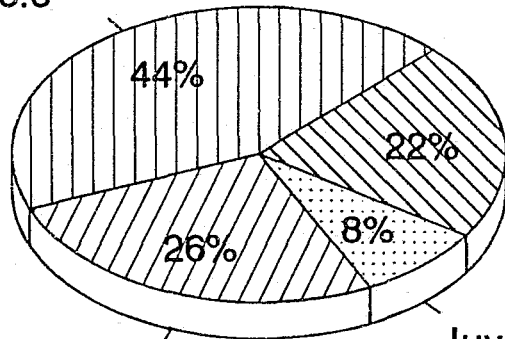
Justice System Expenditures 11th Judicial Circuit

Figures in
Millions of Dollars

**Total
Expenditures
\$520,258,100**

**Total
Expenditures
\$689,036,700**

Adult Felony
\$226.6



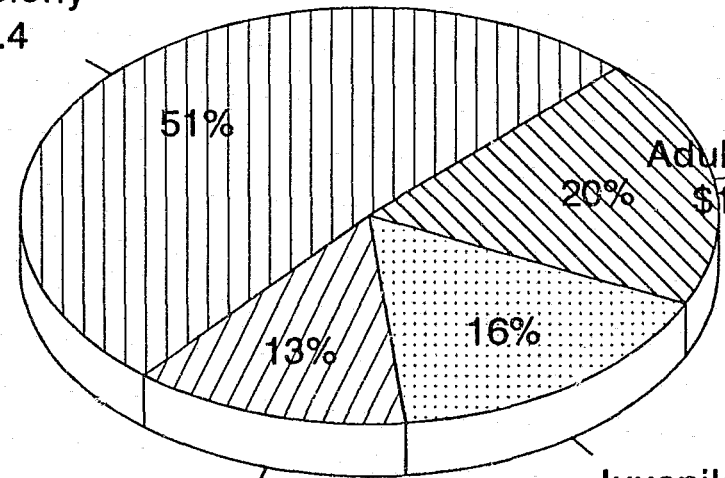
Traffic
\$136.8

Juvenile
\$43.9

Adult Misd.
\$112.9

Fiscal Year 1986-87

Adult Felony
\$353.4



Traffic
\$88.4

Juvenile
\$112.8

Adult Misd.
\$134.4

Fiscal Year 1990-91

JUVENILE

EXPENDITURES

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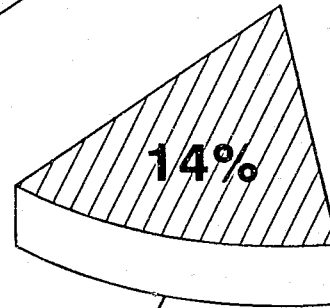
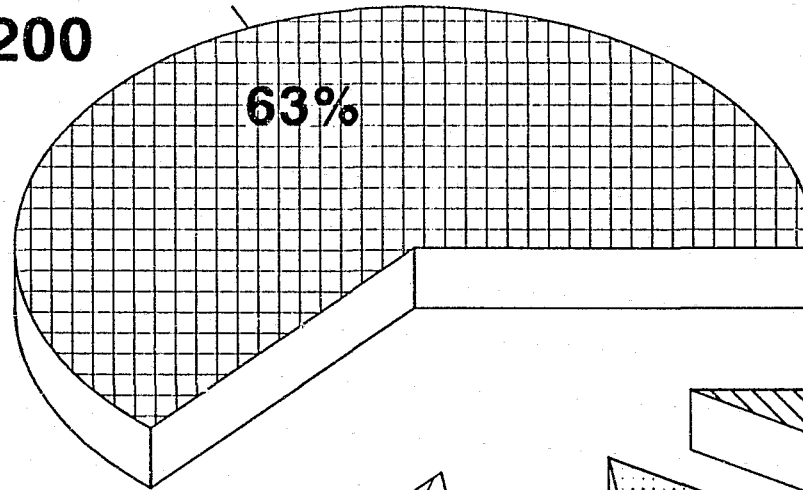
DADEJIM - JUVENILE PHASE

JUVENILE JUSTICE SYSTEM EXPENDITURES

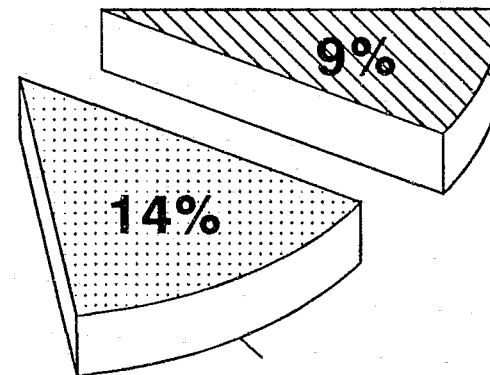
11th Judicial Circuit - Fiscal Year 1990-1991

Total
\$112,786,000

LAW ENFORCEMENT
\$71,606,200



COURTS
\$15,518,500



REHABILITATIVE SERV.
\$15,848,000

OTHER
\$9,813,300

DADEJIM - JUVENILE PHASE

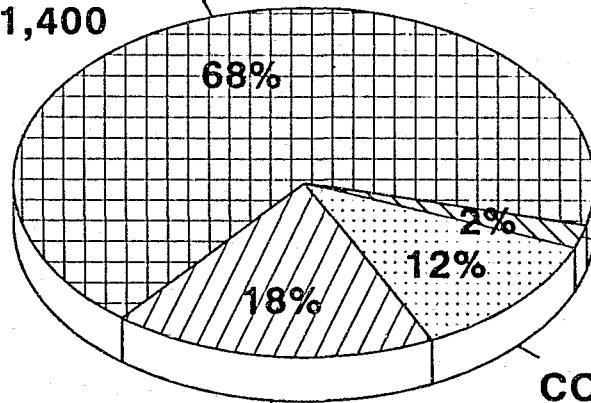
JUVENILE JUSTICE SYSTEM EXPENDITURES

11th Judicial Circuit - Fiscal Year

1986-1987

Total
\$75,398,500

LAW ENFORCEMENT
\$51,311,400



REHABILITATION
\$13,566,600

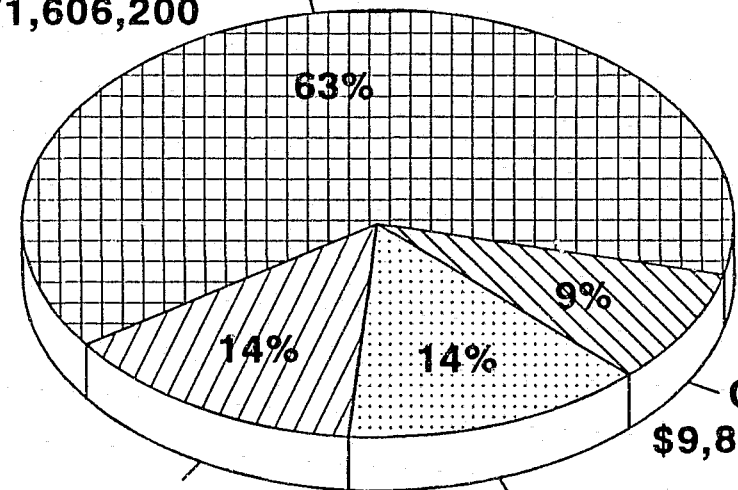
COURTS
\$8,896,600

OTHER
\$1,623,900

1990-1991

Total
\$112,786,000

LAW ENFORCEMENT
\$71,606,200



REHABILITATION
\$15,848,000

COURTS
\$15,518,500

OTHER
\$9,813,300

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DADEJIM - JUVENILE PHASE

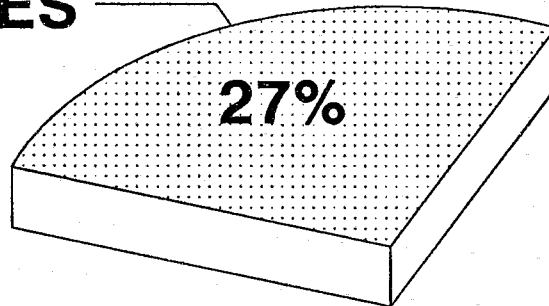
JUVENILE JUSTICE SYSTEM EXPENDITURES

11th Judicial Circuit - Fiscal Year 1990-1991

Total
\$112,786,000 *

MUNICIPALITIES

\$29,896,800

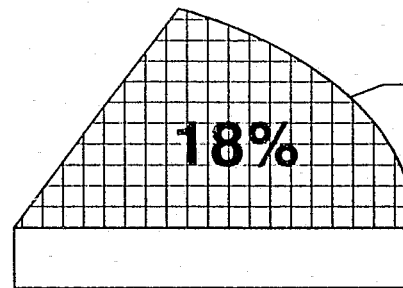


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STATE

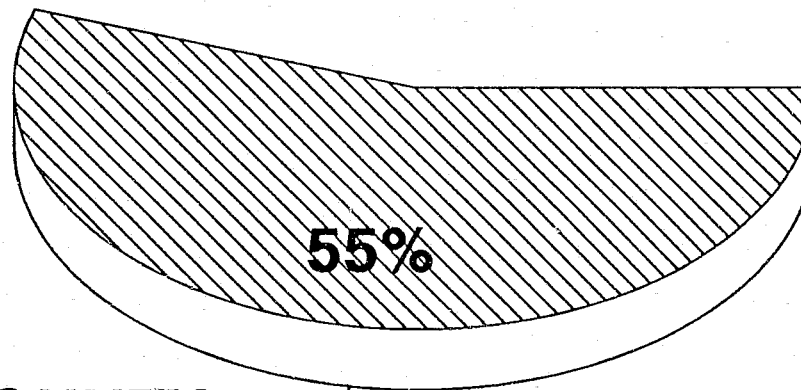
\$20,557,000



55%

COUNTY

\$62,332,200



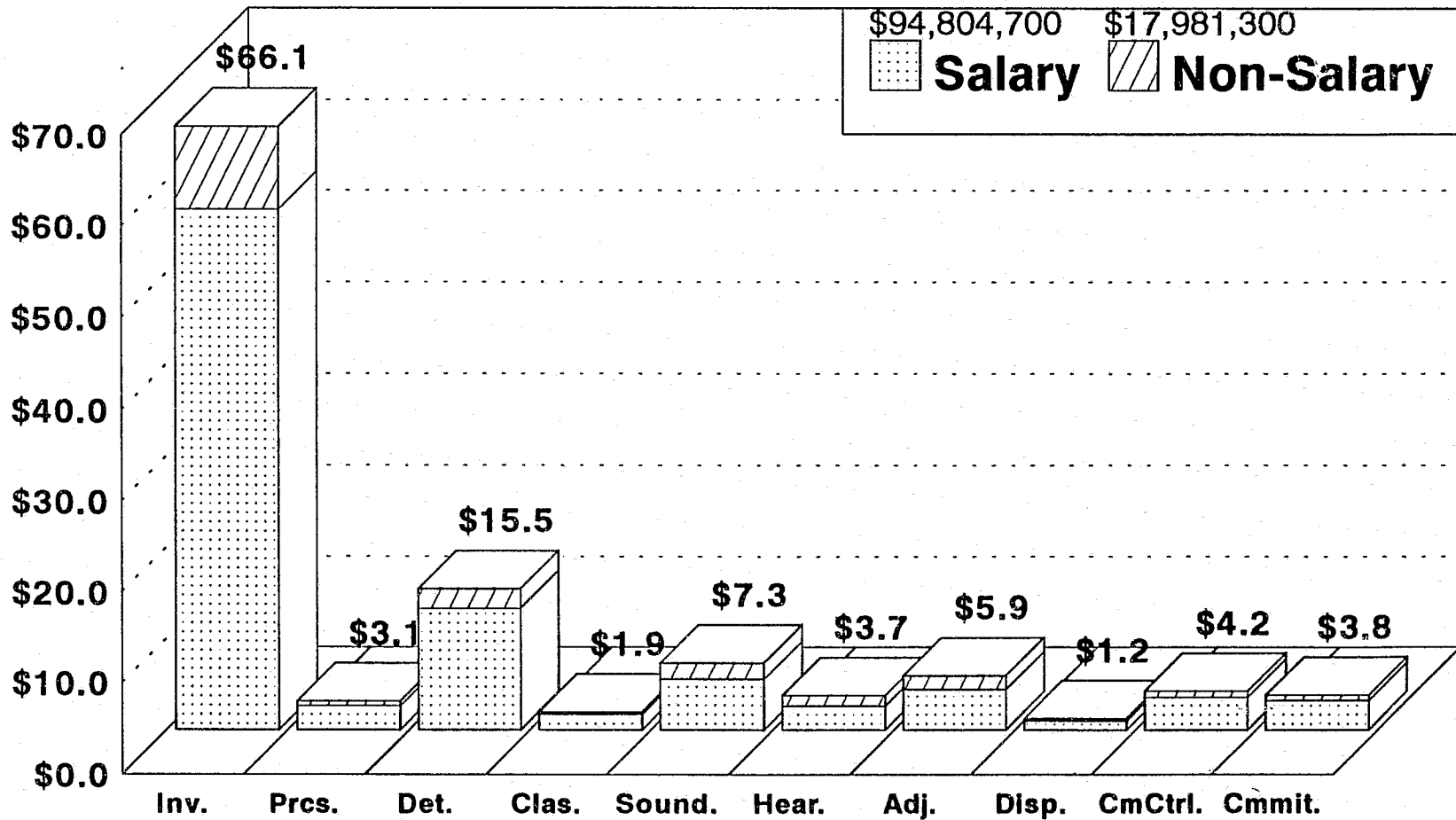
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DADEJIM - JUVENILE PHASE

Salary vs. Non-Salary Expenditures
11th Judicial Court - Fiscal Year 1990-1991

TOTAL
\$112,786,000

Millions



DADE
JUSTICE
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MODEL

DADEJIM STAGES

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DADEJIM - JUVENILE PHASE

Personnel Related Expenditures
11th Judicial Court - Fiscal Year 1990-1991

\$42,167,300

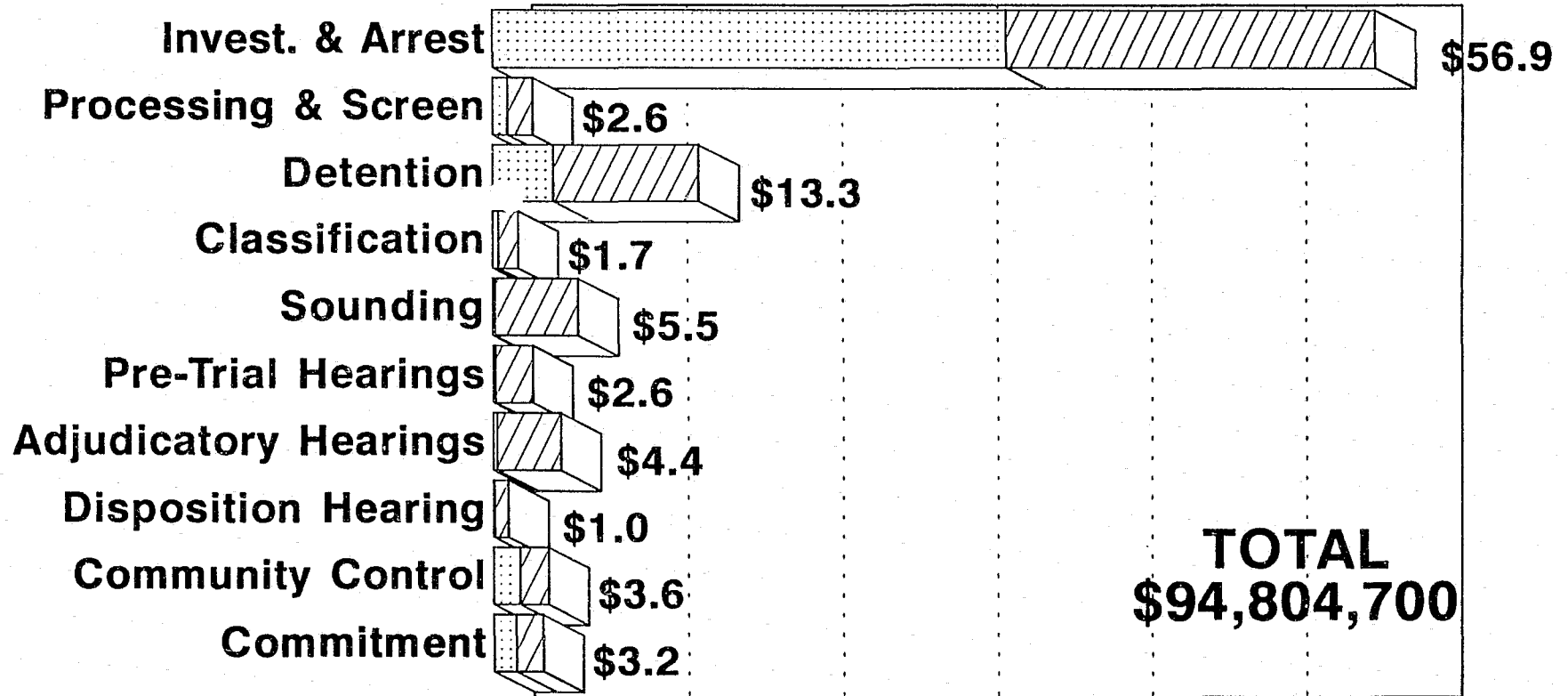
\$52,637,400



Key Personnel



Support Staff



\$0.0 \$10.0 \$20.0 \$30.0 \$40.0 \$50.0 \$60.0

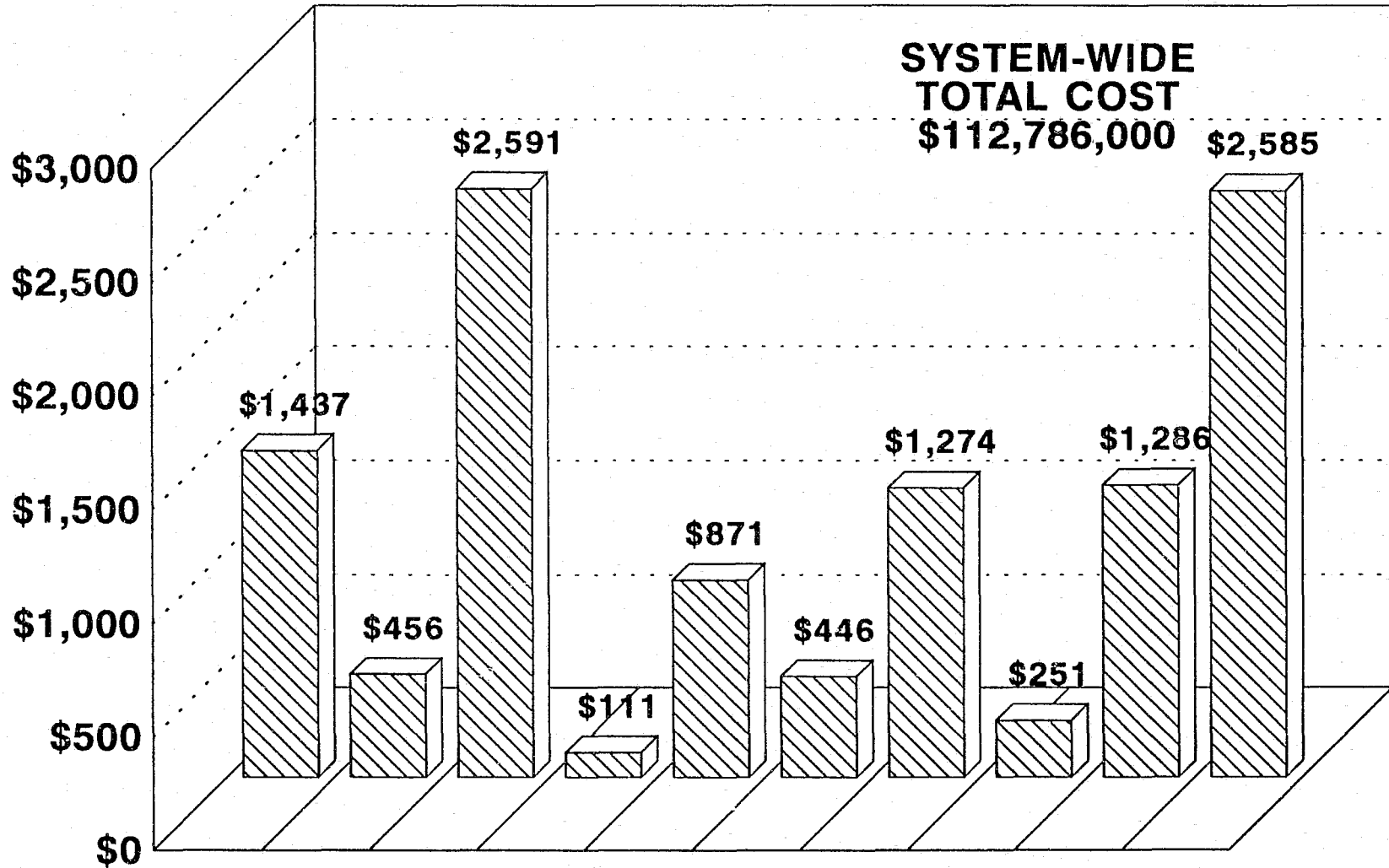
Millions

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DADEJIM - JUVENILE PHASE

Average Cost / Case / Defendant by Stage
 11th Judicial Court - Fiscal Year 1990-1991

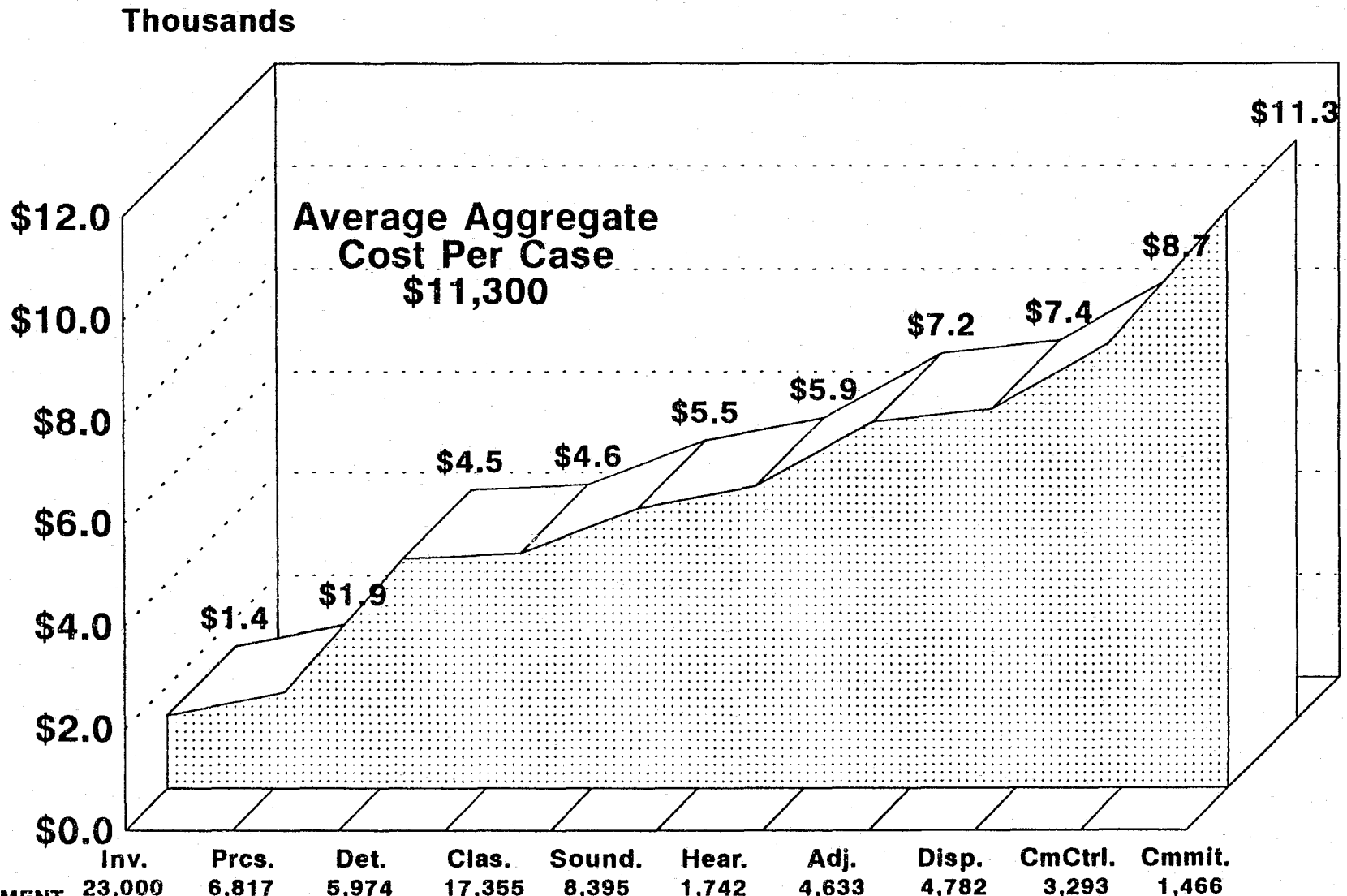


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23,000	6,817	5,974	17,355	8,395	1,742	4,633	4,782	3,293	1,466

DADEJIM - JUVENILE PHASE

Cumulative Average Cost / Case / Defendant by Stage
11th Judicial Court - Fiscal Year 1990-1991



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	Inv.	Prcs.	Det.	Clas.	Sound.	Hear.	Adj.	Disp.	CmCtrl.	Cmmit.
	23,000	6,817	5,974	17,355	8,395	1,742	4,633	4,782	3,293	1,466

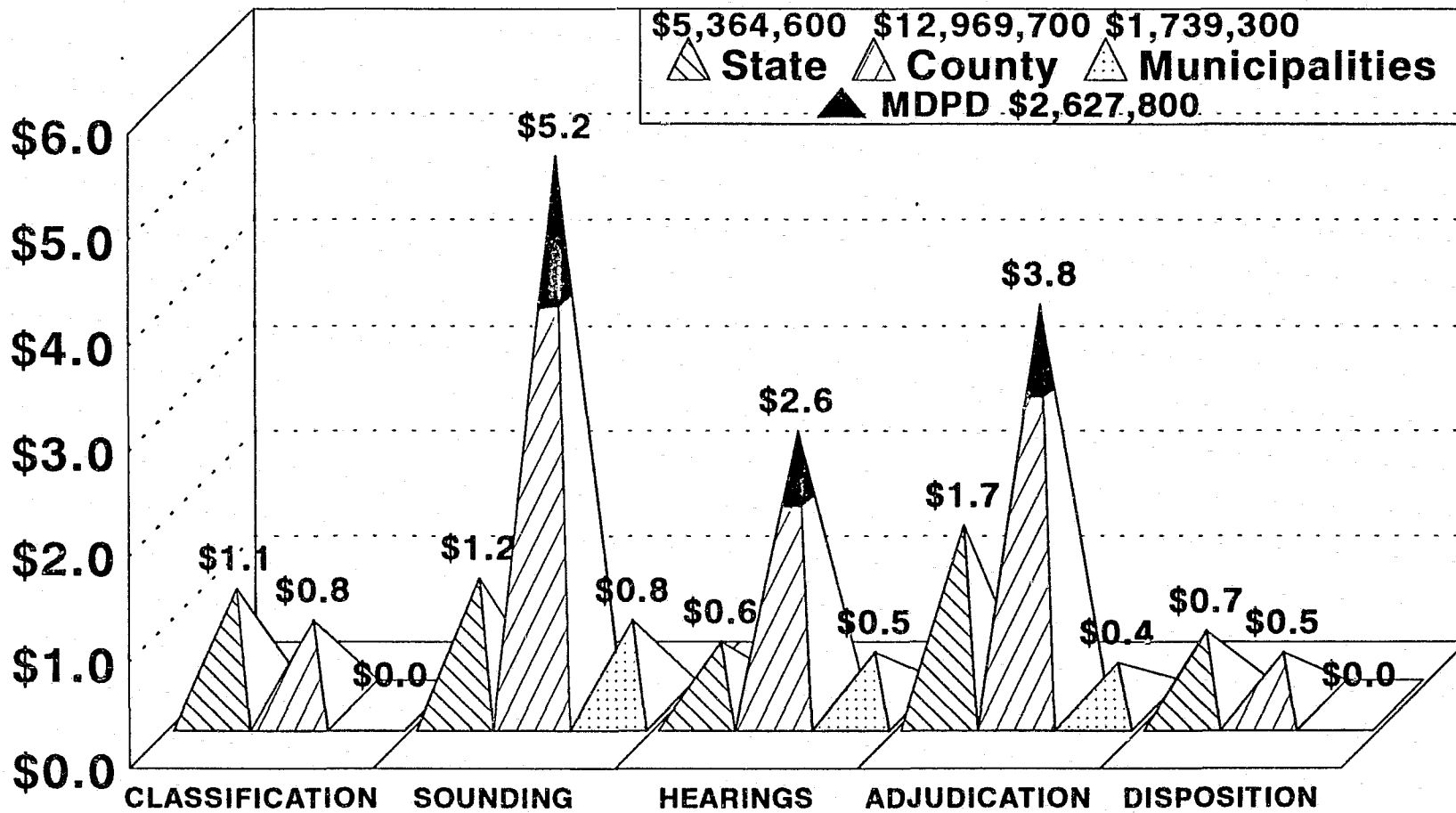
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DADEJIM - JUVENILE PHASE

Delinquency Court Expenditures
11th Judicial Circuit - Fiscal Year 1990-1991

Aggregate Expenditures
for Court Stages
\$20,073,600

Millions



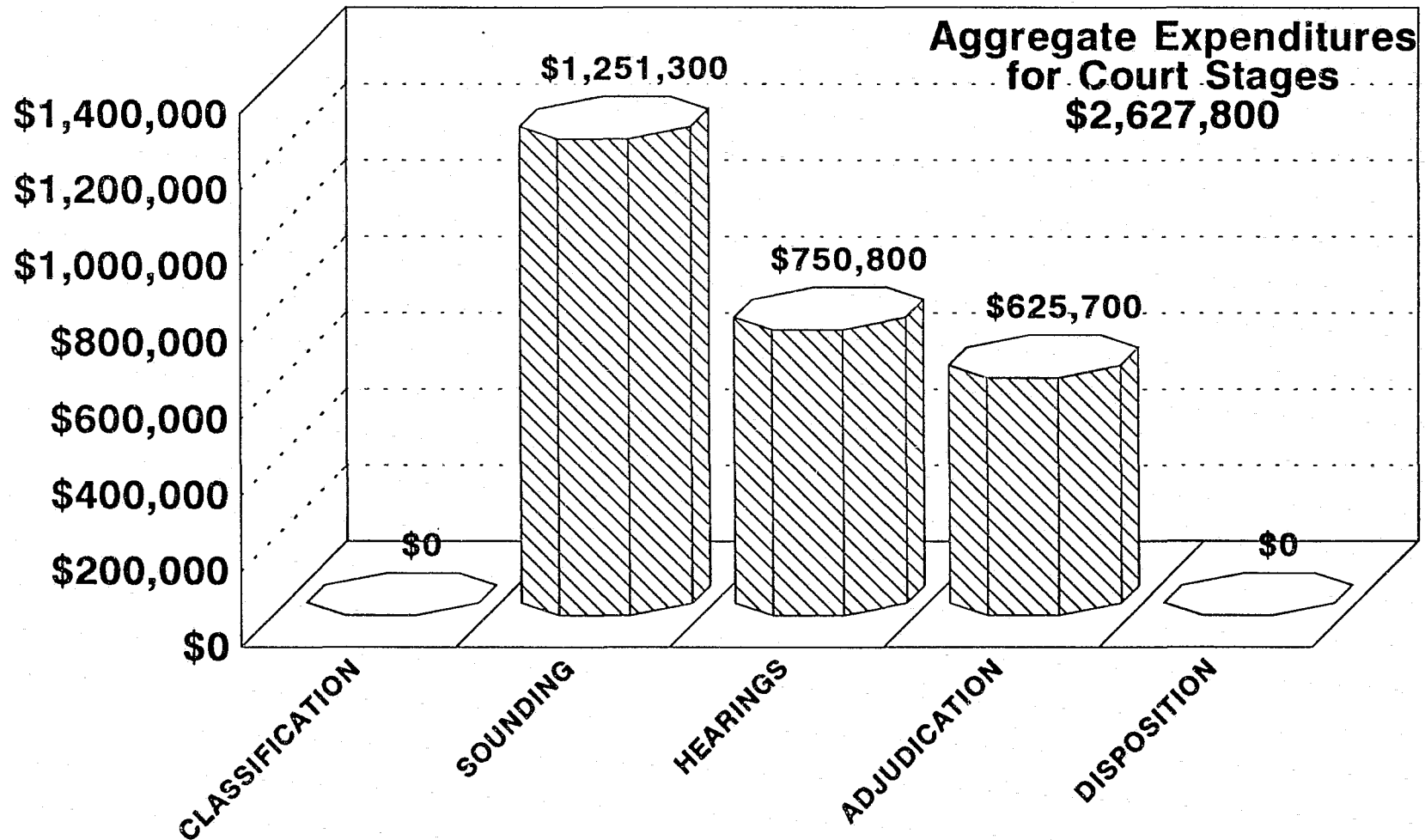
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DADEJIM COURT STAGES ONLY

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DADEJIM - JUVENILE PHASE

MDPD Delinquency Court Expenditures
11th Judicial Circuit - Fiscal Year 1990-1991



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DADEJIM COURT STAGES ONLY

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JUVENILE

CASE

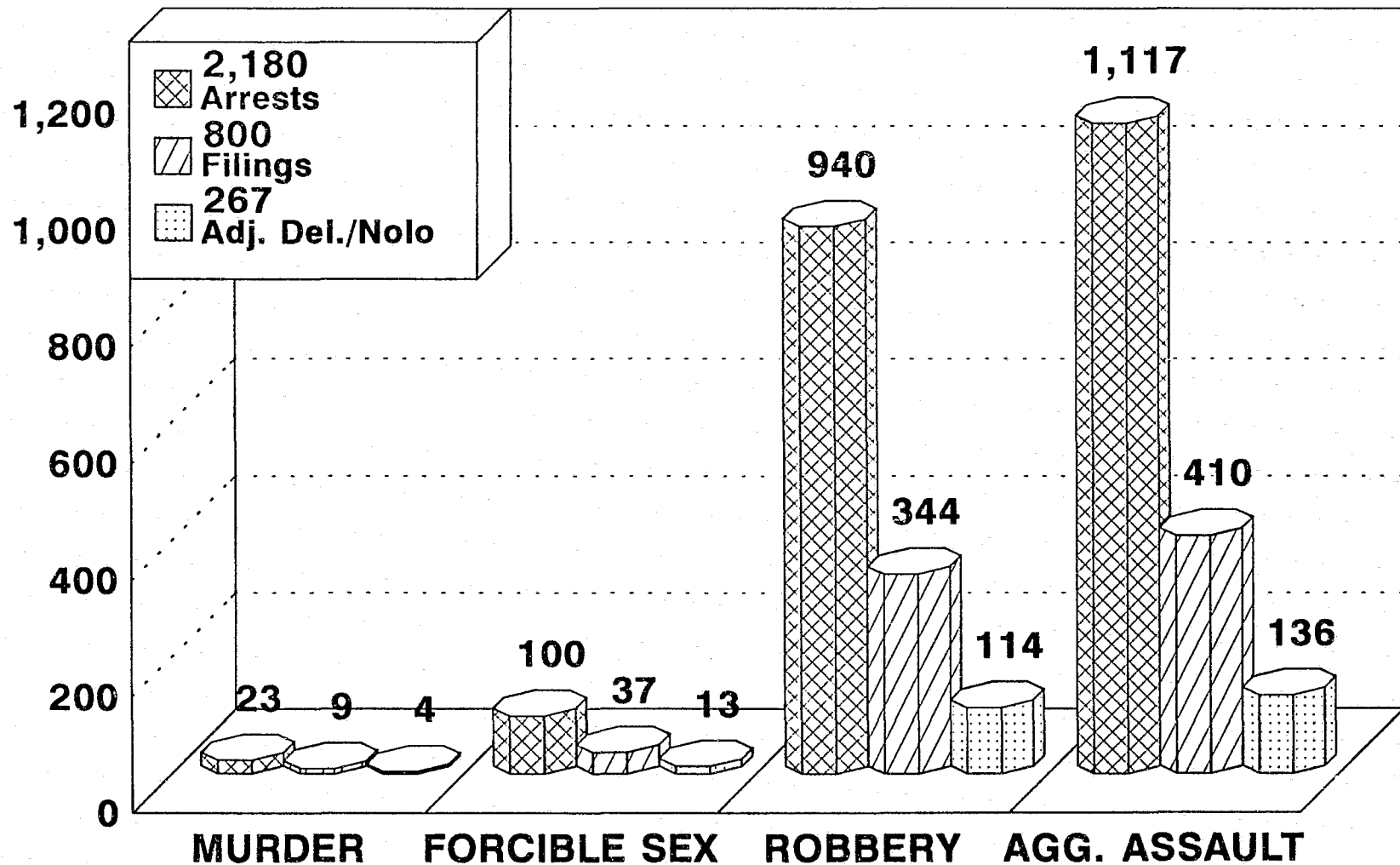
INFORMATION

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DADEJIM - JUVENILE PHASE

Part I Violent Crimes - All Agencies Number of Arrests, Filings, & Convictions

11th Judicial Circuit - Calendar Year 1991



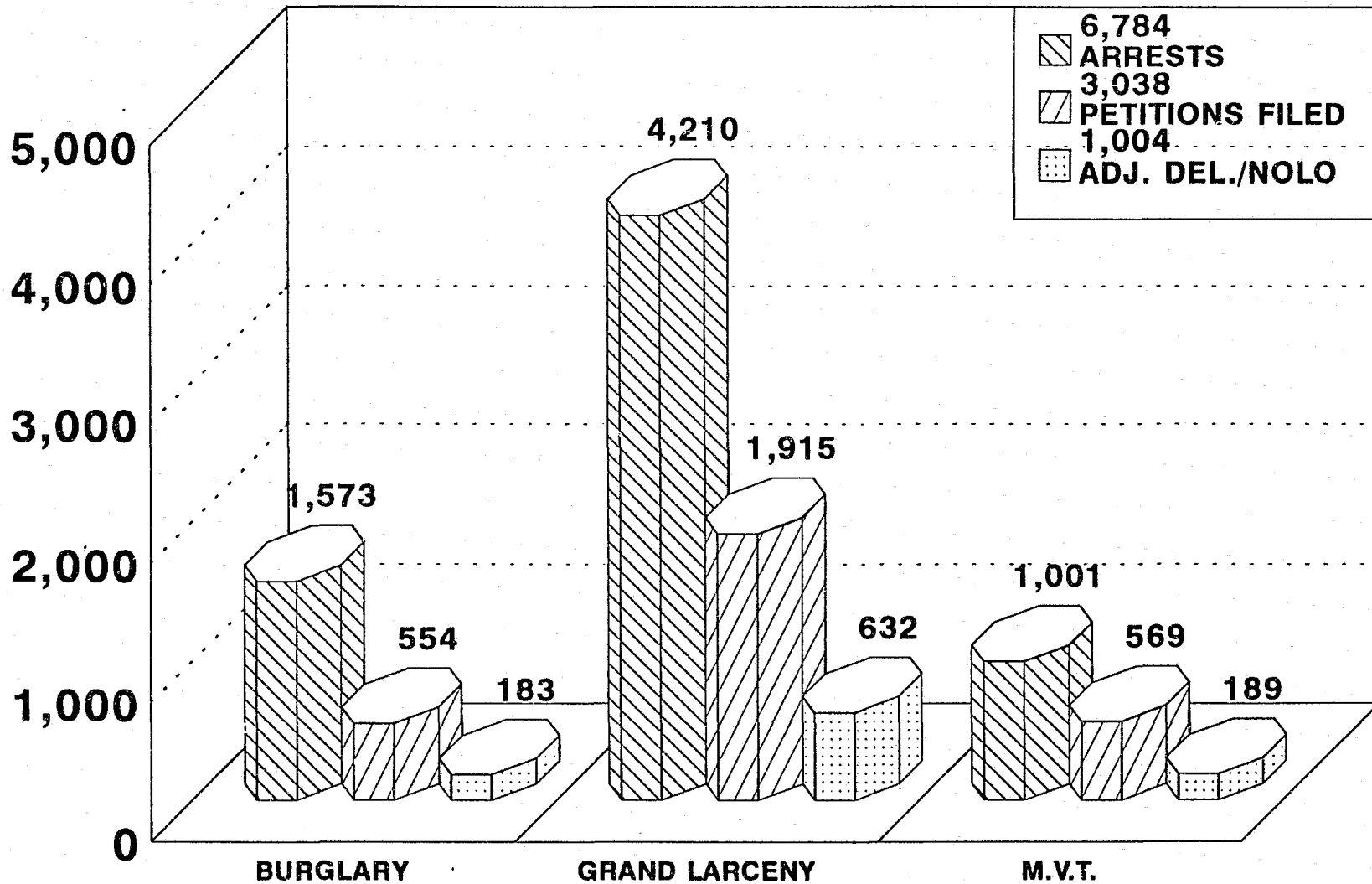
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Program Analysis & Grant Development Division

DADEJIM - JUVENILE PHASE

Part I Property Crimes - All Agencies Number of Arrests, Filings, & Convictions

11th Judicial Circuit - Calendar Year 1991

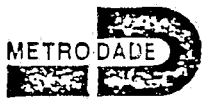


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METRO-DADE DEPT. OF JUSTICE ASSISTANCE
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Serious Habitual
Juvenile
Offenders

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SERIOUS HABITUAL OFFENDER CRIMINAL HISTORY SYNOPSIS

Averages for 32 juveniles meeting Criteria 1

AVERAGE AGE	15Yr. 6Mo.
AVERAGE PRIOR ARRESTS	15.7
AVERAGE PRIOR CHARGES	34.6
AVERAGE ADJUDICATIONS	7.5
AVERAGE PENDING CHARGES	6.1
AVERAGE PRIORS BEFORE AGE 14	11.3
AVERAGE VIOLENT FELONIES	6.3
AVERAGE FELONIES	19.2
AVERAGE MISDEMEANORS	13.3
TOTAL MURDER	
FIRST DEGREE	1
SECOND DEGREE	1
TOTAL SEXUAL ASSAULTS (LIFE FEL)	4 (9 Charges)
TOTAL ROBBERY	24 (60 Offenses)
HAD AKA'S	16

Dade Justice Improvement Model

Cost Estimate – Habitual Juvenile Offender

As Profiled by the "Serious Habitual Offender Criminal History Synopsis"

A. Costs Associated with M.D.P.D. Analysis

	Ave. # of Incidents	Cost / Case
Average Prior Arrests	15.7	\$1,437
Average Adjudications	7.5	\$5,750

B. Cost Breakdown for each Juvenile Profiled in the "SHO" Criminal History Analysis

	Ave. Total Costs per Juvenile
Average Prior Arrests (15.7)	\$22,561
Average Adjudications (7.5)	\$43,125
<i>Cases Closed Prior to Adjudication (8.2)</i>	\$12,540 *
Post Adjudication Costs (7.5)	\$14,452
 Average Cost per "SHO" Juvenile	 \$92,678
 Direct Impact/Cost for 32 Juvenile Offenders Profiled in "SHO"	 \$2,965,700 **

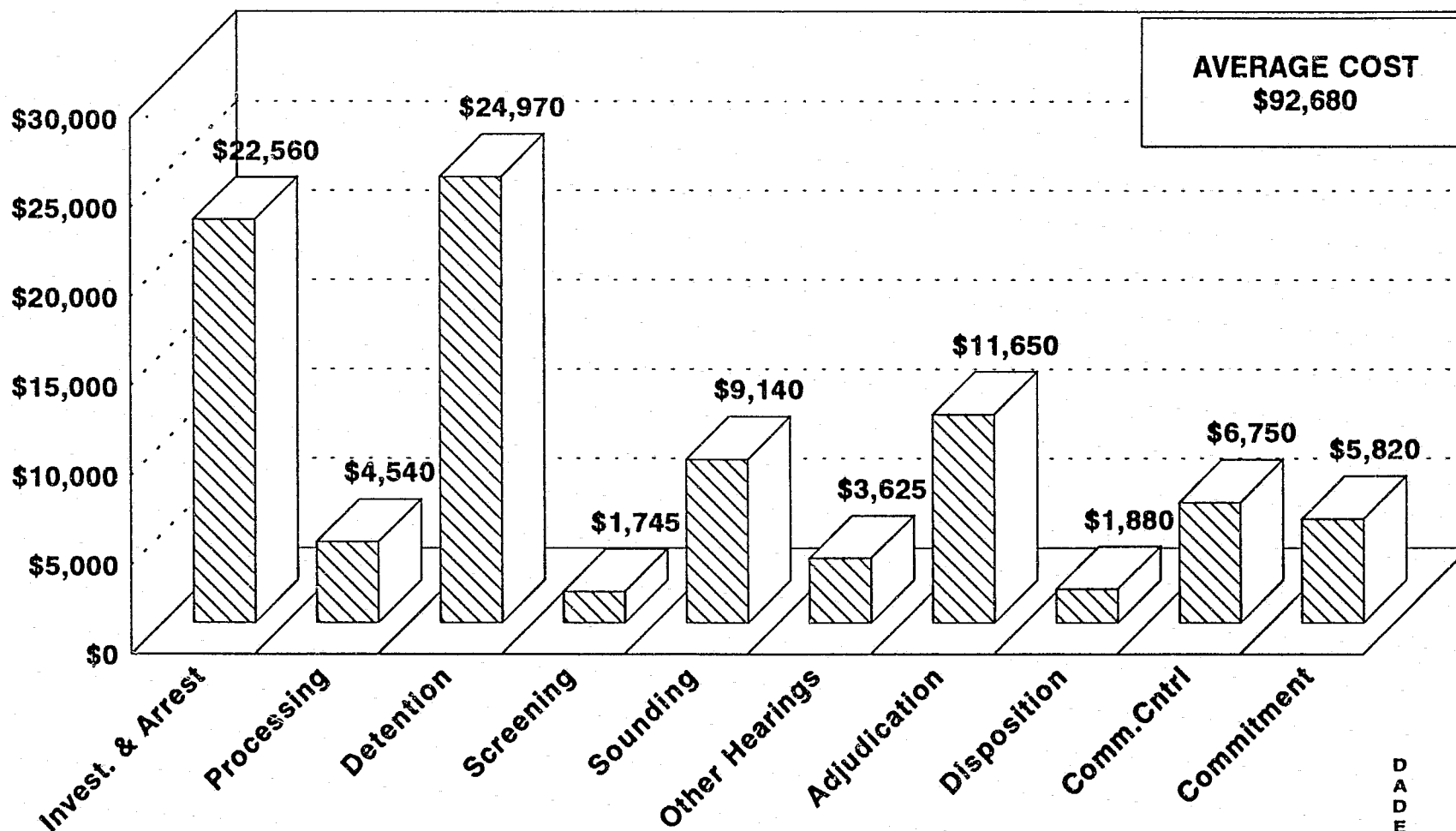
* Costs were prorated based on the ratio of cases reaching each criminal justice stage.

** This figure excludes indirect costs such as victim related expenditures, prevention efforts, etc.

Serious Habitual Offender - Juvenile

Criminal History Analysis

Cost Estimate for 1 "Habitual Offender" Juvenile - Average 15.7 Arrests



DADEJIM STAGES

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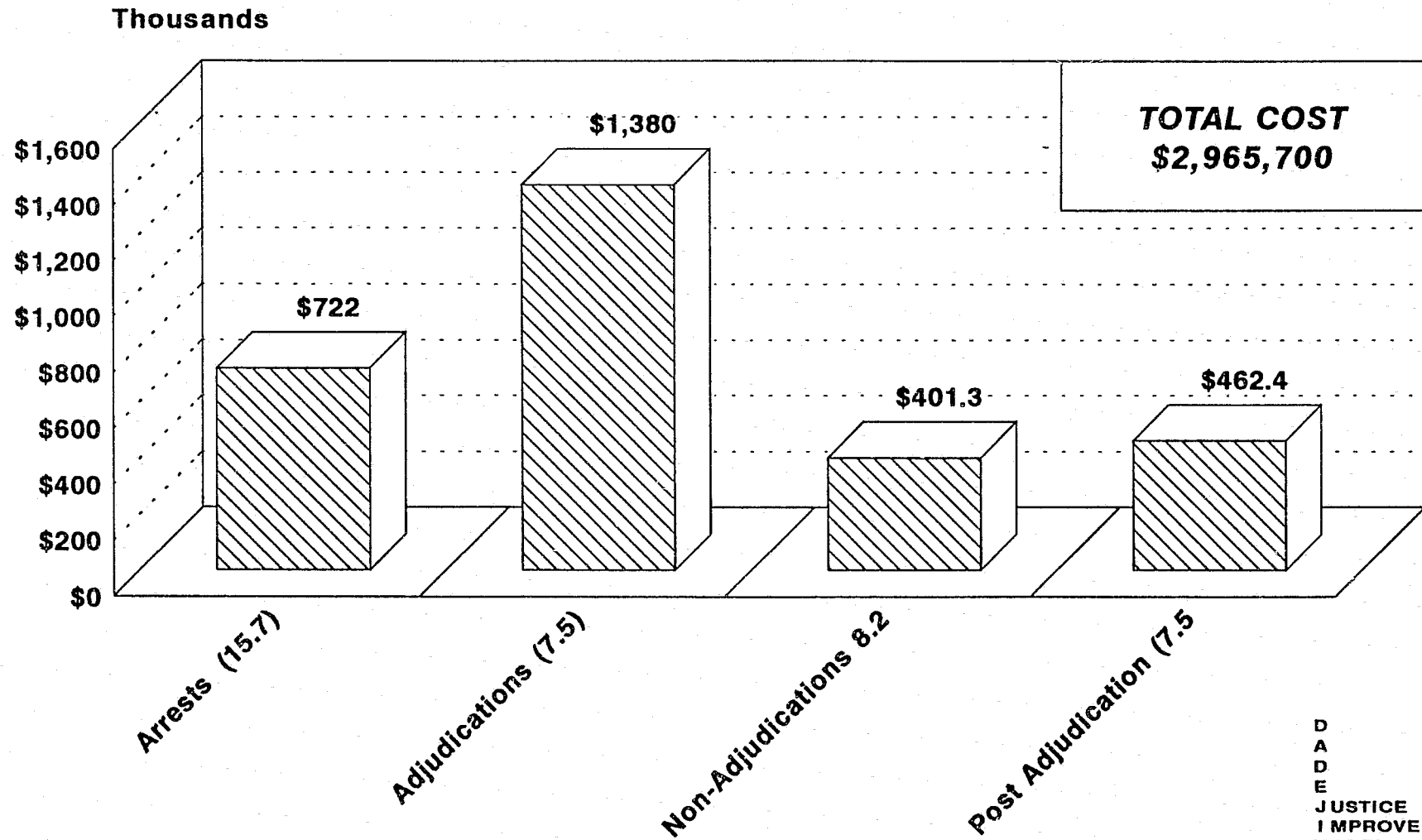
SOURCE: MDPD Serious Habitual Offender Criminal History Synopsis, Dade Justice Improvement Model (DADEJIM).

METRO-DADE DEPARTMENT OF JUSTICE ASSISTANCE
Program Analysis & Grant Development Division

Dade Justice Improvement Model

Serious Habitual Offenders - Juvenile

Cost Breakdown for 32 Selected Juveniles



SOURCE: MDPD Serious Habitual Offender Criminal History Synopsis

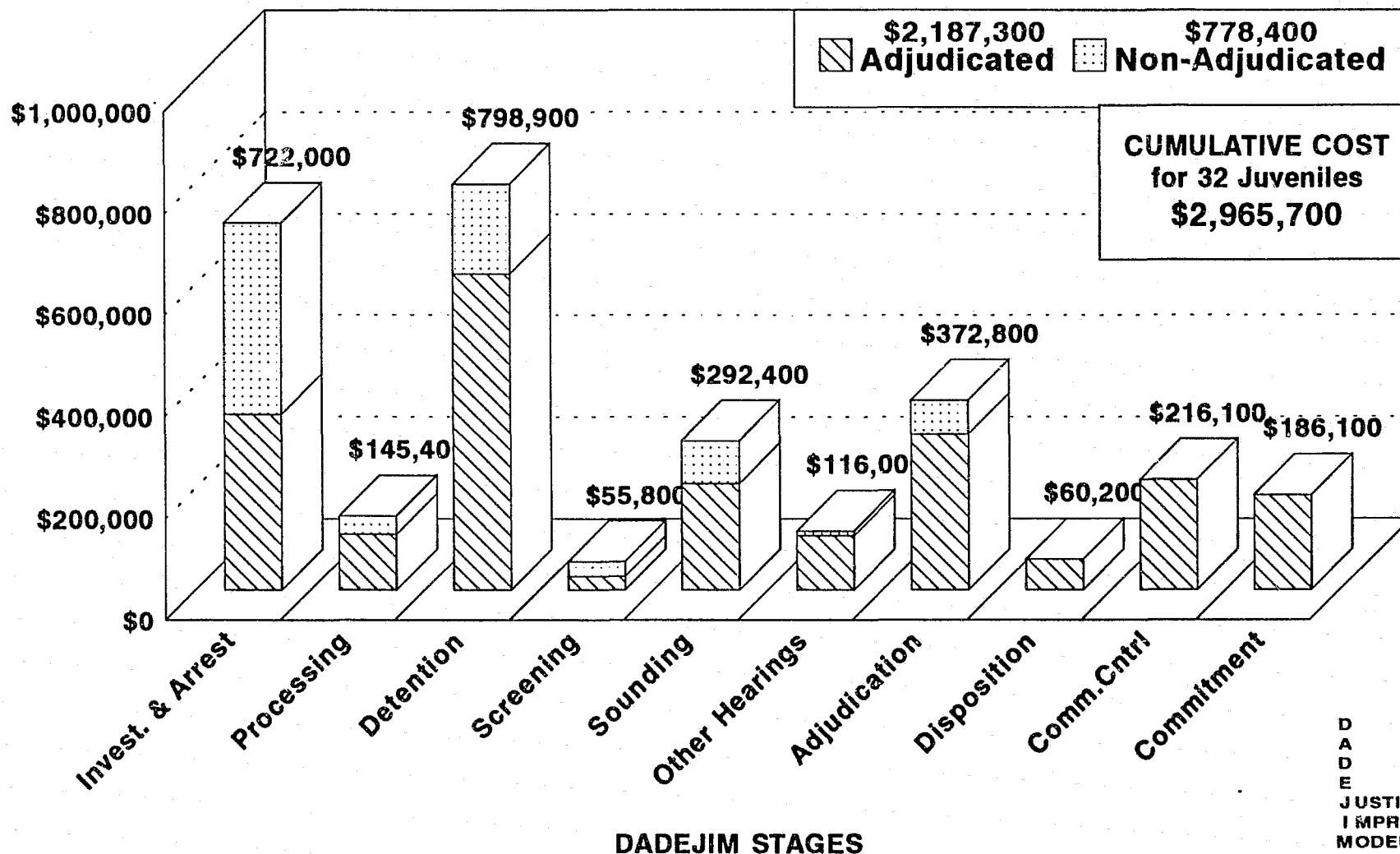
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Program Analysis & Grant Development Division

Serious Habitual Offender - Juvenile

Criminal History Analysis

Total Cost Breakdown for 32 Identified Juveniles



SOURCE: MDPD Serious Habitual Offender Criminal History Synopsis, Dade Justice Improvement Model (DADEJIM).

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Program Analysis & Grant Development Division

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JUSTICE
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MODEL



THE DADE JUSTICE IMPROVEMENT MODEL (DADEJIM)

PURPOSE: DADEJIM is a computerized set of tools and a methodology which is intended to assist decision-makers in anticipating and simulating the systemwide effects of changes in justice policy, workload, and resources.

BASIC APPROACH: DADEJIM can be conceptualized as a flow diagram. Boxes on the diagram represent major justice system processes. These are connected by flows representing cases and people that are processed at each stage and routed from one stage to another by connecting branches. Dade County's Adult Felony Model contains ten of these stages, the Adult Misdemeanor Model contains nine.

WHAT GOES INTO THE MICRO-COMPUTER: Once the basic flow structure is created, the names of the major justice processes and the labels for all the branches and flows are entered to make them available to the computer program. Next, numbers representing cases and people flowing into and out of each major justice system stage are entered. In Dade County, these are separated into eleven major offense classifications at each stage of the model.

WHAT COMES OUT OF THE MICRO-COMPUTER: DADEJIM rapidly calculates important measures for each stage of the model:

- number of cases entering each stage, by crime type;
- number of cases in each outgoing flow from a stage, by crime type;
- number of full time personnel involved in processing cases in each stage;
- total time available for key staff to process cases;
- average key staff time available per case;
- number of staff devoted to supporting the key staff for each stage; and
- ratio of support staff to key staff.

Summaries for all stages can be created. Comparisons of various independent runs of the model are also possible; e.g., reports can be produced which compare the results of data runs containing different estimates or assumptions.

USES OF THE MODEL:

- to analyze base case vs test case;
- to identify emerging system problems;
- to model flows of offense groups;
- to estimate resource requirements and effects of new programs; and
- to project the impact of major system changes.

Prepared by the:

Metro-Dade Department of Justice Assistance

Jeffrey M. Silbert, Ph. D., Director

Program Analysis & Grant Development Division

Leon Cristiano, Director

Robert Santos-Alborna, Justice Planning Supervisor

