



**PART IV Detail Economic Analyses**

**DEPARTMENT OF ADMINISTRATION  
1978-79 BUDGET PRESENTATION**

**November 1, 1977**



**Richard D. Lamm, Governor  
Thomas H. Sheehan, Jr., Executive Director**

DEPARTMENT OF ADMINISTRATION  
1978-1979 BUDGET SUBMISSION

As depicted, the Department of Administration is transmitting to the Joint Budget Committee (JBC) the Department's budget request and justification in four parts for Fiscal Year 1978-79. The four parts are:

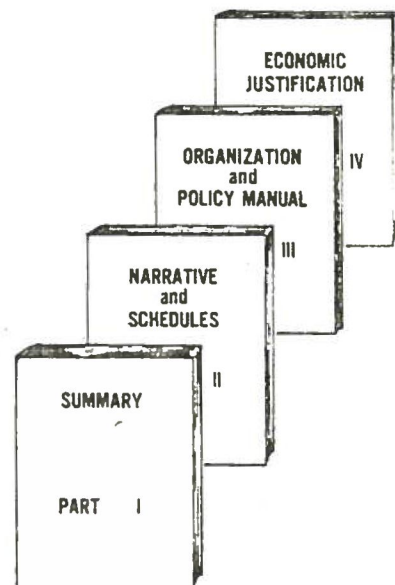
Part I -- "Summary" -- A brief recapitulation of the budget request, highlighting accomplishments, workloads, and fiscal controls. This document will be transmitted approximately November 15th.

Part II -- "Narratives and Schedules" -- The standard forms and support data required by the JBC. This material was submitted November 1st.

Part III -- "Organization and Policy Manual" -- Departmental organization relationships, policy statements, extracts of Colorado Revised Statutes, and Executive Order references that pertain to the Department. This document was transmitted November 3rd.

Part IV -- "Economic Justification" -- Economic analyses to support and substantiate new resource requests. These analyses are submitted by this transmittal document.

This document is Part IV.





## PART IV ECONOMIC JUSTIFICATION

This document contains the economic analyses and justifications that were prepared by this department for the FY 78-79 budget submission.

As described in Part I of this budget submission, the various division directors prepared economic analyses, commencing in July 1977, for those new functions or expanded functions that were required in FY 1978-79. All the requests from the various divisions were analyzed to determine if they met the following approval criteria established by the Executive Director:

- The requirement must be realistic, attainable, and practical.
- The function must provide a necessary service to either the citizens or to other State agencies.
- Various options must be studied to determine the most efficient and economic method of providing the required service.
- The new resource must provide a rate-of-return in succeeding time periods of at least 15% in order to warrant the investment.

The department prepared its draft budget using the above criteria including new requirements submitted by the various divisions.

Our draft budget exceeded the amount that the Office of State Planning and Budgeting could support or the Governor could endorse in view of the restrictions placed by House Bill 1726. Although our total request could have been justified from either an economic analysis or logical basis, it could not be submitted in its entirety since the total executive budget was limited to the 7% increase in accordance with HB 1726.

Accordingly only a few new requests that were substantiated by economic analysis could be submitted in our budget. These requests are contained in Part II, "Narratives and Schedules" of this budget submission as follows:

Administrative Services. A word processing capability to accommodate additional workload. See page 11, Part II.

Division of Accounts and Control. Expand collection unit staff to collect past due amounts owed to State agencies. See page 46, Part II.

Division of ADP. Central processor enhancements and modems and lines for expansion of teleprocessing network in order to provide adequate service. See page 95, Part II. (See Task Force Request entitled, General and Financial Management Steering Committee of October, 1977 that supercedes the previously prepared economic analysis.)

Division of Central Services. Expansion of operation in four county area authorized by SB 285. See page 148, Part II. (To be submitted later)

Division of Communications. Produce State telephone systems to support State agencies. See page 179, Part II.

State Surplus Property Agency. Increased resources to implement Public Law 94-519. See page 235, Part II.

The above economic analysis are contained in this document, immediately following this section. This document also includes, after the above economic analyses, all the other economic analyses that could not be endorsed by the Governor due to HB 1726. They are included for information purposes in the event the Joint Budget Committee, or its staff, desires to be aware of all our requirements.

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## RESOURCE JUSTIFICATION

Title: Word Processing Capability With Computer Tie-In For Billing Services

Submission date August 3, 1977

Submitted by Bill Archambault

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

### SUMMARY

The present billing system is primarily a manual system which is time consuming, susceptible to error, does not provide using agencies with timely information, and adversely affects cash flows.

An alternative approach, the utilization of word processing equipment, has been studied in order to minimize the current problems. This system will also provide, in needed areas, a perpetual inventory system, automatic reorder point indicators, and a complete inventory audit trail.

The system will cost approximately \$25,000 per year on an extended lease plan, plus one-time costs of \$15,000 for analyst and programmers, but will save the State, in either direct savings or cost avoidance, more than \$70,000 annually.

The present value calculated at 15% cost of capital is \$37,900 for an investment of \$40,000 for the recommended alternative.

### NARRATIVE

Presently, each invoice to using agencies for services rendered by Department of Administration agencies is posted separately to an accounts receivable system. Multiple invoices for similar services or supplies are batch posted. Statements are issued to buying agencies monthly, fifteen to twenty working days after the end of the month. Buying agencies issue interagency vouchers to pay for the services in the due course of their business. The interagency voucher payment is recorded by Administrative Services on the accounts receivable system and forwarded to Accounts and Control for recording in accounting records. Using this system, there is up to a two month delay between the time an item is purchased and the recording of the expense on accounting records.

An alternative, utilizing Word Processing capabilities, will allow for summarized billings on a weekly or bi-weekly basis thereby recording expenses in the accounting records on a near-current basis. This will assist in better financial management of State resources.

The system will provide for a computerized pricing system, thereby

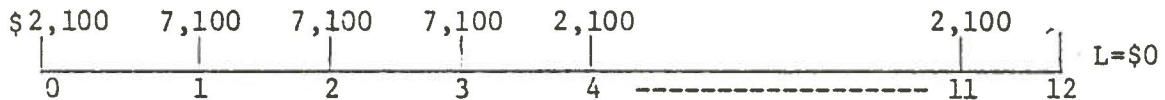
reducing pricing, extension, and posting errors. Additionally, a perpetual inventory system with automatic reorder points will be instituted resulting in better inventory control and less stock outages.

ASSUMPTIONS

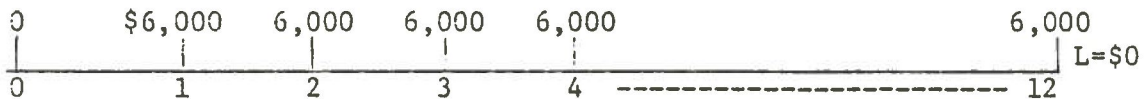
1. The Department of Administration will be required to provide more and/or expanded services to more State agencies.
2. The current time period for recording expenditures for services is excessive and must be reduced.
3. Additional equipment (hardware) is preferable to additional staff.

Time Diagrams

Word Processing Equipment



Cost Savings or Avoidance



RECOMMENDATION

Administrative Services recommends the lease of a word processing system with computer tie-in capabilities. It will be necessary to include this item in the 1978-1979 budget request.

APPENDICES

Appendix A. Detail present worth calculations.

Appendix B (pages 7 - 14) flow charts the present method of handling a stores requisition from creation by requesting agency to recording on financial records. Up to two months can elapse using this method.

Appendix C (pages 15 - 18) flow charts the proposed method of handling a stores requisition from creation by requesting agency to recording on financial records. A maximum of ten days time is anticipated.

APPENDIX A

Present Value Calculations

Seeking  $P/A_{i,n}$  factor

$i = 15\%$  annual or  $1\frac{1}{4}\%$  per month

$n = 12$  months

Interpolation for  $i = 1\frac{1}{4}\%$

$$P/A_{2,12} = 10.575$$

$$P/A_{1,12} = 11.255$$

$$\text{Difference } .680 \div 1/4 = .170$$

$$P/A_{1\frac{1}{4},12} = 11.085$$

Present Value of Leased Equipment

Lease at \$2,100 per month for 12 months

$$PW = \$2,100 (P/A_{1\frac{1}{4},12})$$

$$PW = \$2,100 (11.085)$$

$$PW = \$23,278.50$$

Present Value of Analyst/Programmer

Seeking  $P/A_{i,n}$  factor

$i = 15\%$  annual or  $1\frac{1}{4}\%$  per month

$n = 3$  months

Interpolation for  $i = 1\frac{1}{4}\%$

$$P/A_{2,3} = 2.884$$

$$P/A_{1,3} = 2.941$$

$$\text{Difference } .057 \div 1/4 = .01425$$



APPENDIX A (Cont'd)

Present Value of Analyst/Programmer (cont'd)

$$P/A_{1\frac{1}{2},3} = 2.92675$$

Analyst/Programmers at \$5,000 per month for 3 months

$$PW = \$5,000 (P/A_{1\frac{1}{2},3})$$

$$PW = \$5,000 (2.92675)$$

$$PW = \$14,633.75$$

Present Value Calculations  
Of Cost Savings And Cost Avoidance

Monthly cost savings or avoidance\*

\*Staff at \$770 per month plus fringe benefit:  $\$872 \times 5 = \$4,360$

Eliminate Burroughs Card/Reader Punch 257

Printing Costs - Form Simplification 1,400

\$6,017

Seeking  $P/A_{i,n}$  factor

$i = 15\%$  annual or  $1\frac{1}{2}\%$  per month

$n = 12$  months

$$PW = \$6,017 (P/A_{1\frac{1}{2},12})$$

$PW = \$6,017 (11.085)$  See interpolation for leased equipment.

$$PW = \$66,698.44$$

Total Present Value  
Of Word Processing Alternative

Leased Equipment	\$23,278.50
Analyst/Programmers	<u>14,633.75</u>
	\$37,912.75

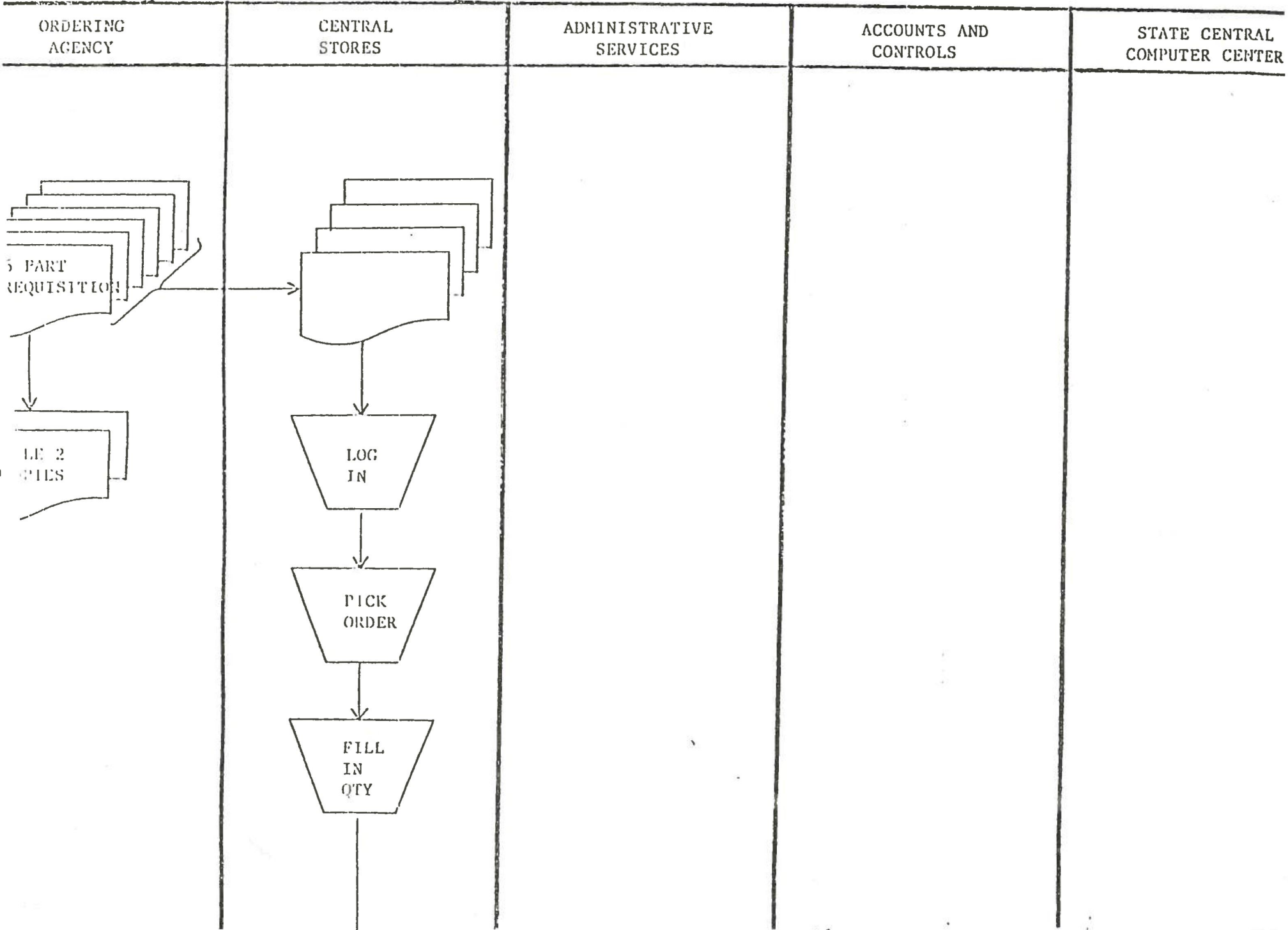
APPENDIX A (Cont'd)

Total Present Value  
Of Cost Savings Or Cost Avoidance

\$66,698.44

Summary: For An investment of \$40,000 (\$37,912 expressed in present worth dollars) a cost savings or avoidance of \$72,200 (\$66,700 expressed in present worth dollars) is obtainable.

GENERAL STORES REQUISITION FLOW. . . CURRENT



COOD'S  
ORDERED

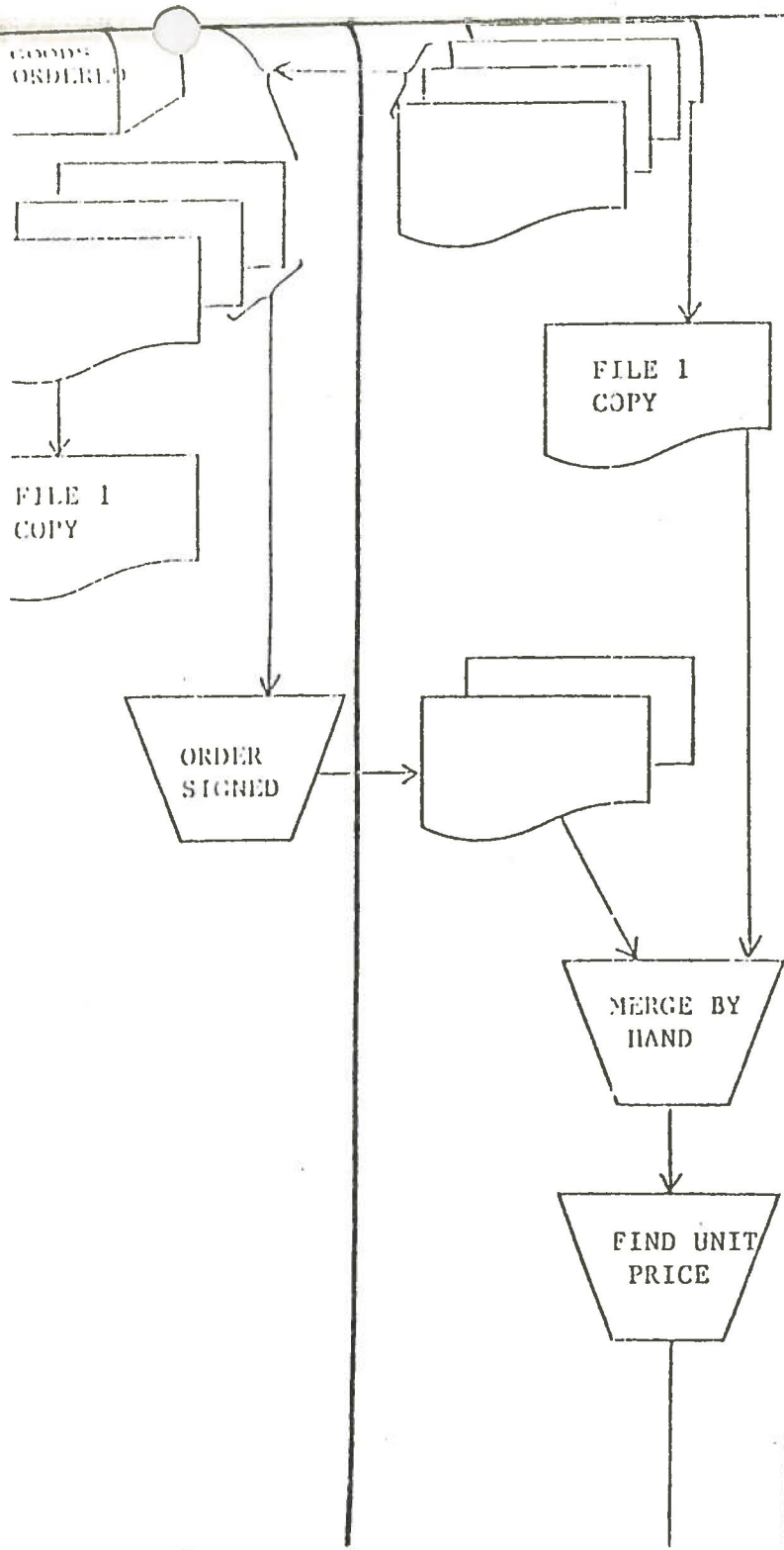
FILE 1  
COPY

FILE 1  
COPY

ORDER  
SIGNED

MERGE BY  
HAND

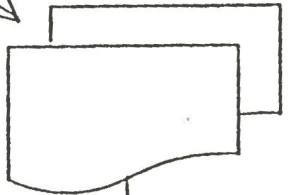
FIND UNIT  
PRICE





MANUALLY

RE-FILE 1  
COPY



BATCH/SORT  
BY  
AGENCY

SORT BY  
ABL #

POSTED TO  
GENERAL LEDGER  
CARD

LEDGER CARD  
(MONTHLY)

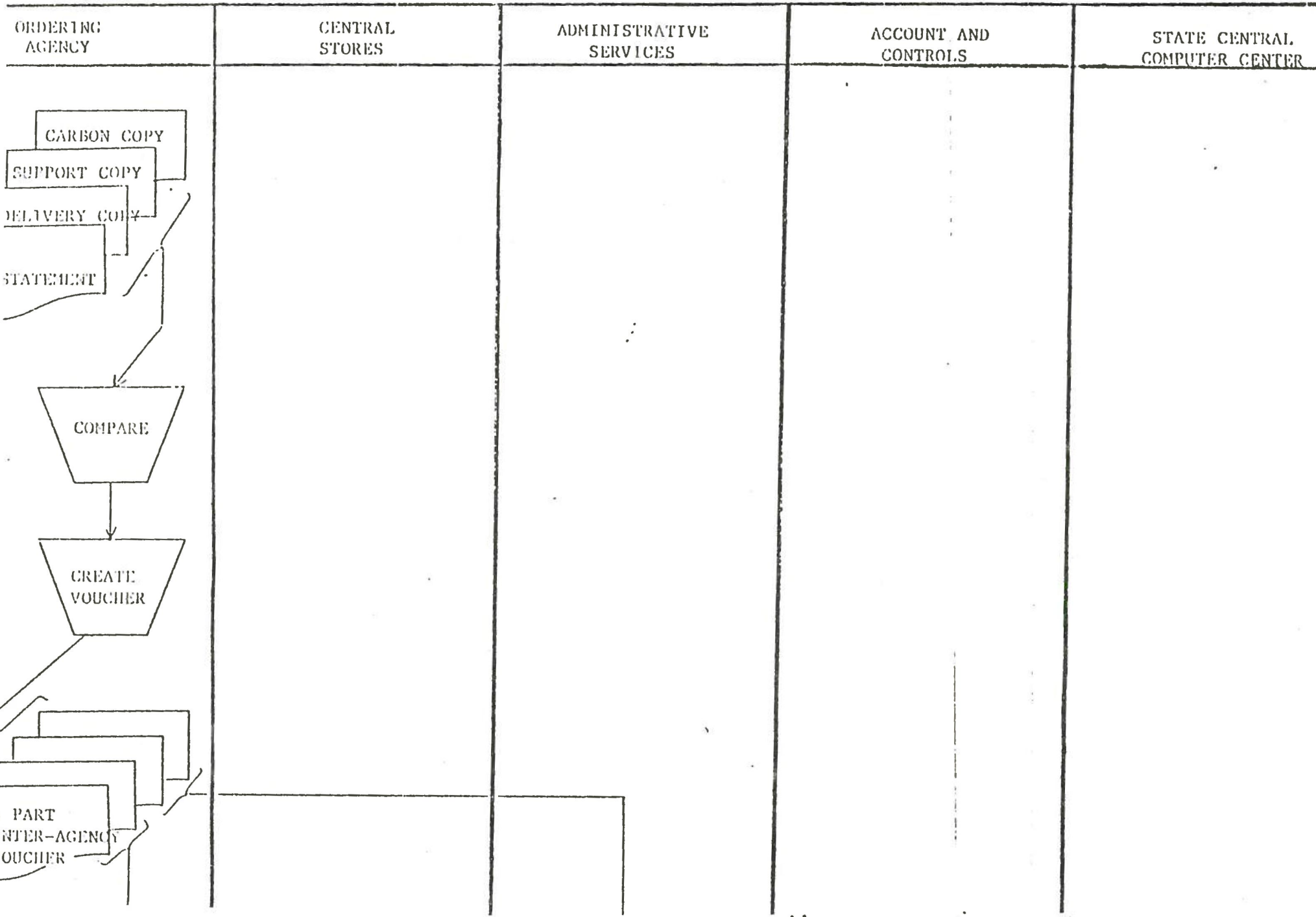
VOUCHER  
PROCEDURE...  
CURRENT

REQUISITION  
REQUISITION

STATEMENT

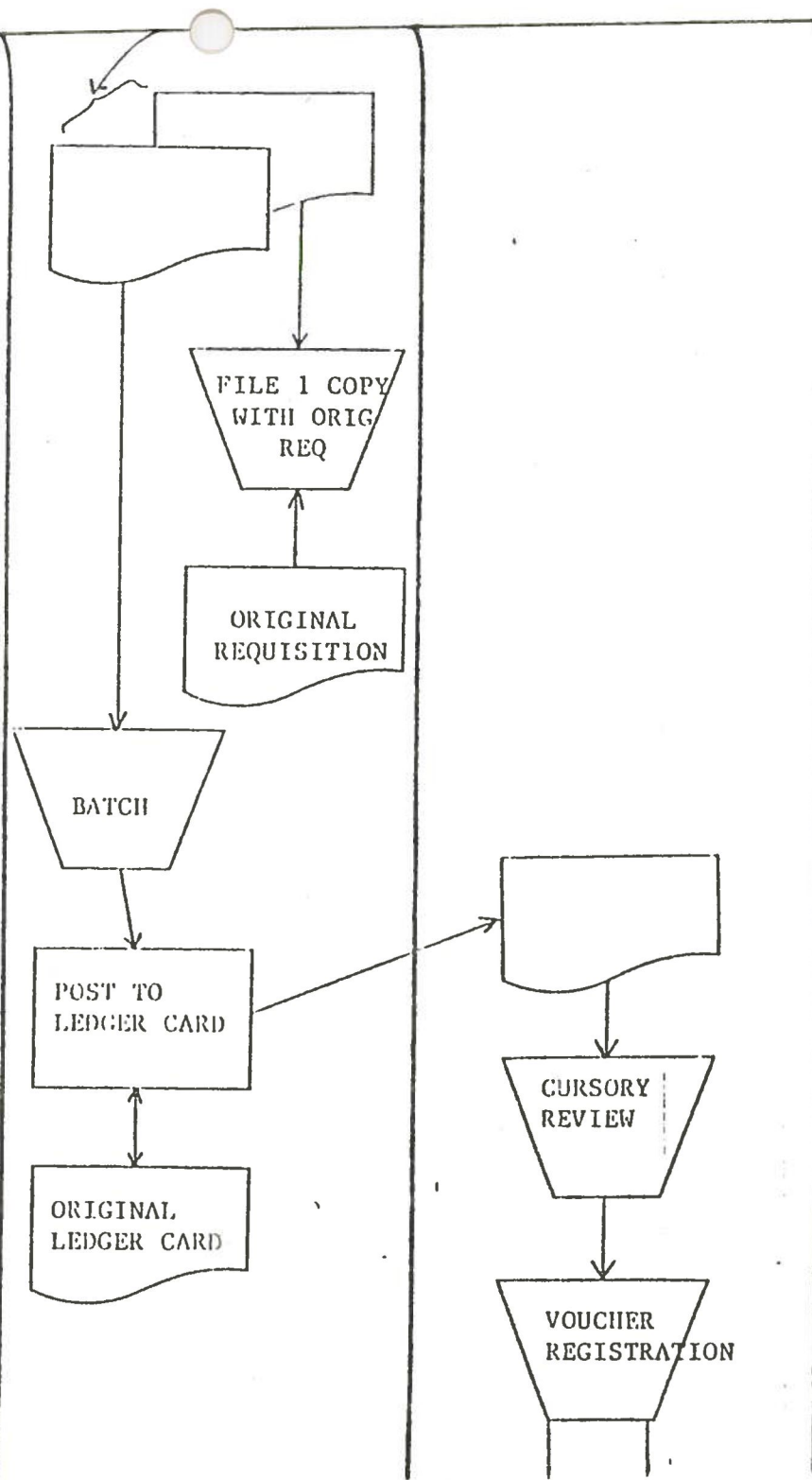
FILE ONE  
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VOUCHER HANDLING PROCEDURE . . . CURRENT



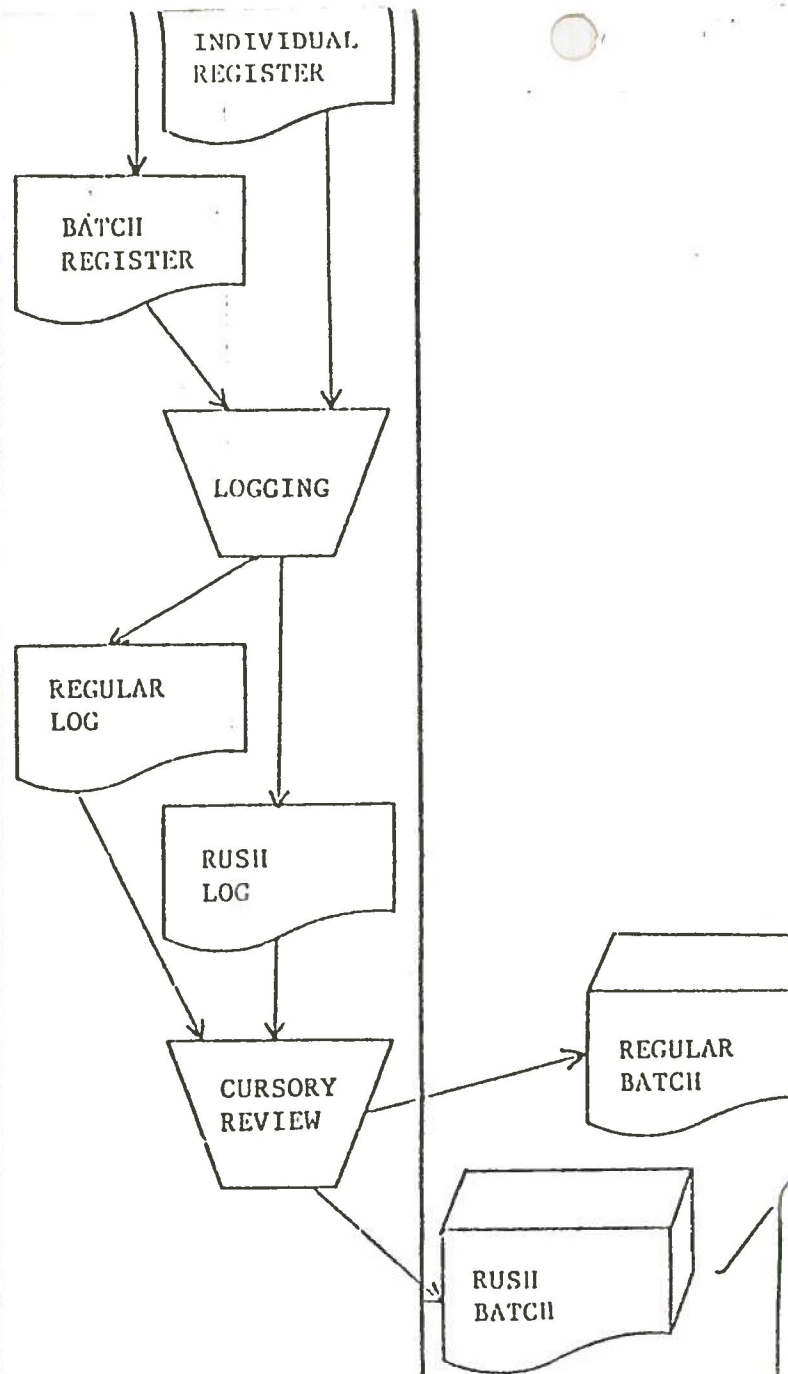
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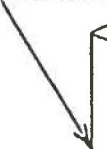
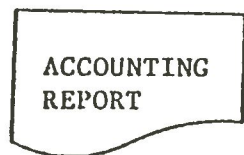
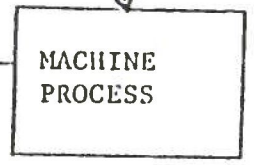
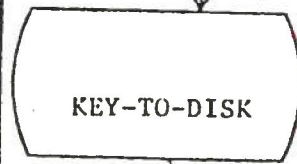
12



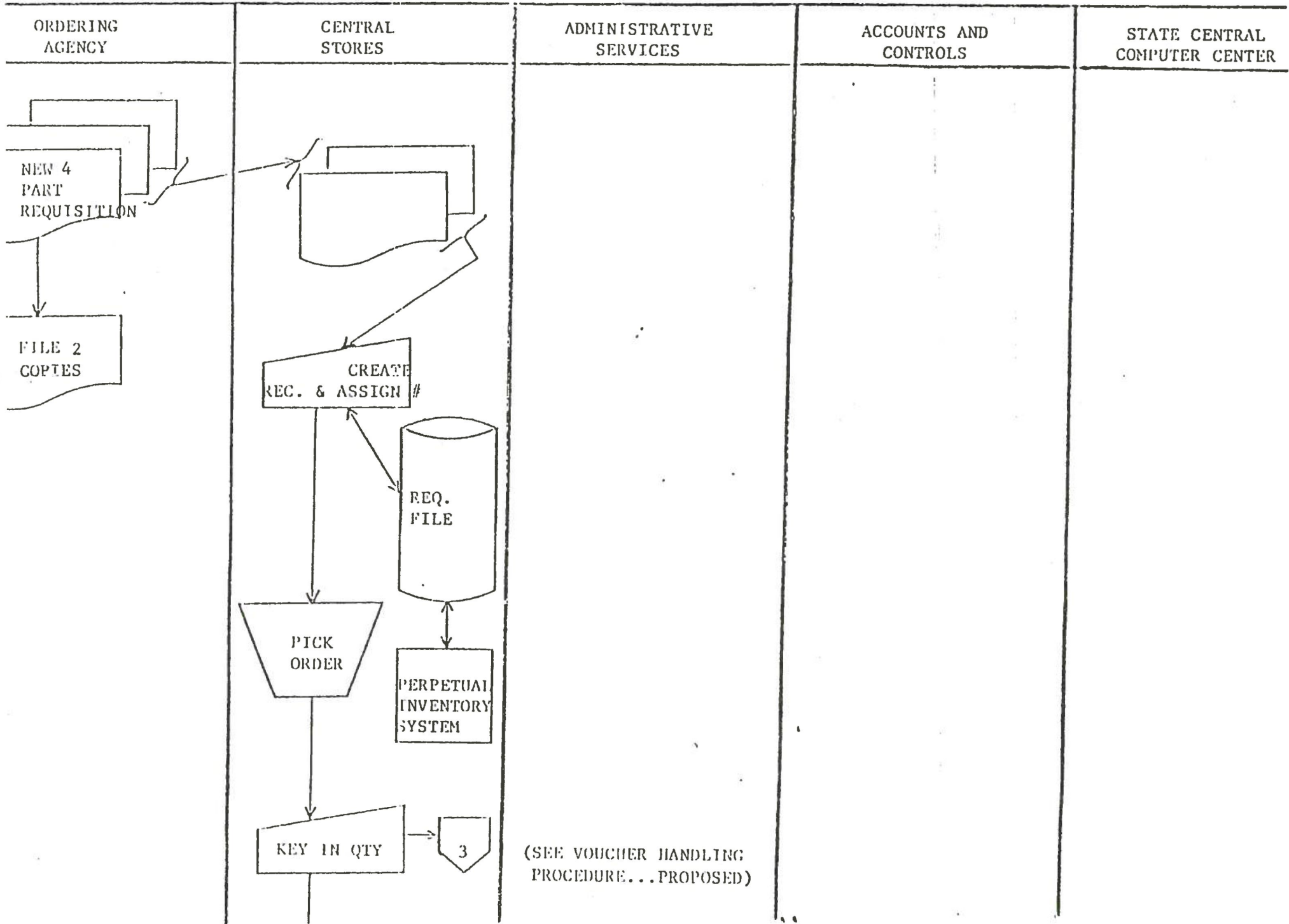
VOUCHER  
REGISTRATION





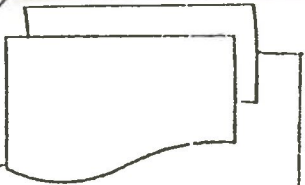


CENTRAL STORES REQUISITION FLOW . . . PROPOSED



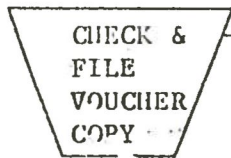
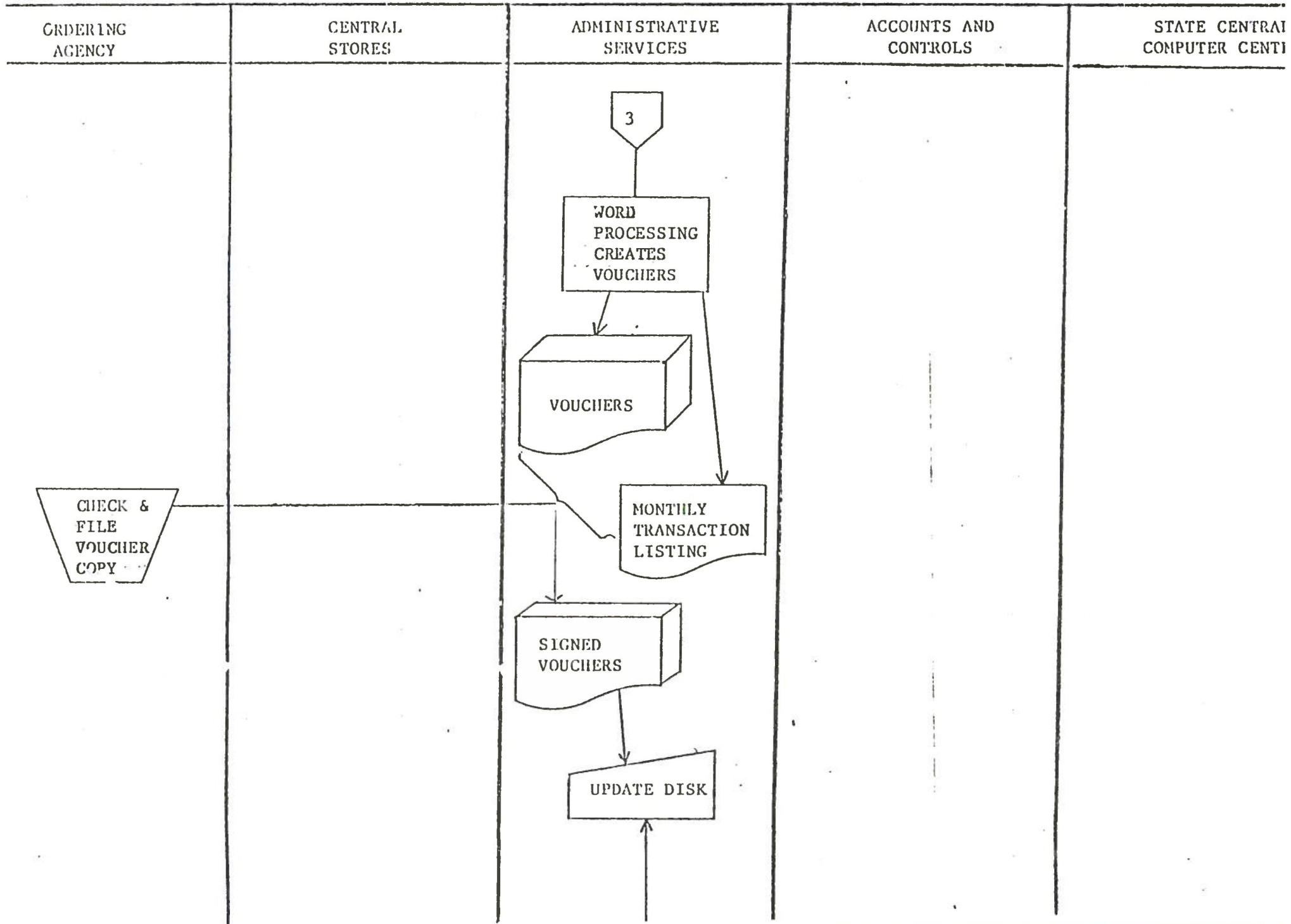
GOODS  
ORDERED

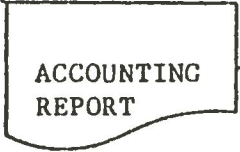
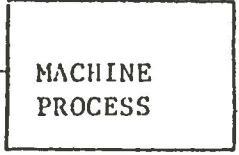
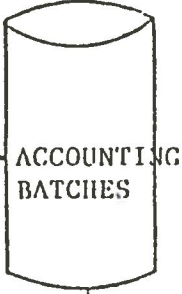
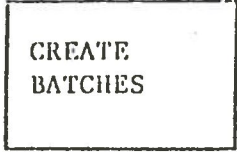
DELIVERY SLIP



FILE COPY

VOUCHER HANDLING PROCEDURE . . . PROPOSED







RESOURCE JUSTIFICATION

TITLE: Expand collection unit staff by 4 F.T.E. to provide improved service to State agencies.

Submission Date: July 20, 1977

Submitted by \_\_\_\_\_

Approval Date:

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

SUMMARY

Presently, 4 F.T.E. are processing documents from agencies to collect past due amounts due all State agencies. The excess workload is being transferred to a private collection agency at a collection cost of 23% of collections. This amount could be saved if sufficient State personnel could be utilized. In addition, better service could be given State agencies by better turnaround, higher collection percentage of accounts processed, and more dollars collected. Summary changes are:

	<u>Present Unit</u>	<u>Proposed Unit</u>
FTE	4.0	8.0
Accounts processed/year	11,000	36,000
Collections	\$380,000	\$650,000

## NARRATIVE

The current staffing of three collectors and one clerical does not provide enough person hours available to adequately pursue all of the accounts that we feel could yield positive return in collections. Consequently, those accounts will have to be sent to an outside collection agency with a fee of 23% of the amount collected assessed for that service.

The addition of four personnel to the collection staff would displace the current workload burden, provide a minimum of \$270,000 additional collections. The additional collections would provide at least a break even situation on the additional cost plus a cost avoidance of \$10,700 over maintaining the status quo. The intangible benefits derived from maintaining as much collection in house as possible are as follows:

1. Maintaining control of collection methods.
2. Having adequate personnel to assist agencies in maximizing their own collection efforts.
3. Providing higher quality agency service by having the capability and time to provide more personalized services. This should increase agency confidence in our capabilities and correspondingly increase the quality and number of accounts submitted to the agency.
4. Provide a much more efficient operation centrally.
5. Enhance the ultimate success of the collection unit. We are currently overburdened and cannot provide the personalized service that each separate state agency could obtain from an individual local commercial collection agency.

## ASSUMPTIONS

1. All State agencies will use the central collection unit because of the legislative mandate.
2. Whatever volume which cannot be processed by the central unit will be transferred to a private agency.
3. Delinquent accounts will increase slightly in both number of accounts and amount due.
4. The minimum rate of return ( $i^*$ ) is 25%.
5. The time period is for five years.
6. Inflation is not included in the annual costs.
7. Alternative #1, annual cost \$56,000; initial set up cost for capital outlay, etc., is \$1,500.
8. The annual cost is paid at the end of each period.
9. The private collection agency will continue collections at a cost of 23% of collections.
10. When accounts are transferred to the private collection agency, the estimated cost in Division of Accounts and Control is 6% of collections. This will cover data processing input, output, and general monitoring overhead of the private collection agency activity.
11. Alternative #2:

private collection cost	23%
overhead	6
<u>Total Estimated Cost</u>	<u>29%</u>
Estimated Collections	<u>270,000</u>
Net Annual Operating Cost	78,300
12. Alternative #1 will bring \$230,000 ( $67,500 \times 4$ ) additional collections to the central collection agency.

RECOMMENDATION

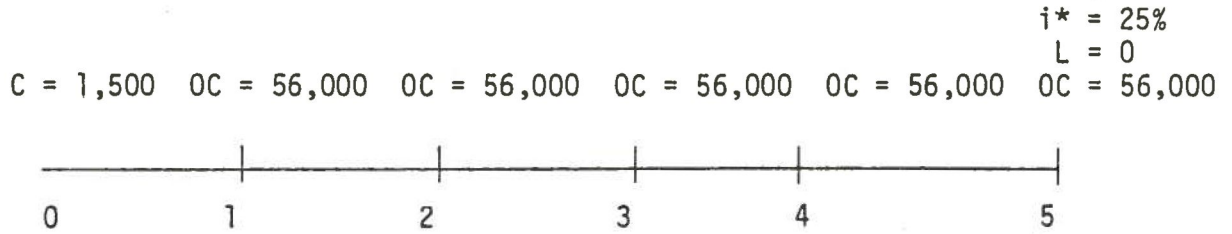
The Division of Accounts and Control recommends the hiring of 4 new FTE to process an additional \$270,000 in collections, in lieu of transferring the accounts to a private collection agency.

It will be necessary to request in the FY 78-79 budget sufficient funds to hire the new FTE's.

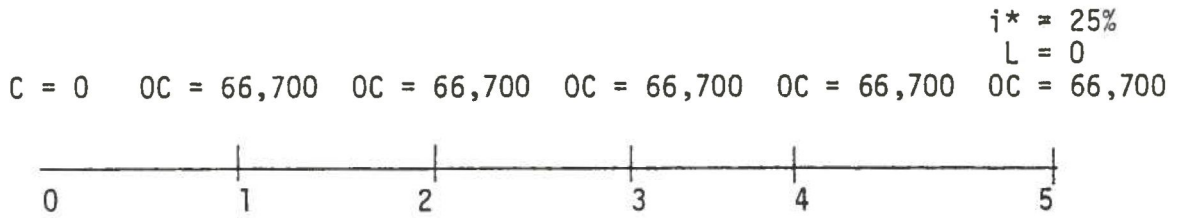
TIME DIAGRAM

O.C. = Operating Cost; L = Salvage Value; C = First Cost

Alternative #1 (increase staff from 4 to 8 FTE)



Alternative #2 (continue existing arrangement with private collection agency)



APPENDICES AND CALCULATIONS

Alternative #1 - increase staff from 4 to 8 FTE

$$\begin{aligned} \text{P/A i,n or } & 2.689 (56,000) + 1,500 \\ (25.5) & = 150,584 + 1,500 \\ & = 152,084 \end{aligned}$$

Alternative #2 - Continue existing arrangement with private collection agency

$$\begin{aligned} \text{P/A i,n or } & 2.689 (66,700) + 0 \\ (25.5) & = 179,356 \end{aligned}$$

Net present value advantage  
of alternative #1            \$27,272



TITLE: PRODUCE FIVE STATE TELEPHONE SYSTEM STUDIES

SUBMISSION DATE 7 November 1977

SUBMITTED BY *Neil Haley*

APPROVAL DATE \_\_\_\_\_

APPROVED BY \_\_\_\_\_

EXECUTIVE DIRECTOR \_\_\_\_\_

SUMMARY

The present approach to meeting the telephone needs of the state agencies is cumbersome, time consuming and uses higher paid staff, Neil Haley, to augment performance of routine day-to-day operations.

An alternative approach, increase staff by one FTE to assist in the routine coordination of telephone service requests between state agencies and suppliers such as Mountain Bell and upgrading Neil Haley's knowledge of telephone system's applications engineering in order that he can develop studies of five major telephone systems per year. This will require an investment of approximately \$18,000 to include operating expenditures during the first year of service.

We currently have in our office a backlog of requests for assistance in the evaluation of current and future telephonic needs from the following agencies:

1. Department of Health
2. Arapahoe Community College
3. Division of Employment and Training
4. Community College of Denver-Red Rocks Campus
5. Colorado School of Mines - Dormitories
6. Department of Education - Colorado School for the Deaf and Blind
7. El Paso Community College
8. Historical Society
9. Community College of Denver - North Campus
10. Auraria Higher Education Center

With our current staff of two people dedicated to the telephone review process for state agencies, we are unable to provide a timely response to all requests which the additional one FTE will make possible. This person will allow us to dedicate Neil Haley full-time responsibility of developing analysis of telephone systems as requested by the various agencies.

This recommendation will require an investment of approximately \$199,605 but is estimated to save the state \$2,224,800 over a ten year period which results in savings of \$2,025,195. First year investment will be \$18,000.

## NARRATIVE

Presently Neil and Otto are performing all of the functions of the telephone section to insure coordination of all telephone service requests without the benefit of specific training in telephone systems application engineering.

Routine day-to-day workload requires one FTE. Any detailed telephone studies conducted currently are done by these same two FTE's which results in dissatisfied users and less than complete analysis of the telephone problems.

The proposed alternative, increase staff by one FTE and train Neil Haley as a telephone systems applications engineer, will allow the Division to assign the total responsibility of coordination of the routine day-to-day telephone requests to Otto and a new staff member while Neil's time will be devoted to telephone system studies. This approach will result in the performance of an average of five studies per year with a savings of \$7,200 per study, which over ten years results in a savings of \$72,000/ study.

This savings estimate is based on the results obtained by the Attorney General's office which realized a \$72,000 savings. They retained a consultant trained specifically in the field of telephone systems application engineering to evaluate existing telephone systems, to determine the Attorney General's office current and future telephone service needs, prepare specifications of telephone equipment to meet needs, evaluate bids received in response to RFP and coordinate implementation of recommended telephone systems.

## ASSUMPTIONS

1. The needs for telephone service in state government will continue into the foreseeable future.
2. The cost of providing these services will continue to rise.
3. Technology development will continue providing more effective ways to provide telephone services.
4. Cost savings are available in new state telephone systems if need surveys are made, specifications prepared and bids are requested and evaluated.

RECOMMENDATION

Add one Senior Electronic Specialist to the staff

Position Cost = \$16,756.00

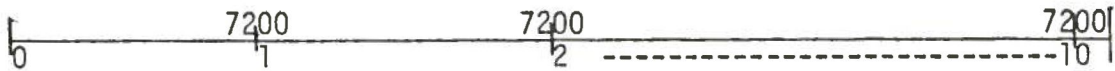
Operating            1,244.00

TOTAL REQUEST    \$18,000.00

TIME DIAGRAM

EXAMPLE:

The telephone system now in service in the Attorney General's Office was acquired through the bid process. The system, acquired from an interconnect company, produced a \$72,000 savings when compared with the traditional rental system over a ten year period.



$i = 15\%$

$P = 7200 (P/A_{i,n}) = 7200 (P/A_{15,10})$

$P = 7200 (5.019) = \$36,137$

The cost savings of \$72,000 has a present value of \$36,137.

The implementation of one system comparable to the above description will produce present value cost savings that exceed the \$18,000 appropriation requested.

Five systems per year will produce value cost savings of \$180,685.

Cost savings (5 systems).....	\$180,685
Less appropriation requested.....	<u>18,000</u>
Net cost savings	\$162,685



## RESOURCE JUSTIFICATION

**Title:** Justification for Increased Resources in FY 78-79 for State Surplus Property Agency continued services to carry out provisions of Public Law 94-519.

Submission date August 18, 1977

Submitted by S. W. Izbicky

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

### SUMMARY

The enactment of Public Law 94-519 will increase the number of donees serviced from the present 668 to approximately 1,800. In order to service the additional workload, an additional 3.0 FTE and increases in freight, packing, and postage costs are required. Cost of the additional resources is projected to be \$45,900.

The enactment of Public Law 94-519 requires that the Colorado Surplus Property Agency review all issues of items with an acquisition cost of \$3,000 or more and all motor vehicles to determine that these items are being utilized for the purpose acquired. At the same time, the Colorado Surplus Property Agency would review other items issued. In order to comply with the new Law, an additional FTE, approximate salary, \$14,000, will be needed.

This action will save the State \$107,100 during fiscal year 1978-79. The estimated rate of return on the investment is 143.9%, and the present worth savings is \$98,883, calculated at 15% cost of capital. The net present value is \$43,578.59.

### NARRATIVE

Presently, the Colorado Surplus Property Agency can provide surplus property to only those State and local agencies connected with health, education, welfare, and civil defense related goals. The enactment of Public Law 94-519 would increase the number of eligibles almost three times by allowing all State and local governments to participate. This will also increase the amount of property allocated or donated by the State Surplus Property Agency. It is estimated that during fiscal year 1978-79, approximately 1.5 million dollars (acquisition cost) worth of property will be donated as a direct result of Public Law 94-519.



RESOURCE JUSTIFICATION

Title: \_\_\_\_\_

Submission date \_\_\_\_\_

Submitted by \_\_\_\_\_

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

NARRATIVE (continued)

It is projected that an additional 4.0 FTE at an annual salary of \$42,900 will be required to handle the increased workload. In addition, \$17,000 in operating expenses, to include repair to donable property, increased freight and packing costs, and increased postage costs, will be required.

Presently, reviews of property issued are not mandatory. The new Law will make it mandatory that reviews be made at least once during the period of restriction.

It is projected that one FTE will be making all the reviews and serve as a liaison between the Agency and participating donees.

One FTE will be utilized as a clerk typist to assist in handling additional paper workload, i.e., issue sheets, billing, filing, etc. Two FTE will be utilized to assist additional donees in selection and loading of property and to assist in handling any additional property made available.

The increase of \$17,000 operating would be utilized as follows:

\$10,000 increase to repair to donable equipment. Increase chair and desk refurbishing from approximately 600 units to approximately 1,000 units.

\$5,000 increase in freight and packing. Increase out-of-state screening from approximately \$1,000,000 to \$2,000,000,000.

\$2,000 increase in postage. Increase mailing of monthly bulletin from current 1,410 to approximately 3,000.

RESOURCE JUSTIFICATION

Title: \_\_\_\_\_

Submission date \_\_\_\_\_

Submitted by \_\_\_\_\_

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

ASSUMPTIONS

1. Property donations will increase by 1.5 million dollars as a result of the enactment of Public Law 94-519.
2. 4.0 FTE and increased operating expenses will be required to handle the increased workload.
3. Service charges billed to donees will be approximately 7.14% of the federal government's acquisition cost for the property allocated.
4. There will be approximately 1,800 eligible donees. It is projected that compliance duties will require 1.0 FTE.

TIME DIAGRAM

Alternative 1: No expenditure

Unable to provide adequate service



**RESOURCE JUSTIFICATION**

**Title:** \_\_\_\_\_

Submission date \_\_\_\_\_

Submitted by \_\_\_\_\_

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

RECOMMENDATION

The Colorado State Surplus Property Agency recommends that 4.0 FTE (\$42,900) and increased operating expenses (\$17,000) be requested to handle the additional workload generated by Public Law 94-519.

APPENDIX

Service Charges	<u>FY 1976</u>	<u>FY 1977</u>
Acquisition cost of allocated property	\$3,720,190	\$3,748,465
Service Charge	<u>263,485</u>	<u>270,093</u>
Charge as a % of cost	7.08%	7.21%
Mean Service Charge as a percent of acquisition cost	= 7.14%	

**ESTIMATED INCREASE IN PROPERTY ALLOCATED:**

\$1,500,000 (acquisition cost)

**RESOURCES REQUIRED:**

4.0 FTE	\$ 42,900
Operating Expenses	<u>17,000*</u>
Total	\$ 59,900

**NET BENEFITS:**

Assuming the service charge represents the net benefit to the State, approximately \$107,100 will be received.

\$1,500,000 x 7.14% = \$107,100

	\$107,100
	<u>- 59,900</u>
Annual Net Benefit	\$ 47,200

\*Includes repair, freight and packing, and postage cost increases.



RESOURCE JUSTIFICATION

Title: Establish New Position to Train H.E. Instructors

Submission date July 20, 1977

Submitted by Robert J. Miller

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

Summary

Development of capabilities for the use of computers in Colorado higher education is in a formulative stage. An important initial step in providing only for those capabilities that are to be most beneficial is the assemblage of recommendations from the academic community. In order for them to participate most effectively, many instructors should be acquainted, technically, with the various computerized instruction capabilities and limitations. An additional FTE to train instructors will require an investment of \$22,000 per year for at least two years, but it is estimated that the State will benefit at the increased rate of at least \$40,000 per year for five years. The estimated rate of return is 73%.

## RESOURCE JUSTIFICATION

Title: Establish New Position to Train H.E. Instructors

Submission date July 20, 1977

Submitted by Robert J. Miller

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

### Narrative

The approved State ADP Master Plan identifies the need to plan and coordinate for potential needs for computer resources for academic purposes. The Department of Administration and the Higher Education Community, together, have begun a series of consultations to advise that effort. The Division of ADP, that ultimately must formulate and execute an approved plan, needs to gather detailed information for resource specifications, costs and time-tables from potential users; i.e., H.E. Instructors.

Presently, the Division of ADP consults with higher education chiefly at the computing level and most often about administrative computing. It has a need to consult and coordinate with the various faculties and to increase its attention to instructional computing. The Division desires to establish a sound capability to communicate with all potential users (i.e., instructors) about the use of computers in problem-solving, simulation, data base inquiry system, Computer-Aided Instruction (CAI), and research. This is a two-way street requiring the establishment of the expertise and available man-hours within the Division, and familiarity with the computer and its potential on the part of instructors.

The following alternatives have been considered:

1. Continue with the present manning level, assigning the responsibility to train instructors to a present employee of the Division.
2. Continue the present manning level and require higher education to train its instructors.



RESOURCE JUSTIFICATION

Title: Establish New Position to Train H.E. Instructors

Submission date July 20, 1977

Submitted by Robert J. Miller

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

Narrative - Continued

3. Augment the present staff in the Division with one expertly-qualified FTE that, initially, can devote full-time to the task.
4. Continue the present manning level and hire a private consultant to perform the task.

Alternative #1 was discarded because adequate time could not be made available without sacrificing other essential job performances.

Alternative #2 was discarded because it would require duplication in preparation among the institutions and create undue work to coordinate the many activities into the best statewide supporting plan.

RESOURCE JUSTIFICATION

Title: Establish New Position to Train H.E. Instructors

Submission date July 20, 1977

Submitted by Robert J. Miller

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

Assumptions

1. The task is a formidable one and will require more than one man-year of dedicated time.
2. After two years, a full-time person may not be required.
3. A single person to train instructors (rather than institutional-based trainers) will reduce preparation time and costs and simplify reporting and coordination.
4. The person who performs this task should be available for participation in master planning for computing resources, and for coordinating the implementation of the master plan.

RESOURCE JUSTIFICATION

Title:     Establish New Position to Train H.E. Instructors

Submission date July 20, 1977

Submitted by Robert J. Miller

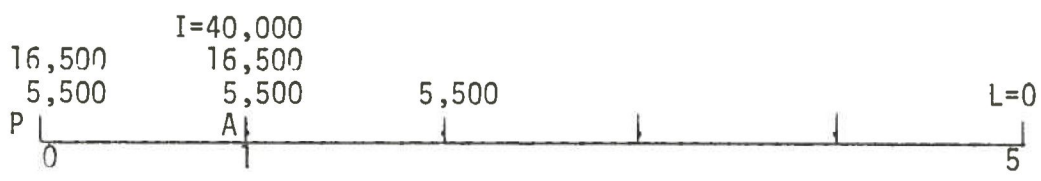
Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

Time Diagrams

Alternative #3 (Additional FTE)



Alternative #4



RESOURCE JUSTIFICATION

Title: Establish New Position to Train H.E. Instructors

Submission date July 20, 1977

Submitted by Robert J. Miller

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

Recommendation

The Division of ADP recommends that one additional FTE be provided to the Statewide ADP Section for the purpose of training higher education instructors.

This alternative was selected because: it offers opportunity in the training phase for the collection of user requirements; it offers the best continuity to use the list of requirements in future planning and acquisitions; and it offers better return on investment than the other alternative.

## RESOURCE JUSTIFICATION

Title: Establish New Position to Train H.E. Instructors

Submission date July 20, 1977

Submitted by Robert J. Miller

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

### Appendix A - CALCULATIONS TO SUPPORT THE TIME DIAGRAM

#### Alternative #3

$$A = 16,500$$

$$A_1 = 5,500$$

$$I = 40,000 \text{ (Appendix B)}$$

$$i = 8\%$$

$$P = 16,500 (P/A_{8,2}) + 5,500 (P/A_{8,5}) = 51,381$$

$$51,381 = 40,000 (P/A_{i,5})$$

$$i = \text{ROR} = 73\%$$

#### Alternative #4

$$A = 34,040 \text{ (Appendix C)}$$

$$A_1 = 34,040$$

$$A_2 = 5,500$$

$$I = 40,000$$

$$i = 8\%$$

$$P = 34,040 (P/A_{8,1}) + 34,040 (P/A_{8,2}) + 5,500 (P/A_{8,5}) = 114,276$$

$$114,276 = 40,000 (P/A_{i,5})$$

$$i = \text{ROR} = 22\%$$



## RESOURCE JUSTIFICATION

Title: Establish New Position to Train H.E. Instructors

Submission date July 20, 1977

Submitted by Robert J. Miller

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

### Appendix B - BENEFITS

This appendix describes the method used to estimate a 'value' to be applied to expected benefits.

- o Who can benefit? and how can they benefit?
  1. The H.E. instructors (or users):
    - a. Knowledge of computer potential, limitations, and cost.
    - b. Familiarization with how the computer is utilized and requirements on the part of the user.
    - c. Awareness of current capabilities.
    - d. Opportunity for grass-roots participation in the development of statewide and institutional planning.
  2. The students:
    - a. Increased knowledge and awareness (as may be passed-along by instructors).
    - b. Better learning aids (as computer uses are adopted).
  3. The institutions:
    - a. Faculty knowledge, preparedness and participation.
    - b. Familiarity with other institutions' needs and intentions, and inter-institutional possibilities.
    - c. Opportunity to participate in Statewide planning.
  4. The State:
    - a. Opportunity to gather, from the users, a list of requirements that can in turn permit the selection of the most cost-efficient computing resources.



RESOURCE JUSTIFICATION

Title: Establish New Position to Train H.E. Instructors

Submission date July 20, 1977

Submitted by Robert J. Miller

Approval date

Approved by

Executive Director

Appendix B - BENEFITS (Continued)

b. Ultimately, an improved source for State employees from the institutions (i.e., graduates will be more familiar with computers and computer usage).

o Which of the above benefits can be assigned 'values' for analyzing the merits of this investment?

1. The benefits to the instructors, students and institutions are better qualified than quantified. It is suggested, however, that every man-hour spent pursuing those benefits can have significant value to future investments for computerized instruction resources.
2. Advantages for future employment can be quantified. For example: assuming an input of 25 graduates-per-year into areas such as ADP, research, statistics, management analysis, etc.; and an average cost of \$1,000 to train the new employee; savings could amount to \$25,000.
3. Influence upon future investment in computing resources is considered the best example for assignment of value. This can be done by pursuing the direction advocated in the Master Plan; i.e., arranging for the ~~most~~ <sup>next</sup> occurring computer replacement for the academic center at CU to provide capabilities for needs of instruction, statewide. Cost avoidances can thereby be effected in other institutions.

o The estimate of value for the selected benefit is:

Estimated Cost for CU Replacement Computer	=	\$600,000 yr.
Estimated Cost Avoidance at each other institution	=	\$ 40,000 yr.
Number of institutions	=	16
Estimated benefits=(40,000 X 16) - 600,000	=	\$ 40,000 yr.

RESOURCE JUSTIFICATION

Title: Establish New Position to Train H.E. Instructors

Submission date July 20, 1977

Submitted by Robert J. Miller

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

Appendix C - COST FOR ALTERNATIVE #4

The annual cost to hire a private consultant equivalent to one state employee FTE is estimated as follows:

11 Mos. X 22 days X 8 Hrs. @ \$30/Hr. minimum = 58,080

Additional costs for travel, per diem and overtime above employee costs:

(2 visits per location X 20 locations) X (\$150 o.t. + \$100 per diem/travel) = 10,000

68,080

Also, it is estimated that a consultant firm would contract to reduce the total time involved; therefore, the cost was spread over 18 months rather than the 2 years allocated in alternative #3.

RESOURCE JUSTIFICATION

Title: Augment Personnel to Conduct Performance Evaluations

Submission date July 18, 1977

Submitted by Robert J. Miller

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

Summary

Statutes specifically require the Division of ADP to continually study and access the ADP operations of departments, institutions and agencies. The present allowance of personnel does not provide for an adequate frequency of performance evaluation of the current number of operating entities. Three additional personnel will require an investment of \$66,000 per year, but it is estimated that the State will benefit at the increased rate of at least \$146,000 per year. The estimated rate of return is 36%.



## RESOURCE JUSTIFICATION

Title: Augment Personnel to Conduct Performance Evaluations

Submission date July 18, 1977

Submitted by Robert J. Miller

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

### Narrative

The study and assessment of ADP operations was one of the last requirements of the 1968 Statewide ADP legislation (CRS 24-30-6) to be implemented. Since FY 1973-74 the Division of ADP has been attempting to devote 30 percent of its authorized personnel for statewide ADP to performance evaluations. Also, in 1976, special equipment was purchased in order to more accurately measure the internal performance of ADP operations at various agencies.

The workload for the statewide ADP program has permitted the performance evaluation of only 14 operating activities during the preceding four fiscal years. Also, the responsible section has been able to follow-up on only 50 percent of those evaluations. At this rate, evaluation of all of the State's existing facilities would take seven years and follow-ups would occur only by exception. A goal has been established to complete the evaluation cycle every 3 years with follow-ups always being performed to the extent demanded by the contents of the report.

Experience indicates that the average performance evaluation should be allotted 6.375 man-months. The figure provides for the capability to follow-up on each report, and does not require sacrificing any of the essential elements of a meaningful evaluation. Evaluation reports, if they are reasonably current, are the most useful tool for planning, assisting and coordinating agencies, budget review and recommendations, approving or disapproving the acquisition of resources and informing the Governor and General Assembly on the status of ADP.

Three alternatives were considered: 1) to continue to conduct evaluations at the rate of three-per-year; 2) to request additional FTE in order to maintain recent evaluations at the rate of seven-per-year; and 3) to request funds to hire private consultants in lieu of additional FTE.

RESOURCE JUSTIFICATION

Title: Augment Personnel to Conduct Performance Evaluations

Submission date July 18, 1977

Submitted by Robert J. Miller

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

Assumptions

1. The presently attainable cycle (7 years) for evaluating ADP operations does not satisfy the legislative intent to "continually study and access" in CRS 24-30-603(1)(j).
2. Evaluation reports will continue to be valuable to the Executive Branch and the Legislature if they are reasonably current.
3. Changes in management, personnel, resources, applications and technology occur at a rate that justifies a three-year cycle for ADP performance evaluations.
4. A three-year frequency of evaluation, that includes a follow-up report at a reasonable interval between two successive evaluations, will provide an adequate level of currency to evaluation reports.

RESOURCE JUSTIFICATION

Title: Augment Personnel to Conduct Performance Evaluations

Submission date July 18, 1977

Submitted by Robert J. Miller

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

Time Diagrams

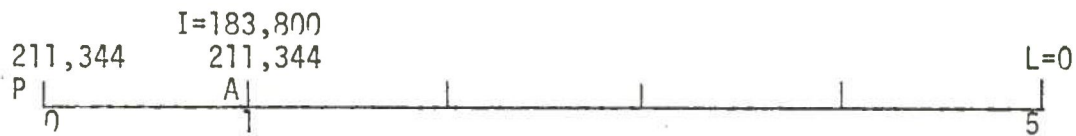
Alternative #1 (continue present system)



Alternative #2 (Augment work-force by 3 FTE)



Alternative #3 (Augment work with private consultants)





RESOURCE JUSTIFICATION

Title: Augment Personnel to Conduct Performance Evaluations

Submission date July 18, 1977

Submitted by Robert J. Miller

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

Recommendation

The Division of ADP recommends the three additional FTE be provided to augment the present capability for conducting performance evaluations.

This alternative was selected because: it results in an acceptable frequency of evaluation; it offers persons for the conduct of evaluations who are familiar with current objectives and constraints; it offers personal continuity for follow-up; and it offers better return on investment than other alternatives.

RESOURCE JUSTIFICATION

Title: Augment Personnel to Conduct Performance Evaluations

Submission date July 18, 1977

Submitted by Robert J. Miller

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

Appendix A - CALCULATIONS TO SUPPORT THE TIME DIAGRAM

Alternative #1

A = 35,200  
i = 8%  
I = 37,050 (Appendix C)  
P = 35,200 (P/A<sub>8,5</sub>) = 140,553

$$140,553 = 37,050 (P/A_{i,5})$$

$$i = ROR = 10\%$$

Alternative #2

A = 101,200  
i = 8%  
I = 183,800 (Appendix C)  
P = 101,200 (P/A<sub>8,5</sub>) = 404,092

$$404,092 = 183,800 (P/A_{i,5})$$

$$i = ROR = 36\%$$

Alternative #3

A = 211,344 (Appendix D)  
i = 8%  
I = 183,800  
P = 211,344 (P/A<sub>8,5</sub>) = 843,897

$$843,897 = 183,800 (P/A_{i,5})$$

$$i = ROR = 3\%$$

## RESOURCE JUSTIFICATION

Title: Augment Personnel to Conduct Performance Evaluations

Submission date July 18, 1977

Submitted by Robert J. Miller

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

### Appendix B - BENEFITS

This appendix describes the logic used to estimate and display a "value received" from ADP performance evaluations.

- o Who can benefit from evaluations?
  1. The agencies
  2. The Division of ADP and Department of Administration
  3. The Governor and General Assembly
- o What functions (that are identified by CRS 24-30-6) can benefit from evaluations?
  1. Planning
  2. Budget preparation
  3. Budget review and recommendations
  4. Review of applications, systems, programs, equipment and facilities
  5. Administration of the approved plan
  6. Consultation with and coordination of ADP in various agencies
  7. Establishing procedures and standards
  8. Approval or disapproval of intended acquisitions of equipment
  9. Approval or disapproval of staffing patterns
  10. Provision of ADP services, equipment and facilities
  11. Advising the Civil Service Commission
  12. Advising the Governor and General Assembly
- o What factors (of an evaluation) effect the degree of benefits that can be achieved?
  1. Scope
  2. Timeliness
  3. Currentness
  4. Quality

RESOURCE JUSTIFICATION

Title: Augment Personnel to Conduct Performance Evaluations

Submission date July 18, 1977

Submitted by Robert J. Miller

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

Appendix B - BENEFITS (Continued)

- 5. Agency responsiveness
  - 6. Adequacy of management review
  - 7. Compliance with approved recommendations
  - 8. Mutualness of understanding between the evaluating and evaluated entities
- o How can benefits be measured?
- 1. Qualitatively?
    - a. By reaction (of agency, management, General Assembly)
    - b. Through 'follow-up'
  - 2. Quantitatively?
    - a. By established 'goals'
    - b. Through 'follow-up'
- o What goals (for measuring benefits, quantitatively) can be established? (Refer to the numbers of various 'functions' listed above.)
- 1. Time-savings - Functions #1, 2, 4, 5, 6, 7, 11, 12
  - 2. Cost avoidance and savings - Functions #3, 8, 9, 10

The next appendix illustrates values that have been applied (as goals) for the functions designated above. The values are best-estimates based upon experience gained over the four previous fiscal years. Goals are established for Statewide ADP (DADP) only. Benefits to agencies have not been estimated.



RESOURCE JUSTIFICATION

Title: Augment Personnel to Conduct Performance Evaluations

Submission date July 18, 1977

Submitted by Robert J. Miller

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

Appendix C - GOALS

FUNCTION TITLE	ANNUAL COST MAN-YRS	ANNUAL COST \$(1000)	ANNUAL VALUE \$(1000)	BENEFITS SOUGHT (SAVINGS)			
				W/RECENT EVAL. GOAL (%)	W/RECENT EVAL. \$(1000)	W/OLDER EVAL. GOAL (%)	W/OLDER EVAL. \$(1000)
Master Plan	1.2	27.0		10.0	2.7	.5	.15
Budget Review			State Budget - 27,000.00	.5	135.0	.05	24.7
Appl./Eq. Review	1.8	39.6		5.0	2.0	1.0	.4
Adm. of Apprv. Plan	3.0	66.0		1.0	.7	-	-
Coordination	.8	17.6		20.0	3.5	5.0	.9
Standards	.9	19.8		50.0	9.9	25.0	4.9
Acquisition			Statewide - 3,000.00	1.0	30.0	.02	6.0
TOTAL BENEFITS					183.8		37.05



RESOURCE JUSTIFICATION

Title: Augment Personnel to Conduct Performance Evaluations

Submission date July 18, 1977

Submitted by Robert J. Miller

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

Appendix D - COST ESTIMATE FOR ALTERNATIVE #3

The following estimates were used to determine a cost to augment the DADP with private consultants in order to reach its goal of seven evaluations per year:

DADP continues use of its current personnel to maximum:

1.6 Man-years @ \$22K = \$ 35,200

Amount to hire private consultants at number of man-hours equivalent to 3 FTE:

3 [11 mos X 22 days X 8 hrs @ \$30/hr minimum] = \$174,240

Additional time for preparation (new consultants unfamiliar with State organization, standards, etc. and equiv. time State FTE

Not Estimated

Additional costs for travel, per diem, overtime above State employee expenses:

(7 audits X \$152 o/t) + (42 days X \$20 pd/trav.) = \$ 1,904

\$211,344

RESOURCE JUSTIFICATION

Title: Microwave Replacement Program (Phase III)

Submission date 12 August 1977

Submitted by Runall G. Canady

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

SUMMARY

A multi-year project for the programmed replacement of obsolete equipment in the State's microwave systems has been developed by the Division of Communications commensurate with the Division's statutory responsibility to provide reliable cost-effective public safety communications for State agencies.

Funds were requested and appropriated in Fiscal Years 75-76 and 76-77 to complete the first two phases (39%) of this program.

Due to an unfortunate departmental decision to divert emphasis to automated data processing, microwave replacement program funding was interrupted during FY 77-78.

Funds of \$1,033,496.00 are being requested for Fiscal Year 78-79 to continue with Phase III (19%) of the program.

The system is obsolete and requires exorbitant resource investments to maintain reliability. Replacement parts are expensive and difficult to obtain. Existing obsolete equipment is no longer type accepted by the Federal Communications Commission and must be replaced no later than 1985 pursuant to FCC Rules and Regulations, Part 94, Subpart C, Paragraph 94.61 (a).

Programmed replacement of the system segment requested for FY 78-79 will save the state 1.207 million over a fifteen year period compared with the existing system. Phase III is estimated to have a rate of return slightly in excess of 10%, which is well over the 8% figure established for continuing activities (see appendix).

## NARRATIVE

State-owned microwave systems, including the segment for which replacement is requested during 78-79, originally developed as a result of the public safety radio needs of State agencies.

The Communications Division is charged by 120-10-26 and 3-30-1 through 3-30-5 CRS, as amended, with the responsibility for installation and maintenance of Public Safety two-way radio communication systems to fulfill the requirements of State agencies.

Implementation of Public Safety radio communication systems required selection and development of remote base station sites capable of providing the coverage required by State agencies. Implementation of these systems also required procurement of remote control circuits capable of interconnecting the remote base stations and the control or dispatch points. The result was two basic systems, one system for public safety radio broadcasting, and one system to interconnect the first system with its control points.

Federal Communications Commission regulations prohibit common carriers from providing Public Safety radio broadcast services. The State's needs in this area must therefore be provided by the State. However, the second system of remote control circuits may be provided by State-owned microwave, leased from common carriers or a combination of both.

Control circuit requirements were evaluated and either a State-owned microwave system installed or circuits leased from Mountain Bell, whichever provided the capability required with optimum reliability and minimum cost.

State-owned microwave systems were selected over leased systems in most applications.

The State of Colorado now has 123 microwave terminals in service. Sixty-one percent (61%) of these have reached or are beyond the end of their useful service life.

The system to be replaced in the third phase of the program consists of 15 sites that currently utilize obsolete RCA CW20 vacuum tube type equipment which was purchased and installed between 1961 and 1963 with an anticipated service life of 12-14 years. RCA CW20 equipment was designed and initially produced in 1950. It was removed from general production and manufactured only on a special custom order basis after 1963. All production of CW20 type equipment and replacement components ceased in 1968 (see appendix-exhibit 4).



NARRATIVE  
cont'd

Manufacturer's replacement parts for the existing equipment have become increasingly difficult to obtain because the manufacturer's stock was not replenished for equipment no longer in production (see appendix - exhibit 5). This problem was compounded when RCA discontinued production of all types of microwave equipment in 1970.

Component parts of the original equipment supplied to RCA by other vendors were also designed to satisfy state-of-the-art requirements of the early 1950's. Consequently, they were discontinued by the original manufacturers as improvements in technology decreased demand. As a result, substitute replacement parts for existing equipment are either totally unavailable or are not economically feasible due to the special production runs required.

One example of replacement part procurement difficulties is as follows:

2C39B vacuum tubes, the heart of CW20 microwave equipment, were originally standard products of five different vacuum tube manufacturers at a cost of \$18.00-\$20.00 each. These tubes are now available from one manufacturer only, on a special order basis at a cost of \$56.00 each. Individual tube orders are collected by the manufacturer and held until a feasible production level is assured. Scheduled delivery cannot be guaranteed. These tubes employ obsolete technology and may be totally discontinued at any time.

This particular component is but one example of replacement part procurement problems. Fifty-two percent of the OEM components critical to the operation of the system are no longer manufactured. We are quite literally operating obsolete equipment on borrowed time. Should one of the key system components become totally unavailable, an event which is highly probable, the systems requested for replacement in 78-79 as well as systems to be replaced in later phases of the program will be inoperative.

We are not requesting additional personnel as part of the microwave replacement program. Just the opposite in fact. We are now at a critical point where continued operation of the obsolete equipment with its increasing failure rate and maintenance problems will require additional maintenance personnel if not replaced. Replacement of obsolete equipment will not only preclude additional personnel for its maintenance, but will save sufficient time to enable us to handle a large portion of our mushrooming requests for additional services without existing personnel.

An average vacuum tube type microwave station in the system proposed for replacement consumes \$1,995.00 labor and material annually with an average meantime between failures of 2500 hours. These costs will increase next year to an estimated \$2,234.00 with a probable

NARRATIVE  
cont'd

10% reduction in the meantime between failures. A typical transistorized microwave station of the type proposed as replacement equipment consumes an average of \$446.00 labor and material annually with a meantime between failures of 35040 hours. These costs will increase next year to an estimated \$447.00 per year.

It can be seen from this comparison that the obsolete equipment costs five times as much to maintain and we can achieve less than one tenth the reliability possible from transistorized equipment of the replacement type proposed.

Existing system costs and a comparison with the requested replacement system as service producing alternatives are detailed in the appendix.

Refurbishing existing equipment is not economically feasible even if replacement parts were available. This procedure was evaluated on a limited basis and found to cost a minimum of \$1,200.00 per station. While reconditioned stations exhibited a temporary improvement in transmission quality, maintenance costs and reliability over a one year period were not significantly improved. Even if benefits had proven to be significant, component parts are not available in the volume necessary for a major reconditioning program.

The existing obsolete equipment is not technically compatible with current state-of-the-art equipment and must therefore be replaced on a system-by-system basis to retain frequency control within Federal Communications Commission regulations. We cannot replace one station at a time or incoherent groups of stations to extend the project over a greater period of time even if the replacement parts and maintenance situation made it practical to delay replacement.

Existing equipment does not comply with technical standards established under Part 94 of the Federal Communications Commission Rules and Regulations effective in August of 1975. These same rules specify removal of all such equipment from service no later than 1985. However, authorizations to operate obsolete equipment during the interim period are subject to immediate revocation if interference is produced in adjacent systems which are in compliance with the new standards. The State could be forced to upgrade equipment or cease operation of existing obsolete equipment at any time (see appendix - exhibit 6). One objective of the replacement program initiated in 1975 was to comply with new regulations well within the interim conversion period.

The proposed replacement systems will not only provide the circuits needed now at lower long-range costs than the existing systems or leased circuits, but will increase our systems circuit capacity from 90 to 300 circuits. This increased capacity will not increase the



NARRATIVE  
cont'd

cost of the basic microwave systems above the cost to replace existing facilities. Added circuit capacity is a side benefit of systems replacement, not a major justification factor. However, if a fraction of the circuit service inquiries received to date materialize as formal service requests, the channel load on the systems to be replaced will more than double.

The only immediate alternative to replacement and continued operation of the State's microwave system is the lease of remote control facilities from the common carrier.

This alternative was considered, but eliminated for the same reasons that a State microwave system was initially developed.

1. Since the State must provide the Public Safety broadcast station, housing for the stations, antenna mounting structures, auxiliary power, support components, maintenance capability and remote site development whether control circuits are State-owned or leased, the comparatively minor additional investment in basic facilities and maintenance capability required to accommodate microwave system equipment make State-owned microwave systems a cost effective alternative to leased control circuits.
2. Procurement, installation and maintenance of State-owned microwave control systems is more economical than recurring costs incurred with leased remote control facilities. For example, one full duplex control channel on the State's existing microwave system costs \$1.15 per circuit mile per month, including all operating costs, maintenance and equipment amortization. A comparable circuit, leased from the common carrier, costs \$4.09 per mile per month plus \$40.82 per month in termination charges.

A 200 mile circuit on the State system costs \$2,760.00 annually, while a similar common carrier circuit would cost \$10,306.00 annually. These comparisons are based on current costs which includes State system costs inflated by the excessive maintenance required by existing obsolete equipment. The savings will become more dramatic as the State system is upgraded through replacement of obsolete equipment and the resulting decreases in maintenance and operating costs.

3. It has been proven statistically that a microwave system dedicated to Public Safety service is more reliable than leased facilities. Maintenance statistics compiled from existing combination circuits show that State microwave systems are responsible for two percent of circuit failures while lease facilities are responsible for 30% of circuit failures. Meantime to restore microwave service is considerably shorter than leased services, particularly in mountainous terrain.

4. State-owned microwave systems not only provide the minimum required circuit capacity at much lower cost but with greater reliability than leased circuits. They also have inherent spare capacity for additional circuits. Additional circuits may be added for data transmission, telemetry, or a multitude of other functions at extremely low cost compared to lease facilities.

### ASSUMPTIONS

1. The State will continue to be responsible for the provision of public safety communications services to State agencies.
2. Technology will continue to advance, but systems to supplant existing methodology are not expected to become a reality within the next 20 years.
3. Procurement, installation and maintenance of State-owned microwave control systems will continue to be more reliable and economical than leased remote control facilities.
4. Spiralling costs of common carrier services and the trend toward privately owned systems to offset these costs will enhance the potential value of the State-owned microwave system.
5. Replacement components for the existing system, many of which are now no longer available, will become totally unavailable.
6. Federal regulations requiring replacement of obsolete systems with state-of-the-art hardware are not likely to be restricted.
7. House bill 1726 modifies Section 6, Part 2, of Article 75 of Title 24 CRS 1973 (24-75-201.1) to restrict the level of general fund spending over the next several years. Funding for large projects will become more difficult to obtain.

## RECOMMENDATION

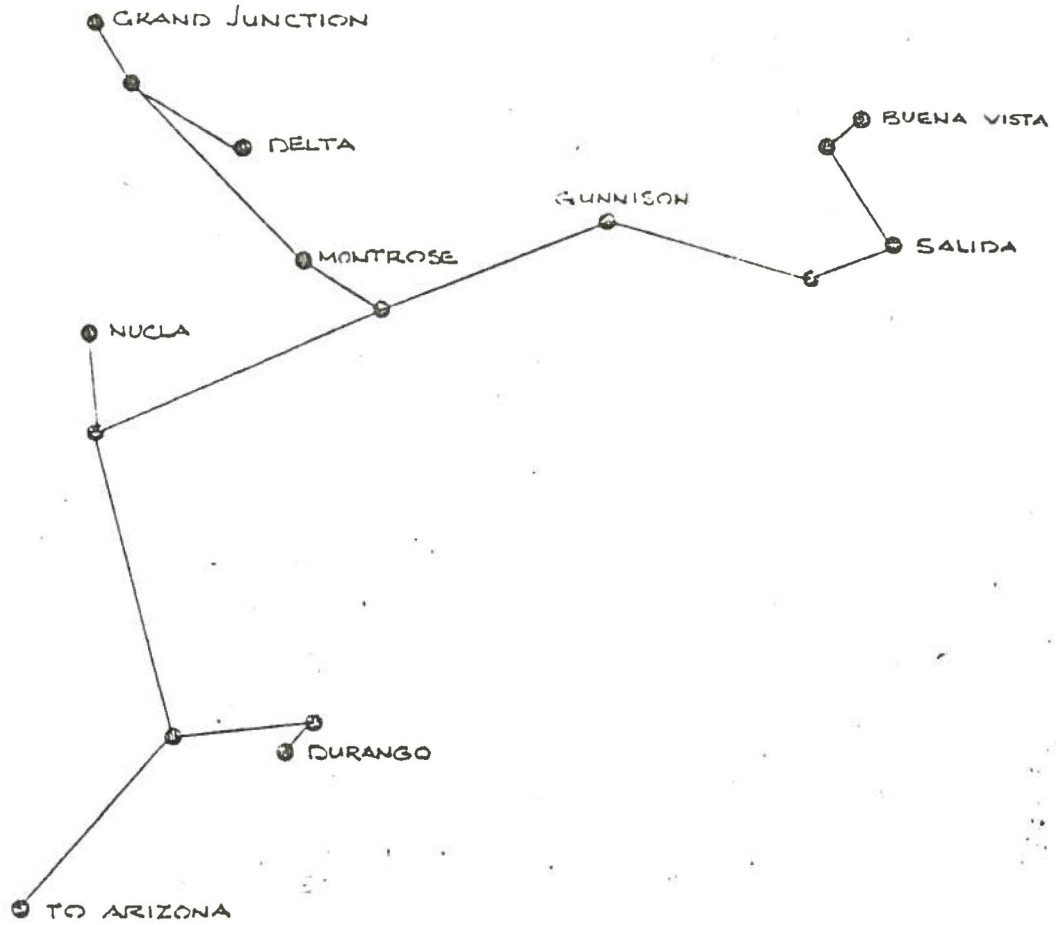
Anticipated service life of the existing equipment was reduced when the manufacturer discontinued production of all microwave equipment in 1970. For the past seven years, we literally begged, borrowed and stole equipment from companies replacing their systems to keep the State's systems running. We cannot continue this type operation. The unstable parts availability, increasing maintenance costs and decreasing reliability make continuation of the replacement program extremely important.

Successful implementation of the first two phases of the microwave replacement program and preliminary indications that the results will meet or exceed benefits anticipated, emphasize the need to continue this program.

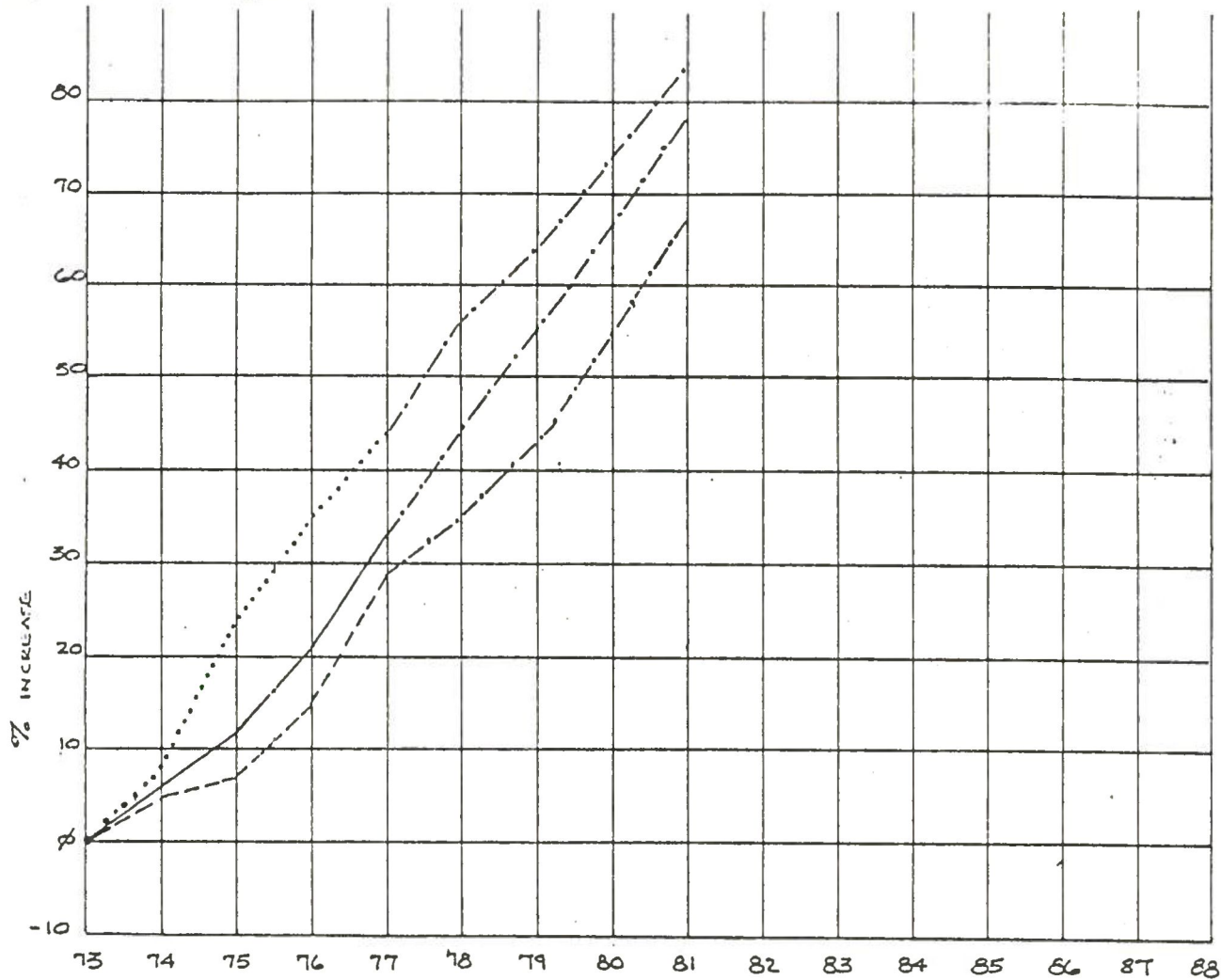
The Communications Division recommends that an appropriation be requested for Fiscal Year 78-79 to continue the replacement program initiated in FY 75-76.

APPENDIX  
MICROWAVE REPLACEMENT PROGRAM





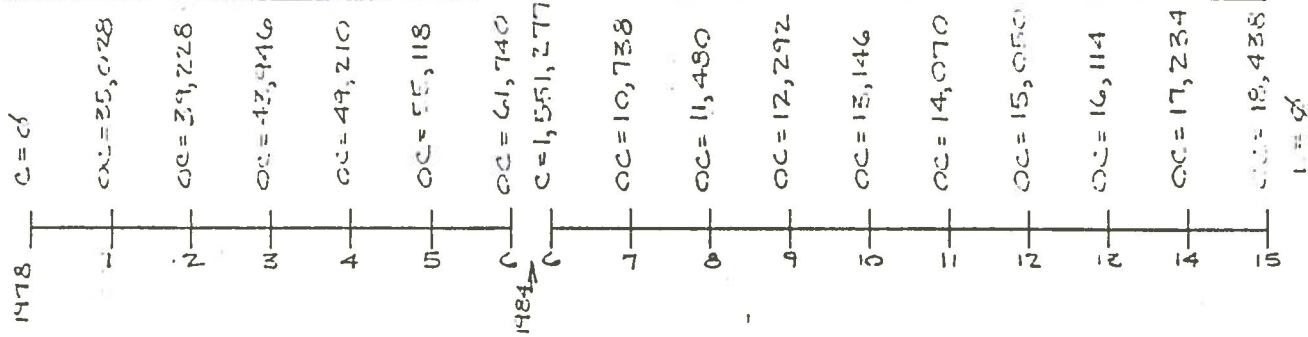
SCALE NONE		PROJ. TITLE MICROWAVE REPLACEMENT PROGRAM - PHASE III	
DATE AUG 1977		DWG. TITLE SYSTEM DIAGRAM EXISTING BUENA VISTA - DURANGO MICROWAVE SYSTEM	
DR. BY	CK. BY		
PROJ. NO. 7615-2210-000		EXHIBIT 1	SHEET 1 OF



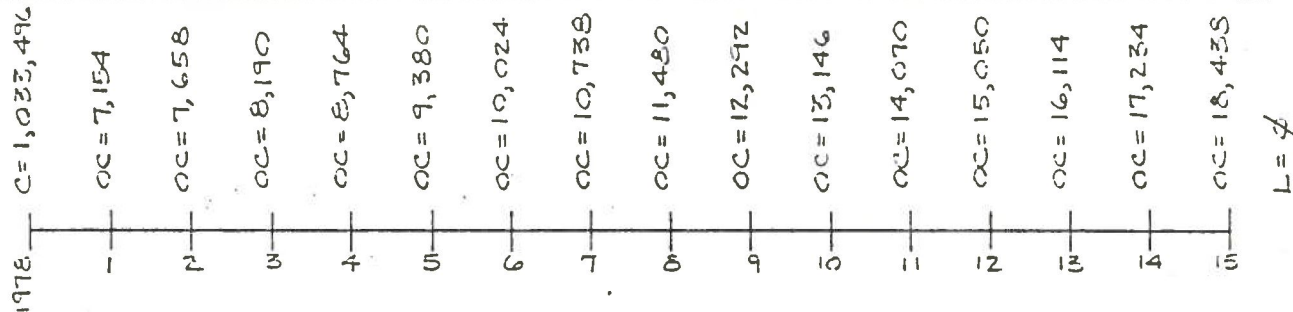
	ACTUAL COSTS FROM FILE DATA	PROJECTED COSTS
LABOR	-----	.....
PARTS	.....	-----
TOTAL SYSTEM	_____	.....

SCALE NONE		PROJ. TITLE MICROWAVE REPLACEMENT PROGRAM - PHASE III	
DATE AUG 1977		DWG. TITLE MAINTENANCE COSTS	
DR. BY	CK. BY	EXISTING BUENA VISTA - DURANGO MICROWAVE SYSTEM	
PROJ. NO. 7615-2210-000		EXHIBIT 2	SHEET / OF

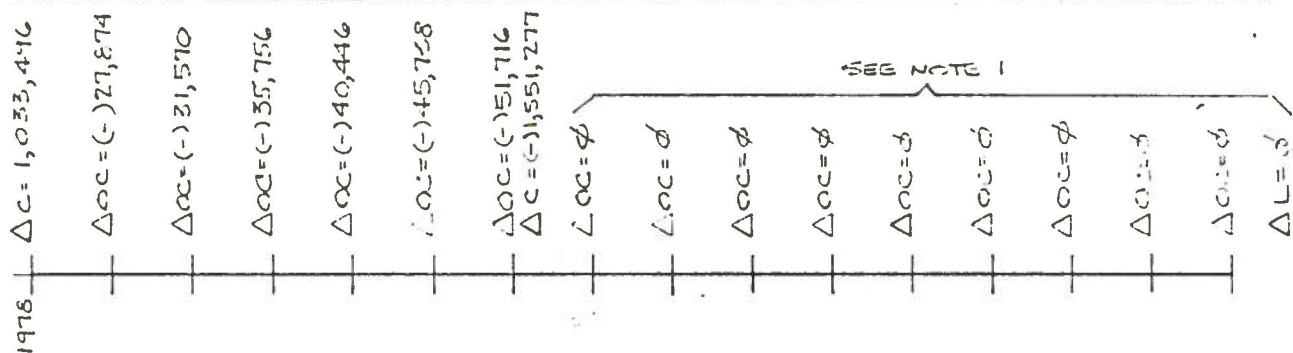
**A - EXISTING SYSTEM**



**B - REPLACEMENT SYSTEM**



**A - B COMPARISON**



$$PW = 1,033,496 - 27,874 (P/F, i, 1) - 31,570 (P/F, i, 2) - 35,756 (P/F, i, 3) - 40,446 (P/F, i, 4) - 45,738 (P/F, i, 5) - 51,716 (P/F, i, 6) - 1,551,277 (P/F, i, 6)$$

$$1,033,496 = 27,874 (P/F, i, 1) + 31,570 (P/F, i, 2) + 35,756 (P/F, i, 3) + 40,446 (P/F, i, 4) + 45,738 (P/F, i, 5) + 51,716 (P/F, i, 6) + 1,551,277 (P/F, i, 6)$$

FOR  $i = 10\%$  EQUATION = 1,039,206

FOR  $i = 12\%$  EQUATION = 939,239

$$i = 10\% + 2\% \left( \frac{1,039,206 - 1,033,496}{1,039,206 - 939,239} \right) = 10.1142\%$$

ROR = 10.1142%

NOTE 1 - OPERATING COSTS ASSOCIATED WITH STATE OF THE ART MICROWAVE EQUIPMENT ARE LABOR INTENSIVE. COSTS DURING THIS PERIOD ARE THEREFORE ESTABLISHED PRIMARILY BY PREVAILING LABOR RATES AND WILL BE APPROXIMATELY EQUAL FOR EITHER ALTERNATIVE.

SCALE NONE		PROJ. TITLE MICROWAVE UNIT WITH PROGRAM PHASE III	
DATE AUG 1977		DWG. TITLE TIME DIAGRAMS RATE OF RETURN CALCULATION	
DR. BY	CK. BY		
PROJ. NO. 761E-2210-000		EXHIBIT 3	SHEET / OF.





BROADCAST AND COMMUNICATIONS PRODUCTS DIVISION

RADIO CORPORATION OF AMERICA

May 21, 1968

Mr. D. L. Niblack  
Radio Engineer  
Colorado State Patrol  
4201 E. Arkansas Avenue  
Denver, Colorado 80222

ROUTING	
<input checked="" type="checkbox"/>	R. E.
<input type="checkbox"/>	ASCOO. RE.
<input type="checkbox"/>	A. R. E.
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input checked="" type="checkbox"/>	FILE



Dear Dave:

Now that designs of heterodyne repeater and RF standby equipments for the RCA CW-62L total solid state 21mc microwave have been released for full factory production, and in line with expressed interests of current customers and futura prospective users, it has been deemed advisable to "phase out" the manufacture of CW-20 microwave.

We presently have an appreciable inventory of CW-20 "MI" assemblies consisting of transmitters, receivers, power supplies, baseband amplifiers, Indicon alarm units, baseband bridging, repeater and terminal service units, etc.

It is respectfully suggested that you carefully review your immediate and future plans for total utilization of your CW-20 microwave systems and consider buying any assemblies and/or spare units to support such programs until eventual replacement with total solid state equipment.

I will be pleased to help you on this matter and assure you of our continued full cooperation at all times.

Sincerely yours,

S. J. Combs  
District Manager  
Microwave Sales

CW

Colorado State Patrol  
4201 East Arkansas Ave.  
Denver, Colorado 80222

RCA

Attention: Mr. B. Maes  
Principal Supply Officer

Gentlemen:

November 20, 1970

Please refer to your letter of November 13, 1970 regarding quantity (4) Mixer Cavity gasket for CW-20 Microwave Receiver.

We are also unable to identify this item by the Part Number 931506 given in your letter. The CW-20 microwave is no longer being manufactured and very few replacement parts are available.

Since you reference the CW-20 receiver mixer cavity gasket, I am assuming that you may have reference to the replacement RF leakage gasket mentioned in the CW-20 Instruction Book on Page RM-16. In hopes that this is the gasket you need, we are attaching RCA Drawing No. 8433281 which contains the manufacturing details of this item. We can not supply this item, but you may be able to have the item made up locally.

Thank you for your continued interest in our products.

Very truly yours,



P. E. Strout  
Microwave Sales

cc:

J. A. Long  
H. S. Wilson

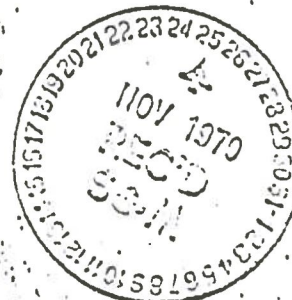


EXHIBIT 5



FEDERAL COMMUNICATIONS COMMISSION

WASHINGTON, D.C. 20554

JUL 27 1977

IN REPLY REFER TO  
783-1-69

State of Colorado  
Division of Communications  
2452 West 2nd Avenue  
Denver, Colorado 80223



Attention: Mr. Robert D. Lovisone

Gentlemen:

Your applications, FCC File Numbers 2789 thru 2798-PL-117X, for modification of certain of your microwave facilities have been processed for grant. The authorizations are enclosed.

You indicated that you were in the process of upgrading your radio equipment to meet the new technical standards of Part 94. However, due to budgetary problems, the replacement of equipment will have to be done over a five (5) year period. Consequently, you requested that pertinent provisions of our Rules be waived (Sections 94.61 and 94.75) to allow continued use of some of the non-compliance radio equipment at Stations KAV 43, KFD 62 and WAZ 516 during the five (5) year replacement program.

Your request has been granted subject to the condition that any non-compliance equipment be upgraded should its continued use preclude the assignment of frequencies in systems operating in accordance with the provisions of Part 94.

Sincerely yours,

*Charles A. Higginbotham*  
Charles A. Higginbotham  
Chief, Safety and Special  
Radio Services Bureau

Enclosure:  
Authorizations

Mr. A. J. Anderson  
Administrative Officer IV  
Division of Communications  
2452 West Second Avenue  
Denver, Colorado 80223



Dear Mr. Anderson:

August 11, 1977

Please accept my apologies for this belated reply to your letter of May 31, 1977, in reference to the RCA, Model CW20 Microwave equipment product line.

We are most happy to note that your state-wide system of RCA CW20 has performed notably well for the past 20 years; however, we must agree with your plan to replace the system with a state-of-the-art, solid-state line. Twenty years of performance from tube-type equipment is unusual in itself, and obviously, the State of Colorado Communications activities should be commended for a superb and effective maintenance performance.

The CW20 series [redacted] Production of CW20 sub-assemblies and other support items [redacted] when the product line was 100% replaced by the RCA CW60 and CW62 series, which was of course a solid-state design. In 1970, industry-wide microwave sales projections revealed a relatively static market potential of low volume for succeeding years, and we elected to withdraw from the microwave field completely, rather than invest heavily in what appeared to be a very limited growth activity.

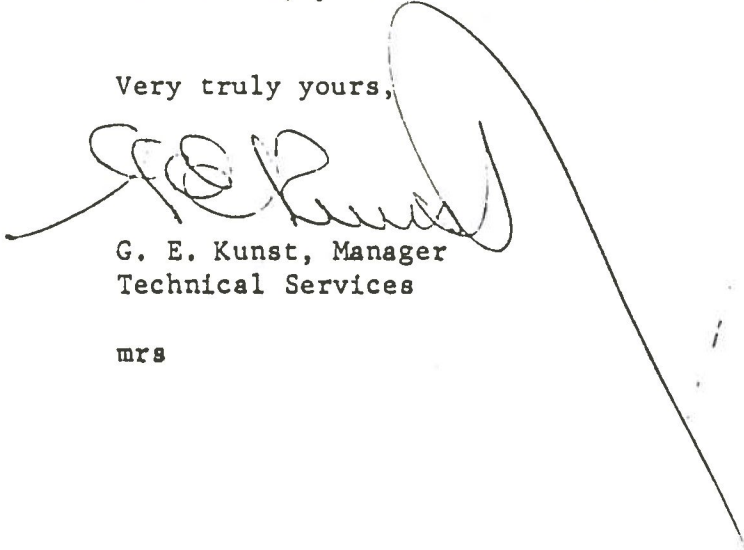
As far as replacement parts are concerned, RCA's corporate policy establishes replacement parts support guidelines for all of its manufactured products, depending on an assessment of its useful life. In the case of the microwave line, a ten-year parts support program was established, and under this guideline, [redacted] As a practical case, we will probably have a small random quantity of replacement items on hand for the next several years, even though the parts support term has expired. These would of course be "isolated items", and by no means could you at this time continue to support your systems with full replacement parts support.

One of the points in your letter requests "our estimate of CW20 systems that have been replaced". Since we terminated all new sales activity in this field during 1970, I cannot give you factual information on this phase. From personal experience of 28 years in the communications field with RCA, since most of our microwave customers are also customers of this division, I can at this date only recall two systems that are still in service, excluding your own. Of these two, I have no knowledge as to whether or not the original systems configurations are 100% intact or have been partially replaced. I can state, however, that both customers made heavy and unusual investments in spare components and subassemblies many years ago that enabled them to properly maintain the system through this time frame.

I trust this information will enable you to finalize your replacement equipment plans. It would appear that your system is now functioning; however, it would also appear that you are on "dangerous ground" as it relates to continuing communications capability. Should a failure occur other than one of an extremely minor nature, a 90% probability exists that you could not restore the affected circuit, by any means short of outright equipment replacement on an emergency and very costly basis.

Thank you for your interest, and if we can be of further assistance, please do not hesitate to call on us.

Very truly yours,



G. E. Kunst, Manager  
Technical Services

mrs



RESOURCE JUSTIFICATION

Title: ADDITIONAL FTE - MAINTENANCE SECTION, PUBLIC SAFETY PROGRAM

Submission date AUGUST 12, 1977

Submitted by Runall G. Canady

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

\_\_\_\_\_  
;Executive Director \_\_\_\_\_

SUMMARY

Two additional senior electronic specialist positions are being requested for addition to the maintenance section staff to increase personnel resources commensurate with work load increases.

Analysis of maintenance section workload and labor time distribution during the past year indicate that the maintenance section currently has an aggregate manpower shortfall of 24,230 work units (equivalent of 3.45 FTE). It is estimated that the shortfall will continue to increase at the present rate during FY 77-78 for a projected year end shortfall of 5.02 FTE. Personnel resource shortages are detailed in the Appendix.

Analysis shows that the two additional FTE will cost the state \$2,000.00 in initial equipment costs plus \$38,712.00 per year and would add an estimated 3,515 productive hours (14,060 work units) to the existing resource level. Contractural costs for 3,515 service hours would cost the state an estimated \$77,328.00 at the current average of \$22.00 per hour for such service.

Rate of return evaluated over a five year period indicates that increasing the state maintenance staff would yield a rate of return in excess of 200%.

## NARRATIVE

The existing personnel resource shortfall is distributed throughout the state as shown by the graphs in the Appendix. It can be seen that although the projected statewide manpower shortfall is 5.02 FTE, the shortfall exceeds 1.0 FTE in only two of the five maintenance regions. Therefore, only two FTE have been requested.

Communications Division maintenance section workload is gradually increasing in all equipment categories throughout the state. However, the balance of the 5.02 FTE statewide maintenance section shortfall should be normalized through programs to conserve maintenance labor, primarily the microwave replacement program. We do not anticipate requests for additional maintenance section personnel unless workload increases far exceed savings possible through labor conservation programs.



### ASSUMPTIONS

1. The maintenance workload will continue to increase at the present rate unless authorization is granted to refuse service and stop all additions of equipment to the system by state and/or local government agencies.
2. Any increase in full time position costs for the Senior Electronic Specialist Class will occur at approximately the same rate as similar services provided contracturally. Therefore, the ratio between the two has been held constant over the evaluation period.

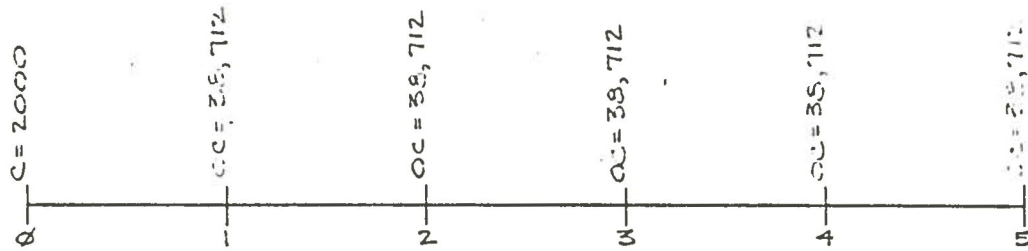
## RECOMMENDATION

Either the positions requested should be funded or an authorization to refuse service and stop growth should be granted. Any authorization to refuse service must also indicate the agencies which are to be refused.

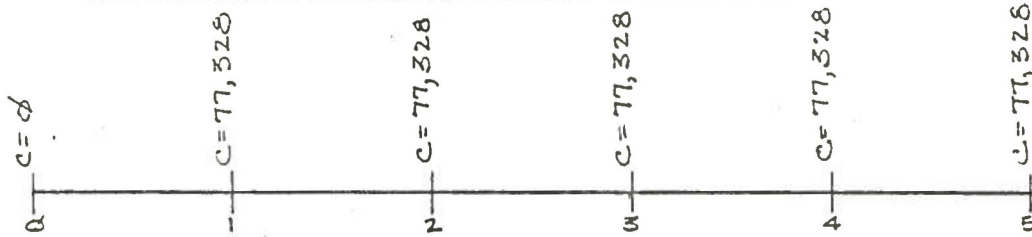
ADDITIONAL FTE - MAINTENANCE SECTION - PUBLIC SAFETY PROGRAM

APPENDIX

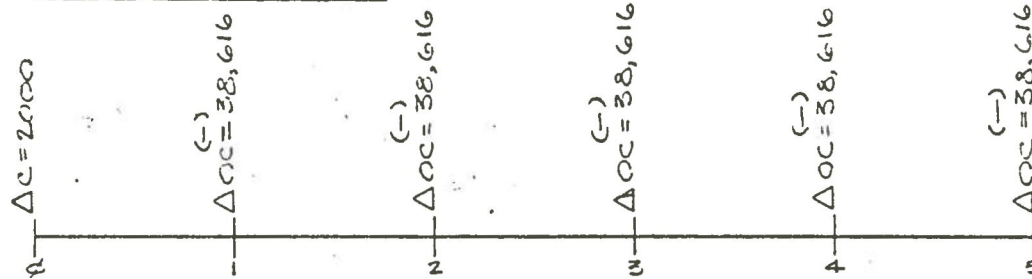
A - STATE FURNISHED MAINTENANCE SERVICES



B - CONTRACTURAL MAINTENANCE SERVICES



A-B COMPARISON



$PW_A = 2000 + 38,712 (P/A)_{i,5}$  FOR  $i = 15\%$   $PW_A = 131,762$  ← **LOWEST COST ALTERNATIVE**  
 $PW_B = 77,328 (P/A)_{i,5}$  FOR  $i = 15\%$   $PW_B = 259,203$

RATE OF RETURN CALCULATION FROM A-B COMPARISON

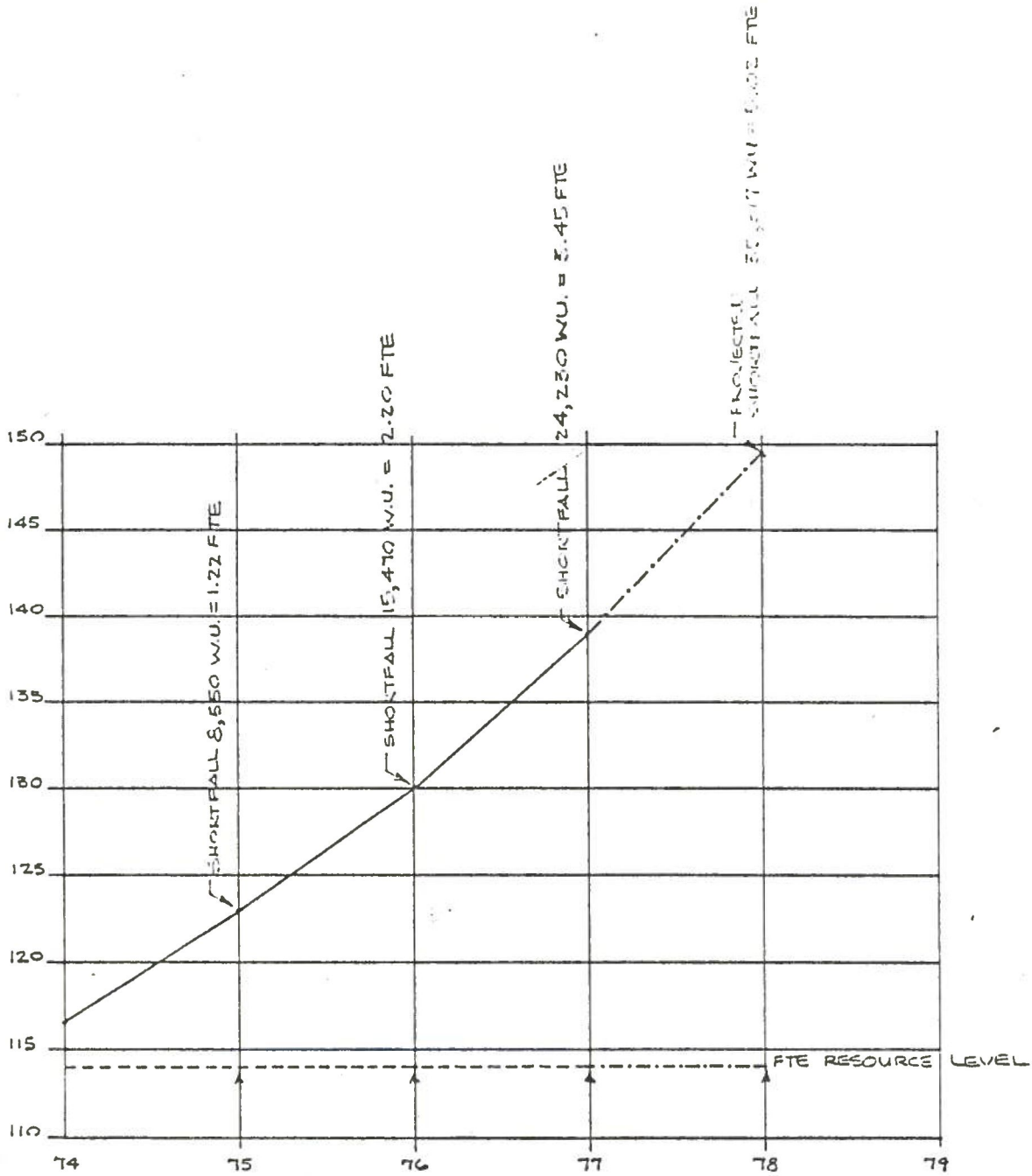
$2000 = 38,616 (P/A)_{i,5}$   
 $0.0518 = (P/A)_{i,5}$

ROR IS IN EXCESS OF 200%

SCALE NONE		PROJ. TITLE ALLIANCE FTE MAINTENANCE SECTION - PUBLIC SAFETY	
DATE AUG 1977		DWG. TITLE TIME DIAGRAMS RATE OF RETURN CALCULATION	
DR. BY	CK. BY		
PROJ. NO.		DWG. NO.	SHEET / OF

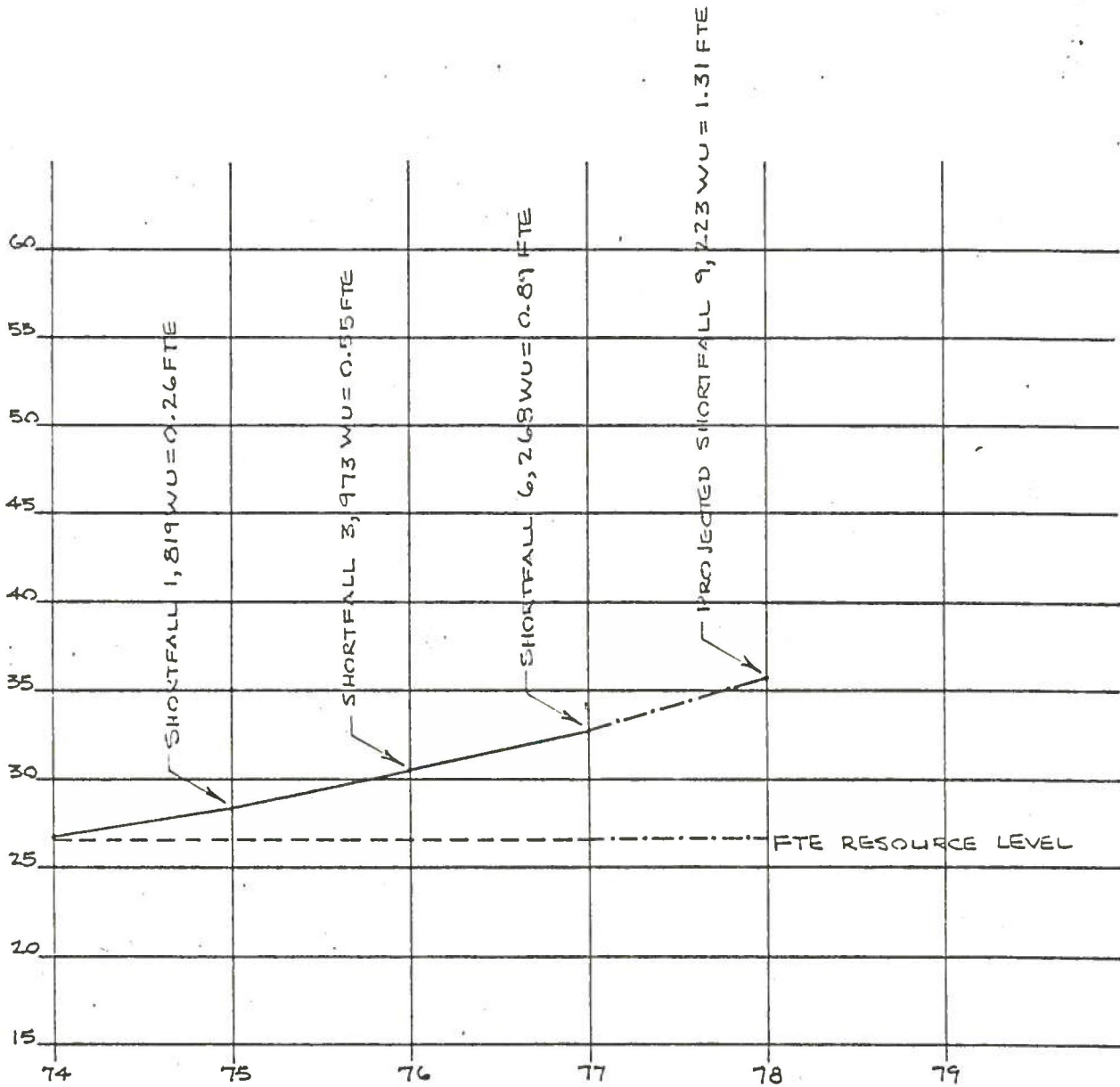


MAINTENANCE WORK LOAD  
(WORK UNITS REQUIRED - THOUSANDS)



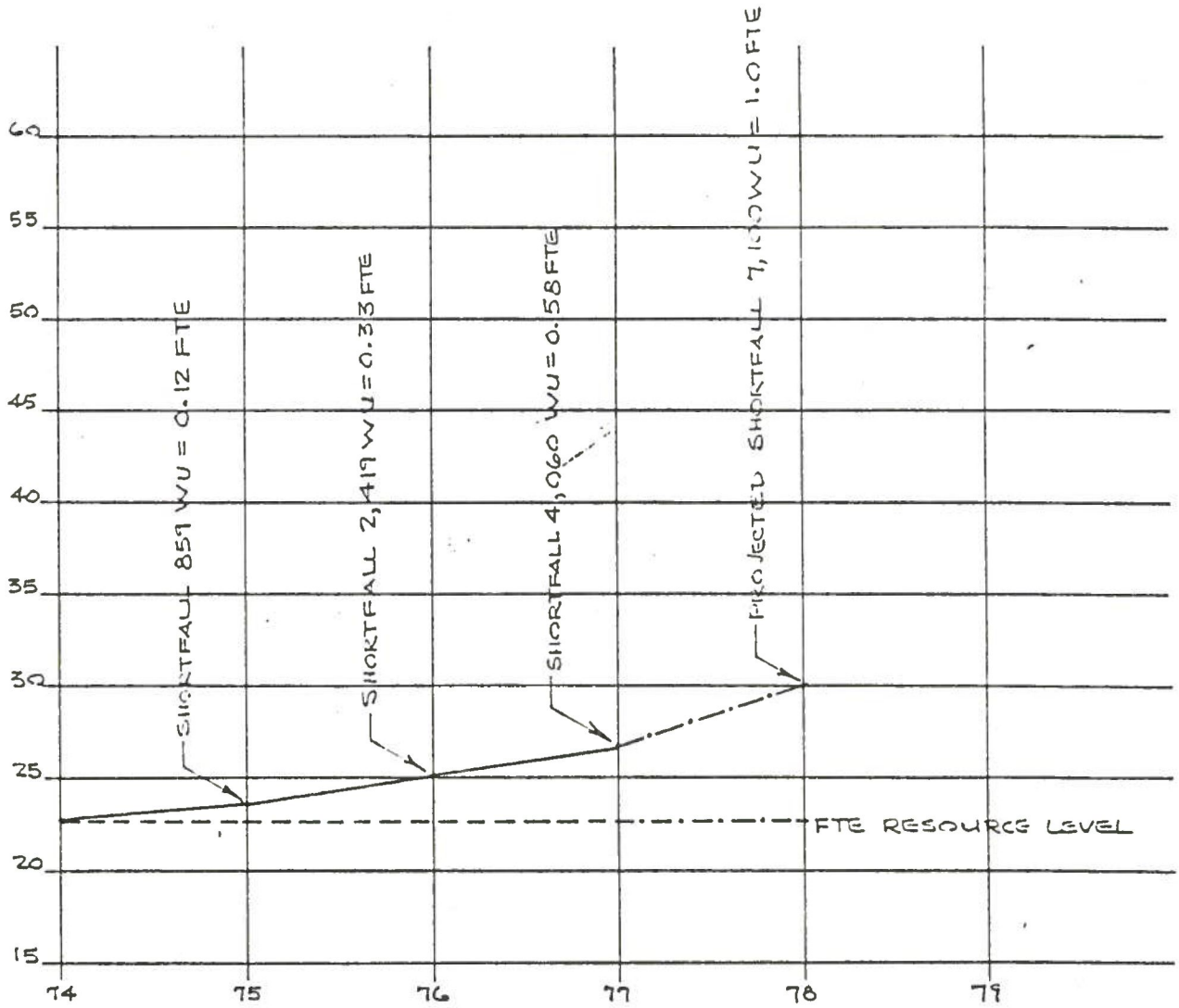
SCALE NONE		PROJ. TITLE ADDITIONAL FTE MAINTENANCE SECTION - PUBLIC SAFETY	
DATE AUG 1977		DWG. TITLE STATEWIDE WORKLOAD FTE RESOURCE COMPARISON MAINTENANCE SECTION	
DR. BY	CK. BY	PROJ. NO.	DWG. NO.
		SHEET 6 OF	

MAINTENANCE WORK LOAD  
(WORK UNITS REQUIRED - THOUSANDS)



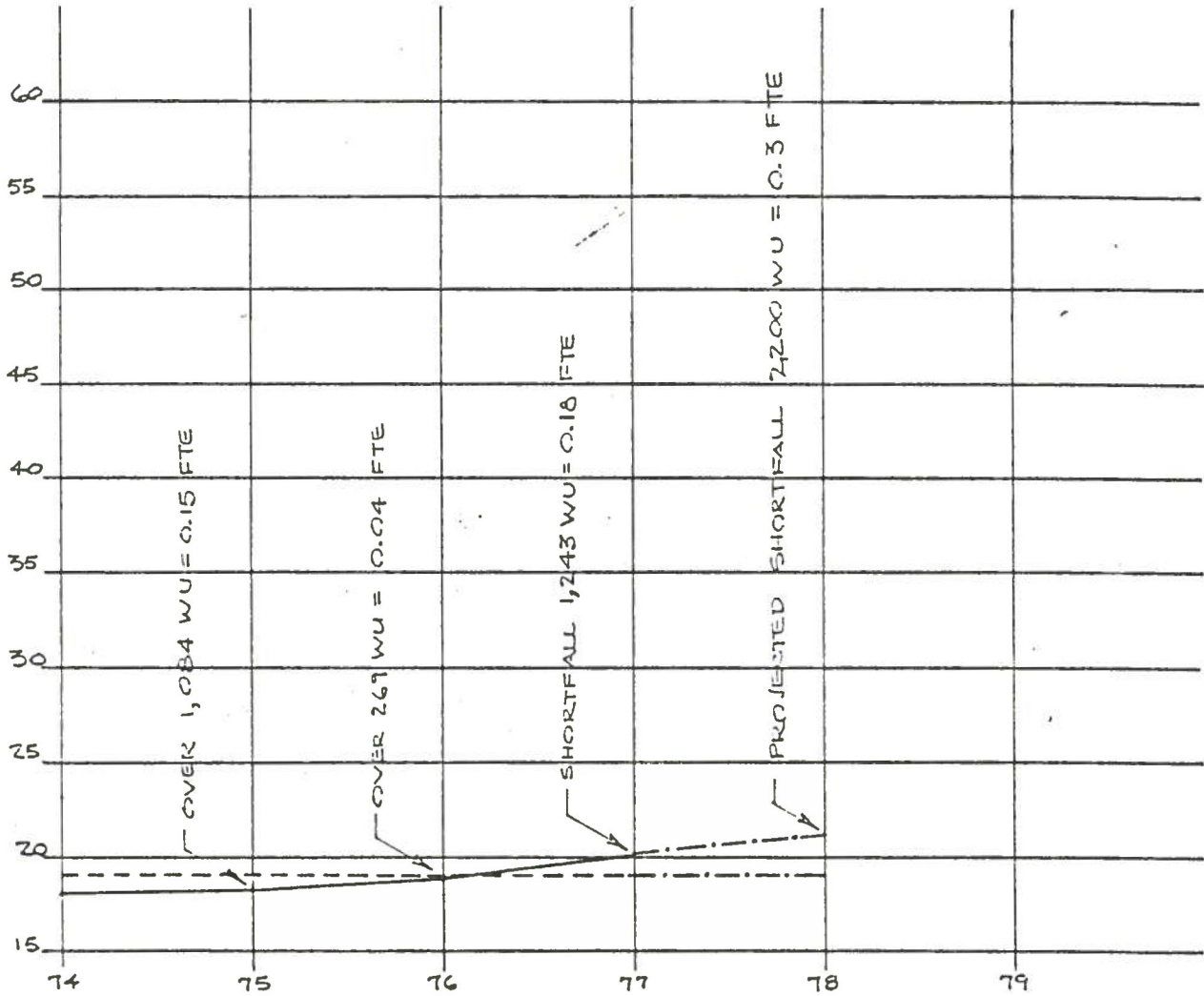
SCALE NONE		PROJ. TITLE ADDITIONAL PTE MAINTENANCE SECTION - PUBLIC SAFETY	
DATE AUG 1977		DWG. TITLE DENVER REGION WORK LOAD - FTE RESOURCE COMPARISON MAINTENANCE SECTION	
DR. BY	CK. BY	PROJ. NO.	DWG. NO.
		SHEET 6 OF	

MAINTENANCE WORK LOAD  
(WORK UNITS REQUIRED - THOUSANDS)



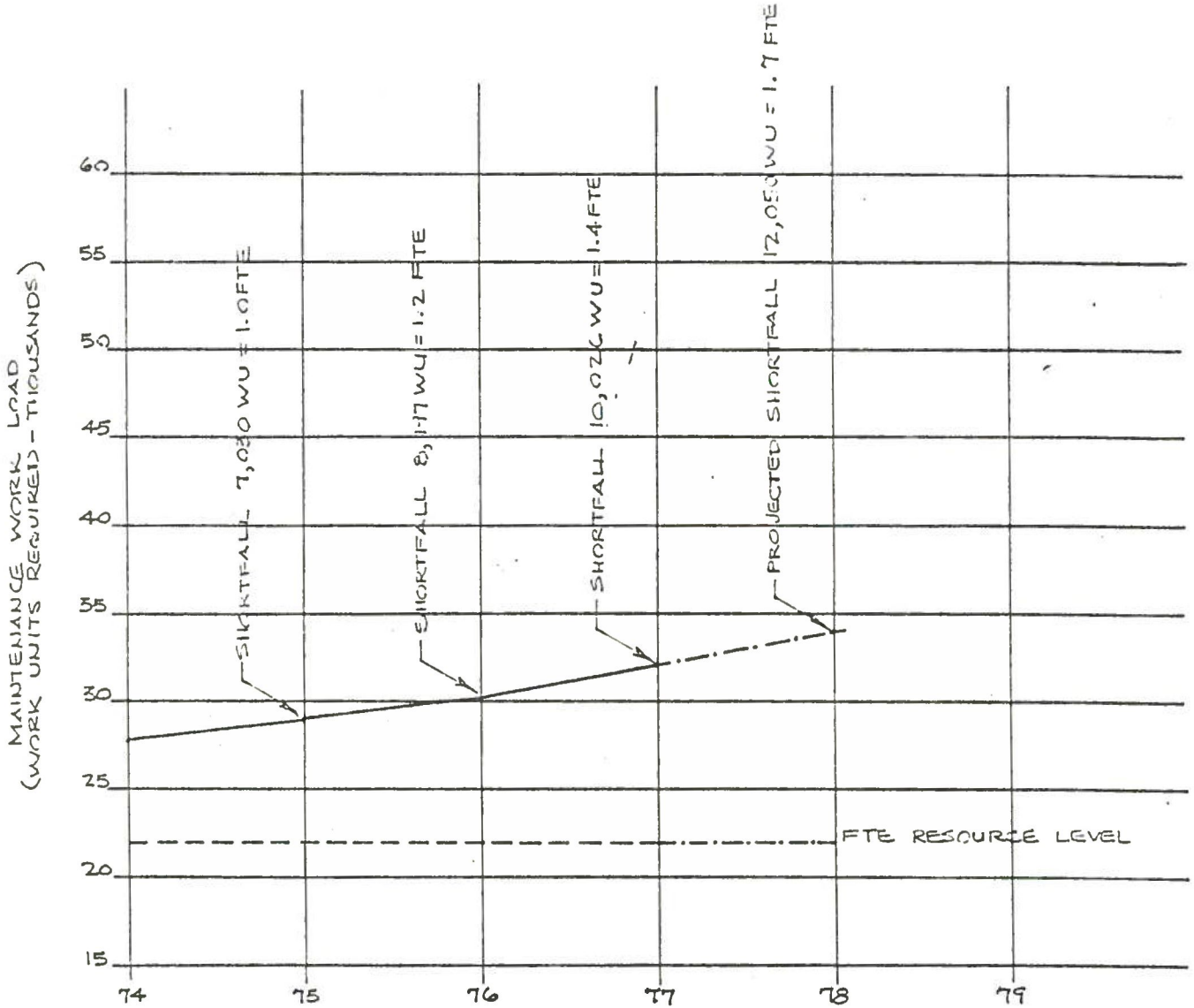
SCALE NONE		PROJ. TITLE ADDITIONAL FTE MAINTENANCE SECTION - PUBLIC SAFETY	
DATE AUG 1977		DWG. TITLE PUEBLO REGION WORK LOAD - FTE RESOURCE COMPARISON MAINTENANCE SECTION	
DR. BY	CK. BY	PROJ. NO.	DWG. NO.
		SHEET / OF.	

MAINTENANCE WORK LOAD  
(WORK UNITS REQUIRED - THOUSANDS)



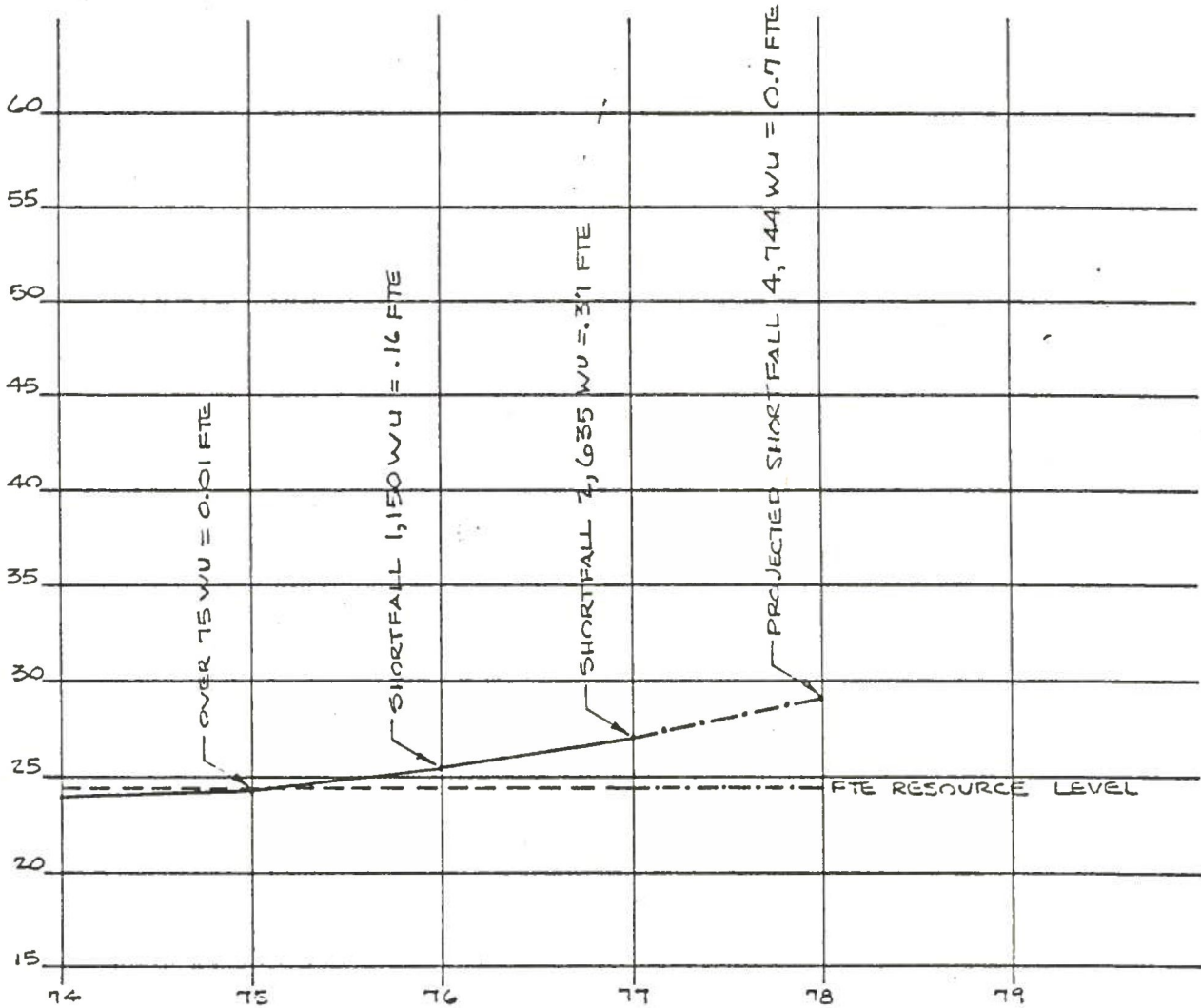
SCALE NONE		PROJ. TITLE ADDITIONAL FTE MAINTENANCE SECTION - PUBLIC SAFETY	
DATE AUG 14 1977		DWG. TITLE GREELEY REGION WORK LOAD - FTE RESOURCE COMPARISON MAINTENANCE SECTION	
DR. BY	CK. BY		
PROJ. NO.		DWG. NO.	SHEET / OF





SCALE NONE		PROJ. TITLE ADDITIONAL FTE MAINTENANCE SECTION - PUBLIC SAFETY	
DATE AUG 1977		DWG. TITLE GRAND JUNCTION REGION WORK LOAD - FTE RESOURCE COMPARISON MAINTENANCE SECTION	
DR. BY	CK. BY	PROJ. NO.	DWG. NO.
		SHEET 1 OF	

MAINTENANCE WORK LOAD  
(WORK UNITS REQUIRED - THOUSANDS)



SCALE NONE		PROJ. TITLE ADDITIONAL FTE MAINTENANCE SUPPORT PUBLIC SAFETY	
DATE AUG 1977		DWG. TITLE ALAMOSA REGION WORK LOAD - FTE RESOURCE COMPARISON MAINTENANCE SECTION	
DR. BY	CK. BY	PROJ. NO.	DWG. NO.
		SHEET 6 OF	

RESOURCE JUSTIFICATION

Title: Provide Drafting Support in the Documentation of Engineering and Maintenance Section Projects

Submission date 12 August 1977

Submitted by Runall G. Canady

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

SUMMARY

The present requirements of the Division for the production of electronic, electrical, mechanical and architectural drawings far exceeds the capability of one FTE now responsible for this activity.

Current drawings and technical information identifying and describing all equipment at each of the 135 station locations is a necessity to the engineering and maintenance of the communications system.

To produce the required information requires an investment of \$13,000.00 to include capital and operating expenditures for one draftsman.

Cost savings are not available. Justification is based on the need to provide accurate and current information to the engineering and maintenance sections.

## NARRATIVE

At this time one FTE is attempting to provide all of the electronic, electrical and architectural drawings required by the Division and maintain a technical engineering type inventory of equipment assigned to every station in the communications system.

The workload involved is beyond the capability of one person. Technical information that should be available to the engineering and maintenance sections through office records is not current. Considerable time is lost in research to confirm information and establish the current status of stations and equipment involved in a project.

Efficient and productive engineering and maintenance programs rely heavily on an accurate and current information system.



## ASSUMPTIONS

1. Drafting support in the Division will always be a primary need.
2. The Division will continue to produce approximately two projects each month.
3. The system will always undergo modifications to meet user needs.
4. Advanced technology resulting in a more sophisticated system increases the importance of drawings and technical information.

## TIME DIAGRAM

We find no way to relate this request to the time diagram.

The investment will return increased productivity not only in the drafting section but by all who use the information produced.

RECOMMENDATION

Add one draftsman to the staff of the Division. The investment required is \$13,000.00 according to the following:

Position.....!	Draftsman
Total Position Cost.....	\$10,649
Operating Expense.....	351
Travel Expense.....	2,000
	<hr/>
	\$13,000

RESOURCE JUSTIFICATION

Title: TO PREPARE AND MAINTAIN A COMPUTERIZED CAPITAL INVENTORY SYSTEM

Submission date August 12, 1977

Submitted by Runall G. Canady

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

;Executive Director \_\_\_\_\_

SUMMARY

The present staff of three FTE's in the Supply Section is not adequate to carry out the responsibilities of that section. The manual inventory systems cannot be maintained current and the Section is unable to respond to the recommendations of the State Auditor to convert the inventory to the automated state system.

To correct the deficiency in the Supply Section requires an investment of \$12,000.00 to include capital and operating expenditures for one storekeeper.

Cost savings are not available. The justification is based on the need to maintain current inventory and records systems and provide timely response to the needs of the 13 repair facilities located throughout the state.



## NARRATIVE

Although the Division has no industrial engineering study to document the resource requirements of the Supply Section, the activities have been investigated to confirm the existing workload.

The present staff; one Supply Officer, one storekeeper and one typist, is attempting to respond to the following volume of activity:

### PURCHASING

315 Line items purchased monthly

### INVOICES

275 Invoices approved monthly for payment

### RECEIPTS OF MERCHANDISE FROM VENDORS

315 Line items received per month  
1,160 Individual pieces handled per month

### FILLING REQUISITIONS FOR SHIPPING TO FIELD SHOPS

140 Requisitions per month  
540 Line items shipped per month  
1,865 Individual pieces handled per month

### POSTING

4,500 Visi-Record Cards are maintained on a perpetual Inventory System  
855 Line items are posted each month. This includes issues and receipts.

### ANNUAL ACTIVITY

1,680 Requisitions (from 13 shops)  
10,260 Line items (36,300 individual pieces handled) issues and receipts  
3,780 Line items purchased  
3,780 Line items received  
3,300 Invoices approved for payment  
10,260 Items posted to Visi-Record Perpetual Inventory System

Included in other routine office procedures are correspondence, special reports and filing.

The Services and Supply Section is also involved in other periodic activities.

### INVENTORY (Expandable Items)

1. Physical Inventory taken yearly in Supply and warehouse stockrooms.
2. Compilation of inventories received from 13 shops located throughout the state.

### MASTER INVENTORY

A Kardex system is maintained on all radio station locations, with an accurate accounting of all changes in equipment. The current value of each station is maintained.

### MOBILE BILLING

Semi-annual billing to agencies using the communications system.

### INSURANCE REPORT

Annual report to update values of radio station locations for insurance coverage. Values are maintained on each individual station. Three million dollars of insurance coverage is carried.

### SPECIAL PURPOSE ACTIVITIES

1. Microwave Equipment Replacement Program  
Denver-Grand Junction System
2. Microwave Equipment Replacement Program  
Pueblo-Buena Vista System
3. Capital Construction  
North Microwave System
4. Department of Highways
5. Colorado State Patrol
6. Capitol Complex Security System
7. Division of Wildlife
8. Division of Parks
9. University of Colorado
10. University of Northern Colorado
11. Department of Institutions
12. Emergency Medical Services

The staff of the Supply Section cannot properly respond to this workload. As a result, those activities that concern the daily maintenance of the communications system are given priority.

The master inventory, as described above, does not receive appropriate attention. It is not current. The Division has been unable to comply with the State Auditors recommendation to automate the system.

### ASSUMPTIONS

1. The Supply Section is a vital part of the Division of Communications and necessary to support the State Communications System.
2. It is the intent of the Department and the Legislature to provide adequate staff to support the State Communications System.
3. It is the intent of the Department and the Division to comply with the recommendations of the State Auditor.

## TIME DIAGRAM

We find no way to relate this request to the time diagram.

The investment will return increased productivity not only in the Supply Section, but by all who use the information produced.

RECOMMENDATION

Add one FTE to the staff of the Supply Section. The investment required is \$12,00.00 according to the following:

POSITION.....	Storekeeper A
TOTAL POSITION COST.....	\$ 9,441
OPERATING EXPENSE.....	559
TRAVEL EXPENSE.....	2,000
	<u>\$12,000</u>



RESOURCE JUSTIFICATION

Title: Engineering Requirements  
Emergency Medical and Law Enforcement Systems

Submission date 12 August 1977

Submitted by Runall G. Canady

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

SUMMARY

In the State of Colorado, divisions of local government have a very urgent need for assistance in the area of public safety communications.

Financial assistance is available from the federal government. Limited technical assistance is available from the Division of Communications.

The technical assistance that is required can be made available through the Division of Communications. It will require an investment of approximately \$4,672.00 or 10% of the total project. The Division will also need authority to obtain federal funds for this purpose.

## NARRATIVE

The federal government has recognized the need for improved communications facilities to serve the Emergency Medical and Law Enforcement communities. Federal programs now in place provide financial assistance to state and local governments to improve communications in these areas.

Federal regulations require that plans be developed and approved before the governmental agency is eligible to receive federal funds for the purchase of hardware. The plan must also describe how the system will interface with neighboring systems.

Local governments, usually without communications expertise, contract with a consultant to provide the required plan. In most cases the plan turns out to be conceptual and the governmental agency is unable to implement the system.

Frequently the Division of Communications is contacted to resolve the problems and provide the implementation plan. We believe this is appropriate and necessary to the coordination of public safety communications in the state.

The Division of Communications does not have the resources that are required to respond to the needs that now exist in the medical and law enforcement services.

The Division believes it would be cost effective and very helpful to divisions of local government if these services were provided by the Division of Communications.

The proposal requires an investment of \$4,672.00 or 10% of the total cost of \$46,717.00

## ASSUMPTIONS

1. The current attitude of the federal government, which places emphasis on improving public safety communications throughout the county will continue.
2. Divisions of local government will take advantage of the availability of federal funds.
3. The state will actively support the intent of Senate Bill 454 that concerns Emergency Medical Services.

RECOMMENDATION

It is recommended that the Division of Communications be granted authority to obtain federal funds and that \$4,672.00 be appropriated as the state match for this purpose.

2 Electronic Engineers	
Position Cost.....	\$38,717
Operating.....	4,000
Travel.....	4,000
Total Cost	<u>\$46,717</u>



## RESOURCE JUSTIFICATION

Title: ADD ONE FTE (ADMINISTRATIVE CLERK) TO PERSONNEL SECTION STAFF

Submission date JULY 15, 1977

Submitted by IONA C. DIONIGI

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

### SUMMARY

THE PRESENT STAFFING LEVEL IN THE PERSONNEL SECTION (2 FTE) IS INSUFFICIENT TO PROVIDE THE LEVEL OF SERVICE NEEDED TO ASSURE THAT THE DEPARTMENT'S HUMAN RESOURCES ARE MANAGED EFFECTIVELY. THE WORKLOAD IN THE SECTION HAS STEADILY INCREASED IN ALL AREAS, WITH AFFIRMATIVE ACTION, PERSONNEL DEPARTMENT DECENTRALIZATION, AND TRAINING RESPONSIBILITIES ACCOUNTING FOR THE BULK OF THE INCREASE. WHILE ALL ASSIGNED FUNCTIONS ARE HANDLED AT LEAST MINIMALLY, WE THINK THE ADDITION OF ONE FTE TO THE STAFF WOULD GREATLY IMPROVE THE QUALITY OF SERVICE INsofar AS COUNSELING ACTIVITIES AND MATTERS OF EMPLOYEE PERFORMANCE ARE CONCERNED.

IT IS DIFFICULT TO QUANTIFY BENEFITS TO BE ACHIEVED THROUGH IMPROVED QUALITY OF SERVICE IN AN OVERHEAD, STAFF FUNCTION, AS THESE BENEFITS TEND TO BE INTANGIBLE AND JUDGMENTS AS TO THEIR WORTH ARE LARGELY SUBJECTIVE. IN AN ATTEMPT TO QUANTIFY AND PLACE A DOLLAR VALUE ON THE BENEFITS, WE HAVE DETERMINED THAT EMPLOYEE TURNOVER IS A COSTLY PROPOSITION AS WELL AS AN AREA WHERE QUALITY OF SERVICE IS REFLECTED.

THE TURNOVER RATE FOR THE DEPARTMENT OF ADMINISTRATION FOR FY 1976-77 WAS 25.5%. A LARGE PORTION OF THIS TURNOVER WAS IN AREAS WHERE SOME DEGREE OF CONTROL COULD BE EXERCISED - 5% DISCIPLINARY DISMISSAL RATE, 8.4% VOLUNTARY RESIGNATION RATE, 6.8% LATERAL TRANSFER RATE. BASED ON THE ASSUMPTION THAT THE AVERAGE TIME REQUIRED FOR A NEW EMPLOYEE TO BECOME PRODUCTIVE IS THREE MONTHS, THE COST PER REPLACEMENT DURING FY 1976-77 WAS \$2292. THE 6.02% AVERAGE SALARY ACT ADJUSTMENT EFFECTIVE JULY 1, 1977, RAISES THIS FIGURE TO \$2406, BASED ON AN AVERAGE MONTHLY RATE OF \$802.

THE MONTHLY SALARY OF AN ADMINISTRATIVE CLERK B, STEP 1, FOR FY 1977-78 IS \$802. IF, AS HAS BEEN ASSUMED, IMPROVED QUALITY OF INDUCTION, ORIENTATION, AND COUNSELING CAN IMPACT EMPLOYEE TURNOVER, A 3% REDUCTION (4 PEOPLE) IN THE TURNOVER RATE WOULD PAY THE SALARY OF ONE ADMINISTRATIVE CLERK B, STEP 1, FOR ONE YEAR. IF, IN COMING YEARS, A 22.5% TURNOVER RATE WERE MAINTAINED, THE POSITION WOULD CONTINUE TO PAY FOR ITSELF.



## NARRATIVE

PRESENTLY, THERE ARE TWO FTE ASSIGNED TO THE PERSONNEL SECTION TO HANDLE PERSONNEL, AFFIRMATIVE ACTION, AND TRAINING FOR THE DEPARTMENT OF ADMINISTRATION. THESE TWO FTE PROVIDE SERVICE TO BETWEEN 500 AND 550 EMPLOYEES. PRESENT WORKLOAD REQUIREMENTS HAVE REDUCED THE QUALITY AND LEVEL OF SERVICE PROVIDED TO THE MINIMAL LEVEL IN MANY IMPORTANT AREAS.

AN ALTERNATIVE TO INCREASING THE SIZE OF THE REGULAR, FULL-TIME STAFF IS TO UTILIZE TEMPORARY HELP FROM FEDERAL EMPLOYMENT PROGRAMS OR OTHER SOURCES WHICH COST THE STATE NOTHING. THIS METHOD IS INEFFECTIVE IN THAT THE WORK TO BE DONE REQUIRES EXTENSIVE TRAINING AND A CERTAIN SKILL LEVEL. IT IS IMPRACTICAL TO TRAIN TEMPORARY EMPLOYEES TO DO MORE THAN VERY ROUTINE WORK, AND THERE IS LITTLE ROUTINE WORK TO BE DONE.

ANOTHER ALTERNATIVE IS TO UTILIZE THE DEPARTMENT'S WORD PROCESSING CAPABILITIES TO REDUCE THE WORKLOAD OF THE PRESENT STAFF. HOWEVER, ONLY A MINIMAL AMOUNT OF WORK DONE BY THE PERSONNEL SECTION IS SUITED TO THIS APPLICATION. THEREFORE, NO APPRECIABLE BENEFIT WOULD RESULT FROM THIS ALTERNATIVE.

A THIRD ALTERNATIVE IS TO ADD ONE REGULAR, FULL-TIME EMPLOYEE TO THE PERSONNEL SECTION STAFF. FOLLOWING A SUITABLE TRAINING PROGRAM, THIS EMPLOYEE WOULD BE ABLE TO PERFORM THE CLERICAL DUTIES NOW PERFORMED BY THE CHIEF ADMINISTRATIVE CLERK, WHO COULD THEN BEGIN TO FUNCTION AS A TRUE ASSISTANT PERSONNEL OFFICER. THE COMBINATION OF TWO FULL-TIME PROFESSIONALS AND ONE CLERICAL WOULD MEET THE PRESENT WORKLOAD REQUIREMENTS AND PROVIDE NEEDED SERVICE IMPROVEMENTS.

## ASSUMPTIONS

1. THERE WILL BE EMPLOYEE TURNOVER IN FY 1977-78.
2. REPLACEMENT EMPLOYEES WILL BE HIRED IN FY 1977-78.
3. THE EMPLOYEE TURNOVER RATE FOR THE DEPARTMENT OF ADMINISTRATION FOR FY 1977-78 WILL REMAIN COMPARABLE TO THAT IN FY 1976-77.
4. THE POSITIONS FILLED IN FY 1977-78 WILL BE COMPARABLE TO THOSE FILLED IN FY 1976-77.
5. THE SALARY RATES FOR REPLACEMENT EMPLOYEES HIRED IN FY 1977-78 WILL BE HIGHER THAN FOR THOSE HIRED IN FY 1976-77, BECAUSE OF THE JULY 1, 1977 SALARY ACT ADJUSTMENT.
6. THE QUALITY OF PERSONNEL SERVICES IMPACTS EMPLOYEE TURNOVER.
7. IMPROVEMENT IN THE QUALITY OF PERSONNEL SERVICES WILL REDUCE CERTAIN TYPES OF EMPLOYEE TURNOVER.
8. THE QUALITY OF PERSONNEL SERVICES CAN BE IMPROVED BY INCREASING THE STAFF IN THE PERSONNEL SECTION.
9. THE QUALITY OF PERSONNEL SERVICES NEEDS TO BE IMPROVED.
10. EMPLOYEE TURNOVER COSTS MONEY.
11. A REDUCTION IN EMPLOYEE TURNOVER WILL SAVE MONEY.
12. IT IS DESIRABLE TO REDUCE EMPLOYEE TURNOVER.
13. MONEY SAVED BY REDUCING EMPLOYEE TURNOVER WILL JUSTIFY THE COST OF INCREASING THE PERSONNEL SECTION STAFF.

## TIME DIAGRAM

THIS JUSTIFICATION DOES NOT LEND ITSELF TO USE OF TIME DIAGRAMS AS THE EFFECT IS TO NET OUT ON A STEADY BASIS, WITH COSTS EQUALING SAVINGS.

RECOMMENDATION

THE PERSONNEL SECTION RECOMMENDS THAT THE STAFF OF THAT SECTION BE INCREASED BY ONE EMPLOYEE. IT WILL BE NECESSARY TO REQUEST IN THE FY 78-79 BUDGET SUFFICIENT FUNDS AND FTE AUTHORIZATION TO EMPLOY THAT PERSON. THE POSITION REQUESTED IS AN ADMINISTRATIVE CLERK B. THE AMOUNT NEEDED, INCLUDING CAPITAL EXPENDITURES, IS APPROXIMATELY \$10,000.

APPENDICES



APPENDIX A

FY 1976-77

562.95 AUTHORIZED FTE  
513.0 AVERAGE NUMBER OF FILLED POSITIONS  
131.0 TOTAL TURNOVER  
    119 REGULAR, FULL-TIME EMPLOYEES  
    12 TEMPORARY EMPLOYEES

25.5% TURNOVER RATE  
    5.0% DISCIPLINARY DISMISSAL RATE  
    8.4% VOLUNTARY RESIGNATION RATE  
    6.8% LATERAL TRANSFER RATE  
    2.3% TEMPORARY TERMINATION RATE  
    1.8% RETIREMENT RATE  
    1.2% LAYOFF RATE

FY 1976-77 COST

AVERAGE MONTHLY SALARY OF REPLACEMENT	\$764
AVERAGE NON-PRODUCTIVE TIME (MONTHS)	X 3
AVERAGE COST PER REPLACEMENT	<u>\$2292</u>

FY 1977-78 COST (1976-77 COSTS + 6.02% SALARY ACT ADJUSTMENT)

AVERAGE MONTHLY SALARY OF REPLACEMENT	\$802
AVERAGE NON-PRODUCTIVE TIME (MONTHS)	X 3
AVERAGE COST PER REPLACEMENT	<u>\$2406</u>

MONTHLY SALARY OF ADMINISTRATIVE CLERK B, STEP 1, FY 1976-77 - \$784  
MONTHLY SALARY OF ADMINISTRATIVE CLERK B, STEP 1, FY 1977-78 - \$802

NOTE: SALARY RATES HAVE BEEN ADJUSTED TO NEAREST STANDARD RATE

DEPARTMENT OF ADMINISTRATION  
 EMPLOYEE TURNOVER REPORT  
 JULY 1, 1976 THROUGH JUNE 30, 1977

<u>TURNOVER BY DIVISION</u>	<u>REGULAR FULL-TIME</u>	<u>TEMPORARY</u>
OFFICE OF THE EXECUTIVE DIRECTOR	2	0
ADMINISTRATIVE SERVICES	3	1
CENTRAL SERVICES	32	2
MANAGEMENT SERVICES	2	0
PERSONNEL	0	0
ACCOUNTS AND CONTROL	11	0
ARCHIVES & PUBLIC RECORDS	3	0
ADP	23	0
PURCHASING	1	0
CAPITOL BUILDINGS AND PARKING	34	9
COMMUNICATIONS	4	0
SURPLUS PROPERTY	2	0
HEARING OFFICERS	2	0
	<hr/>	<hr/>
	119	12

TURNOVER OF REGULAR, FULL-TIME EMPLOYEES BY RACE AND SEX

<u>MALE</u>	<u>FEMALE</u>
WHITE - 44	WHITE - 42
BLACK - 12	BLACK - 5
SPANISH-SURNAMED - 10	SPANISH-SURNAMED - 3
ASIAN AMERICAN - 2	ASIAN AMERICAN - 1
AMERICAN INDIAN - 0	AMERICAN INDIAN - 0
OTHER - 0	OTHER - 0
TOTAL - 68	TOTAL - 51

TURNOVER OF REGULAR, FULL-TIME EMPLOYEES BY JOB CATEGORY

OFFICIALS AND ADMINISTRATORS - 3
PROFESSIONALS - 14
TECHNICIANS - 12
CLERICALS - 57
SKILLED CRAFT WORKERS - 4
SERVICE/MAINTENANCE - 29

TYPE OF TERMINATION - REGULAR, FULL-TIME EMPLOYEES

VOLUNTARY RESIGNATION - 43
NEGOTIATED RESIGNATION - 12
TRANSFER WITHIN STATE SERVICE - 35
DISCIPLINARY DISMISSAL - 14
RETIREMENT - 9
LAYOFF DUE TO ILL HEALTH - 2
LAYOFF DUE TO LACK OF WORK - 4

TYPE OF TERMINATION - BY DIVISION (REGULAR, FULL-TIME EMPLOYEES)

HEARING OFFICERS - 2 LAYOFF DUE TO LACK OF WORK

EXECUTIVE DIRECTOR - 1 VOLUNTARY RESIGNATION  
3 TRANSFER WITHIN STATE SERVICE

MANAGEMENT SERVICES - 1 TRANSFER WITHIN STATE SERVICE

COMMUNICATIONS - 3 VOLUNTARY RESIGNATION  
1 RETIREMENT

SURPLUS PROPERTY - 2 VOLUNTARY RESIGNATION

ARCHIVES - 3 VOLUNTARY RESIGNATION

ADMINISTRATIVE SERVICES - 1 TRANSFER WITHIN STATE SERVICE  
1 RETIREMENT

ADP - 7 VOLUNTARY RESIGNATION  
1 NEGOTIATED RESIGNATION  
14 TRANSFER WITHIN STATE SERVICE  
1 RETIREMENT

CAPITOL BUILDINGS AND PARKING - 10 DISCIPLINARY DISMISSAL  
5 RETIREMENT  
2 LAYOFF DUE TO ILL HEALTH  
9 NEGOTIATED RESIGNATION  
5 VOLUNTARY RESIGNATION  
3 TRANSFER WITHIN STATE SERVICE

CENTRAL SERVICES - 21 VOLUNTARY RESIGNATION  
1 NEGOTIATED RESIGNATION  
6 TRANSFER WITHIN STATE SERVICE  
3 DISCIPLINARY DISMISSAL  
2 LAYOFF DUE TO LACK OF WORK

ACCOUNTS AND CONTROL - 6 TRANSFER WITHIN STATE SERVICE  
1 DISCIPLINARY DISMISSAL  
1 RETIREMENT  
2 VOLUNTARY RESIGNATION  
1 NEGOTIATED RESIGNATION

PURCHASING - 1 TRANSFER WITHIN STATE SERVICE

TYPE OF TERMINATION - BY JOB CATEGORY (REGULAR, FULL-TIME EMPLOYEES)

VOLUNTARY RESIGNATION - 3 PROFESSIONAL  
3 TECHNICIAN  
32 CLERICAL  
1 SKILLED CRAFT WORKER  
4 SERVICE/MAINTENANCE

TRANSFER WITHIN STATE SERVICE - 8 PROFESSIONAL  
2 OFFICIAL AND ADMINISTRATOR  
7 TECHNICIAN  
16 CLERICAL  
1 SKILLED CRAFT WORKER  
1 SERVICE/MAINTENANCE

DISCIPLINARY DISMISSAL - 4 CLERICAL  
10 SERVICE/MAINTENANCE

RETIREMENT - 4 CLERICAL  
1 OFFICIAL AND ADMINISTRATOR  
3 SERVICE/MAINTENANCE  
1 SKILLED CRAFT WORKER

LAYOFF DUE TO LACK OF WORK - 3 TECHNICIAN  
2 PROFESSIONAL

LAYOFF DUE TO ILL HEALTH - 2 SERVICE/MAINTENANCE

NEGOTIATED RESIGNATION - 9 SERVICE/MAINTENANCE  
1 CLERICAL  
1 PROFESSIONAL  
1 SKILLED CRAFT WORKER

TYPE OF TERMINATION - BY RACE AND SEX (REGULAR, FULL-TIME EMPLOYEES)

VOLUNTARY RESIGNATION - 20 WHITE FEMALE  
2 BLACK FEMALE  
2 SPANISH-SURNAMED FEMALE  
1 ASIAN AMERICAN FEMALE  
14 WHITE MALE  
3 BLACK MALE  
1 ASIAN AMERICAN MALE

TRANSFER WITHIN STATE SERVICE - 15 WHITE FEMALE  
15 WHITE MALE  
1 ASIAN AMERICAN MALE  
2 BLACK FEMALE  
1 SPANISH SURNAMED FEMALE  
1 SPANISH SURNAMED MALE

DISCIPLINARY DISMISSAL - 5 WHITE MALE  
6 BLACK MALE  
2 SPANISH SURNAMED MALE  
1 WHITE FEMALE

RETIREMENT - 4 WHITE MALE  
2 BLACK MALE  
3 WHITE FEMALE

LAYOFF DUE TO LACK OF WORK - 2 WHITE FEMALE  
2 WHITE MALE

LAYOFF DUE TO ILL HEALTH - 1 BLACK FEMALE  
1 SPANISH-SURNAMED MALE

NEGOTIATED RESIGNATION - 5 WHITE MALE  
6 SPANISH-SURNAMED MALE  
1 BLACK MALE



REASONS GIVEN FOR VOLUNTARY RESIGNATIONS AND TRANSFERS

(AS MORE THAN ONE REASON IS OFTEN GIVEN, TOTAL MAY NOT AGREE WITH NUMBER OF RESIGNATIONS AND TRANSFERS)

CHANGE IN FAMILY STATUS - 9  
DESIRE FOR DIFFERENT WORK - 7  
JOB WITH BETTER POTENTIAL - 42  
DISSATISFACTION WITH SUPERVISOR OR COLLEAGUES - 12  
POOR WORKING CONDITIONS (PHYSICAL) - 3  
POOR WORKING CONDITIONS (NON-PHYSICAL) - 2  
TO GO TO SCHOOL - 6

REASONS GIVEN FOR VOLUNTARY RESIGNATIONS AND TRANSFERS - BY DIVISION

ARCHIVES - 2 DISSATISFACTION WITH SUPERVISOR OR COLLEAGUES  
1 JOB WITH BETTER POTENTIAL

ACCOUNTS AND CONTROL - 2 DISSATISFACTION WITH SUPERVISOR OR COLLEAGUES  
3 POOR WORKING CONDITIONS (PHYSICAL)  
2 JOB WITH BETTER POTENTIAL  
1 CHANGE IN FAMILY STATUS

ADP - 15 JOB WITH BETTER POTENTIAL  
2 CHANGE IN FAMILY STATUS  
1 TO GO TO SCHOOL  
1 DISSATISFACTION WITH SUPERVISOR OR COLLEAGUES  
1 DESIRE FOR DIFFERENT WORK  
1 POOR WORKING CONDITIONS (NON-PHYSICAL)

CENTRAL SERVICES - 4 DESIRE FOR DIFFERENT WORK  
12 JOB WITH BETTER POTENTIAL  
3 DISSATISFACTION WITH SUPERVISOR OR COLLEAGUES  
4 CHANGE IN FAMILY STATUS  
4 TO GO TO SCHOOL  
1 POOR WORKING CONDITIONS (NON-PHYSICAL)

EXECUTIVE DIRECTOR - 3 JOB WITH BETTER POTENTIAL  
1 DESIRE FOR DIFFERENT WORK

COMMUNICATIONS - 3 JOB WITH BETTER POTENTIAL

MANAGEMENT SERVICES - 1 JOB WITH BETTER POTENTIAL

PURCHASING - 1 JOB WITH BETTER POTENTIAL

ADMINISTRATIVE SERVICES - 1 DISSATISFACTION WITH SUPERVISOR OR COLLEAGUES

SURPLUS PROPERTY - 1 CHANGE IN FAMILY STATUS  
1 JOB WITH BETTER POTENTIAL

CAPITOL BUILDINGS AND PARKING - 3 JOB WITH BETTER POTENTIAL  
2 DISSATISFACTION WITH SUPERVISOR OR COLLEAGUES  
1 DESIRE FOR DIFFERENT WORK  
1 TO GO TO SCHOOL  
1 CHANGE IN FAMILY STATUS



REASONS GIVEN FOR VOLUNTARY RESIGNATIONS AND TRANSFERS - BY JOB CATEGORY

OFFICIALS AND ADMINISTRATORS - 1 DESIRE FOR DIFFERENT WORK  
1 DISSATISFACTION WITH SUPERVISOR OR COLLEAGUES

PROFESSIONAL - 7 JOB WITH BETTER POTENTIAL  
4 DISSATISFACTION WITH SUPERVISOR OR COLLEAGUES

TECHNICIAN - 9 JOB WITH BETTER POTENTIAL  
1 CHANGE IN FAMILY STATUS

CLERICAL - 6 DESIRE FOR DIFFERENT WORK  
21 JOB WITH BETTER POTENTIAL  
8 CHANGE IN FAMILY STATUS  
5 TO GO TO SCHOOL  
4 DISSATISFACTION WITH SUPERVISOR OR COLLEAGUES  
3 POOR WORKING CONDITIONS (PHYSICAL)  
2 POOR WORKING CONDITIONS (NON-PHYSICAL)

SKILLED CRAFT WORKERS - 2 JOB WITH BETTER POTENTIAL

SERVICE/MAINTENANCE - 1 TO GO TO SCHOOL  
1 DISSATISFACTION WITH SUPERVISOR OR COLLEAGUES  
2 JOB WITH BETTER POTENTIAL  
1 DESIRE FOR DIFFERENT WORK

REASONS GIVEN FOR VOLUNTARY RESIGNATIONS AND TRANSFERS - BY RACE AND SEX

FEMALE WHITE - 15 JOB WITH BETTER POTENTIAL  
3 DISSATISFACTION WITH SUPERVISOR OR COLLEAGUES  
8 CHANGE IN FAMILY STATUS  
2 TO GO TO SCHOOL  
3 DESIRE FOR DIFFERENT WORK  
1 POOR WORKING CONDITIONS (NON-PHYSICAL)  
3 POOR WORKING CONDITIONS (PHYSICAL)

MALE WHITE - 19 JOB WITH BETTER POTENTIAL  
6 DISSATISFACTION WITH SUPERVISOR OR COLLEAGUES  
1 DESIRE FOR DIFFERENT WORK  
1 TO GO TO SCHOOL  
1 POOR WORKING CONDITIONS (NON-PHYSICAL)

FEMALE BLACK - 1 TO GO TO SCHOOL  
2 JOB WITH BETTER POTENTIAL  
1 DESIRE FOR DIFFERENT WORK

FEMALE SPANISH-SURNAMED - 1 CHANGE IN FAMILY STATUS  
1 TO GO TO SCHOOL  
1 JOB WITH BETTER POTENTIAL

FEMALE ASIAN AMERICAN - 1 JOB WITH BETTER POTENTIAL

MALE BLACK - 1 DISSATISFACTION WITH SUPERVISOR OR COLLEAGUES  
1 TO GO TO SCHOOL  
1 JOB WITH BETTER POTENTIAL

MALE SPANISH-SURNAMED - 1 DISSATISFACTION WITH SUPERVISOR OR COLLEAGUES

MALE ASIAN AMERICAN - 2 JOB WITH BETTER POTENTIAL



APPOINTMENTS 7-1-76/6-30-77

NAME	MO. SALARY	NAME	MO. SALARY	NAME	MO. SALARY
Toole	517	Carretson	557	Morgan	802
Weller	517	Nguyen	557	Bellette	598
Rogers	585	Urbulita	557	Ulaogwey	570
Broteng	557	Burrows	(3) 747	Murphy	784
Ruybal	557	(Greenwell)	(3) 557	Keller	557
Romero	557	Barbo	(3) 1075	Whitney	557
Fuentes	557	Kapursoku	842	Shaw	557
Hucal	557	Hardin	873	(Thompson)	(3) 907
Bairns	557	Greenberg	1075	White	1023
Murphy	557	Oster	570	Peters	(3) 557
Borcia	557	Storahan	(3) 557	Morris	557
Haugler	614	Redd	505	(Dunbar)	(3) 557
Roast	614	Burrefield	505	Phau	1277
Sadarnick	614	(Sevime)	(3) 2407	Roseman	1372
(Greenberg)	(3) 1075	Petty	557	Lauritzen	570
Pierce	1982	Nansen	505	Evans	570
Jackson	557	Hopwell	727	Brooks	517
Meads	2081	Stallworth	1103	Winters	(3) 952
Cummins	711	Galcan	517	Winkler	570
Martinez	505	Cozza	517	(Elliott)	952
Miller	517	Tabor	447	Hemmes	517
(Combs)	517	Padilla	677	Reid	1158
Spucke	517	O'Connell	557	Quacken	1372
Cannor	570	(McKelliey)	(3) 557	Ernot	1478
(Cork)	517	Ulrich	557	Schramble	1075
Nebel	1798	Cruze	557	Hickson	(3) 1000
Green	1552	Kapursoku	928	Palle	557
Van Dulic	(3) 645	Morris	557	(Cotton)	(3) 645
Romero	677	(Salamanca)	(3) 557	Spilakof	1075
(Romero)	677	Schramble	802	Miller	677
Uroquez	557	Salamanca	557	Stonard	557
Arizotondo	557	(Morano)	(3) 557	Wheeler	570
Tolues	614	Schmitt	598	Williams	677
Prado	614	Strickland	598	Carter	1408
(Cruz)	(3) 557	Morgan	727	Quatrastio	645
Carr	711	Bigham	727	Jackson	2529
Brooks	557	McKelliey	727	Hunter	557
Orgau	570	Tunciy	557	Tow	557
Cisella	557	Reek	747	(McKelliey)	2025
Dillo	517	Murray	1467	Morgan	447
Baker	517	Geminez	(3) 557	Cates	517
Aller	517	Bullo	557	Krepsad	517
Sullivan	(3) 557	Callias	557	Cary	517
(Shaw)	(3) 557	(Houston)	(3) 557	Spill	1000
Radem	1306	(Dunbar)	(3) 614	Kunkel	677
Padillas	557	(McKelliey)	(3) 557	Beyer	570



APPOINTMENTS (CONT'D)

NAME	NO. SALARY	NAME	NO. SALARY
Dario	711	Harris	570
Spender	1050	Bronckhorst	1440
Smith	677	Shaw	517
Congalis	907	Wueman	1552
Coswood	842		
Murphy	928		
Masterson	747		
Pleau	1185		
McLaughlin	2025		
Duncan	(3) 557		
Anag	784		
Mata	517		
Tuttle	517		
Carroll	907		
Elliott	952		
Novell	907		
Cohen	517		
Harby	557		
Humbald	557		
Stewart	677		
Stultz	784		
Congalis	823		
Bellemare	1216		
Poltronico	660		
Jones	598		
Krautman	517		
Campbell	677		
Peow	517		
Backerwill	698		
Haugmoel	557		
Bioleo	517		
Bigoko	628		
Ducan	505		
Colstars	570		
Schmitt	727		
Nelson	1341		
Thompson	1158		
Lutz	677		
McLvey	557		
Engler	1305		
Rasmussen	1244		
Vigie	711		
Harris	(3) 517		
Dupree	(3) 517		
Winters	570		
Williams	598		



RICHARD D. LAMM  
GOVERNOR

DEPARTMENT OF PERSONNEL

Rudolph Livingston, Executive Director  
First Floor, State Centennial Building  
1313 Sherman Street  
Denver, Colorado, 80203

BRANCH OFFICES

Colorado State Hospital Grounds  
Pueblo, Colorado 81003  
Student Services Building  
Colorado State University  
Fort Collins, Colorado 80523

March 1, 1977

TO: All Departments, Agencies and Institutions

FROM: Rudolph Livingston, Executive Director

SUBJECT: Salary Grade Adjustments  
To be Effective July 1, 1977

Attached is a listing of classes which are to be reassigned to different pay grades effective July 1, 1977. These adjustments are based on our 1976 survey findings.

RL:CMM:ep





<u>Class Code</u>	<u>Class Title</u>	<u>Present Grade</u>	<u>July 1, 1977 Grade</u>
22004	ADMINISTRATIVE CLERK B	36	37
22006	CHIEF ADMINISTRATIVE CLERK	42	43
22008	TYPIST A	18	19
22011	TYPIST B	22	23
22013	ADMIN CLERK TYPIST A	29	30
22019	ADMIN CLERK TYPIST B	36	37
22020	STENO TRANSCRIBER	25	26
22021	SECRETARY I-A	32	33
22022	SECRETARY I-B	36	37
22025	SECRETARY II	42	43
22026	CLERICAL SUPERVISOR I	36	37
22027	CLERICAL SUPERVISOR II	42	43
22030	CREDENTIALS EXAMIN CLERK	36	37
22032	FINGERPRINT IDENT TECH A	28	29
22033	FINGERPRINT IDENT TECH B	36	37
22034	PRORATION & TAX COOR	44	45
22040	STOCK CLERK	21	22
22042	INVENTORY CLERK	30	31
22044	PROPERTY CONTROL CLERK	36	37
22124	HEARINGS REPORTER	44	46
22126	CERTIFIED HEARINGS REP A	48	50
22128	CERTIFIED HEARINGS REP B	52	54
22201	PATIENT SERVICE CLERK I-A	23	24
22202	PATIENT SERVICE CLERK I-B	30	31
22203	PATIENT SERVICE CLERK II	36	37
22402	STOREKEEPER A	30	31
22404	STOREKEEPER B	36	37



CHAPTER 3 COMPENSATION

ARTICLE 15 STANDARD COMPENSATION PLAN

<u>GRADE</u>	<u>STEP 1</u>	<u>STEP 2</u>	<u>STEP 3</u>	<u>STEP 4</u>	<u>STEP 5</u>	<u>STEP 6</u>	<u>STEP 7</u>
1	333	350	367	386	405	425	447
2	341	358	376	395	415	436	458
3	350	367	386	405	425	447	469
4	358	376	395	415	436	458	481
5	367	386	405	425	447	469	492
6	376	395	415	436	458	481	505
7	386	405	425	447	469	492	517
8	395	415	436	458	481	505	530
9	405	425	447	469	492	517	543
10	415	436	458	481	505	530	557
11	425	447	469	492	517	543	570
12	436	458	481	505	530	557	585
13	447	469	492	517	543	570	598
14	458	481	505	530	557	585	614
15	469	492	517	543	570	598	628
16	481	505	530	557	585	614	645
17	492	517	543	570	598	628	660
18	505	530	557	585	614	645	677
19	517	543	570	598	628	660	693
20	530	557	585	614	645	677	711
21	543	570	598	628	660	693	727
22	557	585	614	645	677	711	747
23	570	598	628	660	693	727	764
24	585	614	645	677	711	747	784
25	598	628	660	693	727	764	802
26	614	645	677	711	747	784	823
27	628	660	693	727	764	802	842
28	645	677	711	747	784	823	864
29	660	693	727	764	802	842	884
30	677	711	747	784	823	864	907
31	693	727	764	802	842	884	928
32	711	747	784	823	864	907	952
33	727	764	802	842	884	928	975
34	747	784	823	864	907	952	1000
35	764	802	842	884	928	975	1023
36	784	823	864	907	952	1000	1050
37	802	842	884	928	975	1023	1075

February 1, 1976

CHAPTER 3 COMPENSATION

ARTICLE 15 STANDARD COMPENSATION PLAN

<u>GRADE</u>	<u>STEP 1</u>	<u>STEP 2</u>	<u>STEP 3</u>	<u>STEP 4</u>	<u>STEP 5</u>	<u>STEP 6</u>	<u>STEP 7</u>
38	823	864	907	952	1000	1050	1103
39	842	884	928	975	1023	1075	1128
40	864	907	952	1000	1050	1103	1158
41	884	928	975	1023	1075	1128	1185
42	907	952	1000	1050	1103	1158	1216
43	928	975	1023	1075	1128	1185	1244
44	952	1000	1050	1103	1158	1216	1277
45	975	1023	1075	1128	1185	1244	1306
46	1000	1050	1103	1158	1216	1277	1341
47	1023	1075	1128	1185	1244	1306	1372
48	1050	1103	1158	1216	1277	1341	1408
49	1075	1128	1185	1244	1306	1372	1440
50	1103	1158	1216	1277	1341	1408	1478
51	1128	1185	1244	1306	1372	1440	1512
52	1158	1216	1277	1341	1408	1478	1552
53	1185	1244	1306	1372	1440	1512	1588
54	1216	1277	1341	1408	1478	1552	1630
55	1244	1306	1372	1440	1512	1588	1667
56	1277	1341	1408	1478	1552	1630	1712
57	1306	1372	1440	1512	1588	1667	1750
58	1341	1408	1478	1552	1630	1712	1798
59	1372	1440	1512	1588	1667	1750	1837
60	1408	1478	1552	1630	1712	1798	1888
61	1440	1512	1588	1667	1750	1837	1929
62	1478	1552	1630	1712	1798	1888	1982
63	1512	1588	1667	1750	1837	1929	2025
64	1552	1630	1712	1798	1888	1982	2081
65	1588	1667	1750	1837	1929	2025	2126
66	1630	1712	1798	1888	1982	2081	2185
67	1667	1750	1837	1929	2025	2126	2232
68	1712	1798	1888	1982	2081	2185	2294
69	1750	1837	1929	2025	2126	2232	2344
70	1798	1888	1982	2081	2185	2294	2409
71	1837	1929	2025	2126	2232	2344	2461
72	1888	1982	2081	2185	2294	2409	2529
73	1929	2025	2126	2232	2344	2461	2584
74	1982	2081	2185	2294	2409	2529	2655
75	2025	2126	2232	2344	2461	2584	2713
76	2081	2185	2294	2409	2529	2655	2788
77	2126	2232	2344	2461	2584	2713	2849

CHAPTER 3 COMPENSATION

ARTICLE 15 STANDARD COMPENSATION PLAN

<u>GRADE</u>	<u>STEP 1</u>	<u>STEP 2</u>	<u>STEP 3</u>	<u>STEP 4</u>	<u>STEP 5</u>	<u>STEP 6</u>	<u>STEP 7</u>
78	2185	2294	2409	2529	2655	2788	2927
79	2232	2344	2461	2584	2713	2849	2991
80	2294	2409	2529	2655	2788	2927	3073
81	2344	2461	2584	2713	2849	2991	3141
82	2409	2529	2655	2788	2927	3073	3227

RESOURCE JUSTIFICATION

Title: FUNDING FOR SUPERVISORY AND MANAGEMENT TRAINING

Submission date JULY 15, 1977

Submitted by IONA C. DIONIGI

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

SUMMARY

POORLY TRAINED MANAGERS AND SUPERVISORS HINDER THE DEPARTMENT OF ADMINISTRATION'S EFFORTS TO EFFECTIVELY MANAGE ITS HUMAN RESOURCES. MANY EMPLOYEES RECEIVE INSUFFICIENT TRAINING AND INFORMATION, THERE ARE NUMEROUS EMPLOYEE COMPLAINTS, AND MANY ATTEMPTS TO IMPOSE DISCIPLINE ARE THWARTED BECAUSE OF INSUFFICIENT ATTENTION TO DETAIL.

TRAINING FUNDS HAVE NOT BEEN ALLOCATED TO THE DEPARTMENT FOR SEVERAL YEARS, INCLUDING FY 1977-78. EMPLOYEES WHO ARE WILLING TO AND CAN PAY FOR TRAINING OFTEN DO SO; THOSE WHO ARE UNWILLING TO OR CAN'T PAY FOR TRAINING SELDOM RECEIVE TRAINING AS DIVISIONS ARE NOT FUNDED FOR THIS PURPOSE.

A SMALL NUMBER OF SUPERVISORS WITHIN THE DEPARTMENT HAVE ATTENDED THE PUBLIC SERVICE INSTITUTE'S SUPERVISORY SKILLS WORKSHOP. THERE ARE INDICATIONS OF MARKED IMPROVEMENT IN THEIR PERFORMANCE FOLLOWING THIS TRAINING.

WE THINK THE DEPARTMENT WILL BENEFIT IF 25 KEY SUPERVISORS CAN ATTEND THE SUPERVISORY SKILLS WORKSHOP OR THE MANAGEMENT SKILLS WORKSHOP DURING FY 1978-79. THE COST OF \$50 PER ATTENDEE IS REASONABLE FOR SUCH PROGRAMS AND IS LESS THAN THE COST FOR THE DEPARTMENT TO DEVELOP ITS OWN PROGRAMS.

THERE ARE PRESENTLY NO FIGURES AVAILABLE TO JUSTIFY THE NEED FOR SUPERVISORY AND MANAGEMENT TRAINING, AS BENEFITS ARE MANIFESTED IN INTANGIBLES SUCH AS IMPROVED EMPLOYEE MORALE, HIGHER QUALITY WORK PRODUCTS, BETTER TIME UTILIZATION, AND EFFECTIVE DISCIPLINE.



NARRATIVE

PRESENTLY, DIVISIONS AND EMPLOYEES WITH SUFFICIENT FUNDS RECEIVE TRAINING ON A HAPHAZARD BASIS. IT IS OFTEN THE DIVISIONS WITH THE LEAST MONEY WHOSE SUPERVISORS ENCOUNTER THE MOST PROBLEMS IN DEALING WITH THEIR EMPLOYEES.

AN ALTERNATIVE IS TO CONTINUE OPERATING WITH LITTLE OR NO TRAINING FOR EMPLOYEES. THIS SEEMS COUNTER-PRODUCTIVE.

ANOTHER ALTERNATIVE IS FOR THE DEPARTMENT OF ADMINISTRATION TO DEVELOP AND TEACH ITS OWN SUPERVISORY AND MANAGEMENT COURSES. THIS IS IMPRACTICAL AS NO FUNDS ARE AVAILABLE FOR THIS PURPOSE, AND THE DEPARTMENTAL PERSONNEL ADMINISTRATOR HAS INSUFFICIENT TIME TO DEVOTE TO THIS UNDERTAKING.

SELECTED EMPLOYEES COULD BE SENT TO APPROPRIATE TRAINING COURSES OFFERED BY COLLEGES AND UNIVERSITIES OR PRIVATE SOURCES. THE AVERAGE COST PER PERSON FOR SUCH COURSES RANGES FROM APPROXIMATELY \$200 TO \$500 FOR THREE TO FIVE DAY COURSES. IF \$1250 IN FUNDS WERE AVAILABLE AND THIS ALTERNATIVE CHOSEN, ONLY 2 TO 6 EMPLOYEES COULD RECEIVE TRAINING RATHER THAN THE 25 WHO COULD BE TRAINED THROUGH THE PUBLIC SERVICE INSTITUTE.

YET ANOTHER ALTERNATIVE IS FOR THE DEPARTMENT TO UTILIZE THE SERVICES OF THE PUBLIC SERVICE INSTITUTE IN DEVELOPING ITS SUPERVISORS AND MANAGERS. THE COURSES OFFERED ARE TAILORED FOR GOVERNMENT EMPLOYEES AND THE COSTS ARE NEGLIGIBLE WHEN COMPARED TO THOSE CHARGED BY OTHER ENTITIES.

## ASSUMPTIONS

1. SOME OF THE DEPARTMENT OF ADMINISTRATION'S MANAGERS AND SUPERVISORS ARE NOT AS EFFECTIVE AS THEY SHOULD BE.
2. THE DEPARTMENT'S HUMAN RESOURCES ARE SOMETIMES IMPROPERLY UTILIZED BECAUSE OF INEFFECTIVE MANAGERS AND SUPERVISORS.
3. EMPLOYEES ARE AFFECTED BY THE PERFORMANCE OF THEIR SUPERVISORS.
4. THE DEPARTMENT WANTS MAXIMUM UTILIZATION OF ITS HUMAN RESOURCES.
5. TRAINING CAN IMPROVE MANAGERIAL AND SUPERVISORY PERFORMANCE.
6. IF MANAGERIAL AND SUPERVISORY PERFORMANCE WERE IMPROVED, HUMAN RESOURCE MANAGEMENT WOULD BE MORE EFFECTIVE.
7. THE SUPERVISORY AND MANAGEMENT SKILLS TRAINING OFFERED BY THE PUBLIC SERVICE INSTITUTE WOULD BE AN EFFECTIVE MEANS FOR IMPROVING PERFORMANCE OF THE DEPARTMENT'S MANAGERS AND SUPERVISORS.

TIME DIAGRAM

THIS JUSTIFICATION DOES NOT LEND ITSELF TO USE OF TIME DIAGRAMS AS INSUFFICIENT FACTUAL INFORMATION IS AVAILABLE REGARDING THE DOLLAR VALUE OF INTANGIBLE BENEFITS. EXTENSIVE DOCUMENTATION BASED ON EXPERIENCE WOULD PROVIDE SUFFICIENT INFORMATION FOR USE OF TIME DIAGRAMS IN FUTURE YEARS' REQUESTS.

RECOMMENDATION

THE PERSONNEL SECTION RECOMMENDS THAT MANAGERIAL AND SUPERVISORY TRAINING BE GIVEN TO 25 EMPLOYEES IN THESE CATEGORIES DURING FY 1978-79. IT WILL BE NECESSARY TO REQUEST IN THE FY 1978-79 BUDGET SUFFICIENT FUNDS TO PROVIDE THAT TRAINING THROUGH THE PUBLIC SERVICE INSTITUTE. THIS AMOUNT IS \$1250.



APPENDICES



Institute is an intergovernmental effort to improve training opportunities for state and local public service employees. The Institute is coordinated by the Training and Special Programs Division of the State Department of Personnel.

A five-day program designed for supervisors in state and local governments and including a review of the following subjects: the role of the supervisor, human behavior and motivation, appraisal, delegation, training and development, work planning and organization, equal employment opportunity and affirmative action, grievances and discipline, labor relations and conflict resolution, and a two hour program on the state rules and regulations.

ANNOUNCING... A SUPERVISORY SKILLS WORKSHOP, Course Number GEN. ADMIN. 200  
(A program for State and Local Government Employees)

The program will be held in Room 114B, State Centennial Building, 1313 Sherman Street from 8:00 a.m. till 5:00 p.m. on the following days:

August 31, September 7, 14, 21 and 28  
(Application deadline, August 19)

Applicants should call the PSI office (892-2438) to register for this program. Applications must be completed by dates indicated above. Application forms are available from local personnel/training officers or the PSI agency. Each section is limited to the first 25 registrants.

COST: \$50.00 per participant.

*THIS IS A SAMPLE ONLY.*

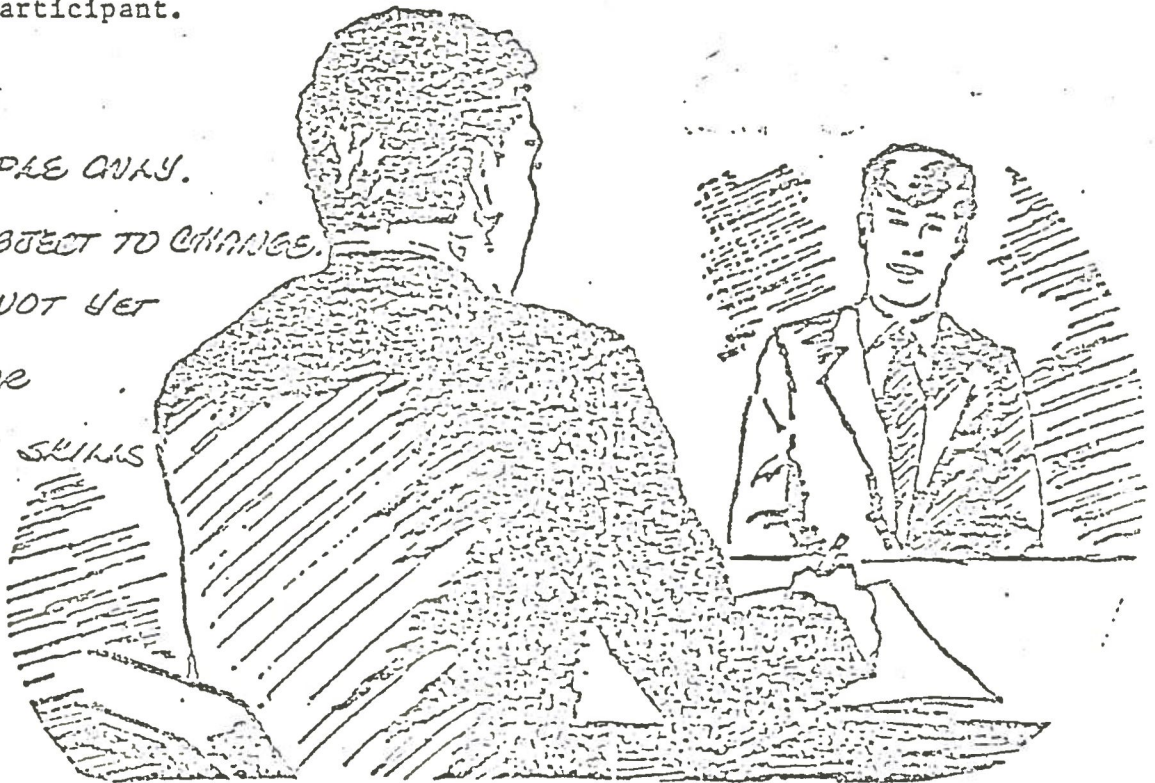
*RATES ARE SUBJECT TO CHANGE.*

*BROCHURE IS NOT YET*

*AVAILABLE FOR*

*MANAGEMENT SKILLS*

*WORKSHOP.*



training and  
development



# FOR SUPERVISORS

The supervisor is key to achieving efficient operations, maximizing employee utilization and meeting the goals and expectations of both the organization and the worker. In short, it is the responsibility of the supervisor to manage available human resources effectively. The content of his course will significantly enhance supervisory development.

Among the topics covered in this five-day course are work distribution and review, problem solving and decision making, theories of supervision and management, work planning and productivity, communications, employee discipline and awards and incentives.

## INSTRUCTORS

Kevin Lawson has had extensive experience at the managerial level in the Federal Government, member of the Montgomery County, Maryland Civil Service Commission. Mr. Lawson has also directed the implementation of comprehensive personnel systems in two large city governments part of a reorganization and introduction of Council-Manager Governments. His varied careers included: university teaching and administration; adult education; local government administration; technical overseas consulting and extensive experience as a manager at the Federal level.

John C. McGrath has had considerable experience in the fields of communication and management systems. He has developed and taught a number of courses as a management consultant and as a member of the George Mason University

General Electric Company and Federal agencies in analyzing and correcting communications problems. A former Director of Radio and Television at Georgetown University, he is currently on the Board of Trustees of WJLA-TV and WETA-FM.

John T. Tikoian has had significant experience in management systems and business communication. He has conceptualized and delivered a number of training courses for the University of Virginia and several business and trade associations. Courses taught include management by objectives, group decision making, interviewing techniques and management concepts. Formerly a member of the University of Maryland faculty, he has also developed and evaluated training programs for Johnson & Johnson, Norrell Services and Deseret Surgical Products, Inc.

## OBJECTIVES

Overall course objectives are to:

- Clarify the role of the supervisor
- Review current management concepts and theories
- Examine management functions and supervisory responsibilities
- Develop an understanding of EEO responsibilities
- Identify communication problems and appropriate solutions
- Develop an understanding of personnel management responsibilities
- Familiarize the supervisor with performance evaluation problems
- Develop problem-solving and decision-making skills
- Analyze behavioral aspects of the work situation

- Personnel policies, practices and procedures
- Supervisory responsibilities within the agency or organizational unit
- Communications—organizational and personal
- Human behavior, motivation and interpersonal relationships
- Work planning and productivity; work distribution and review
- Basic theories of supervision and management
- Concepts of organization
- Techniques for problem-solving and decision-making
- Performance appraisal and evaluation
- Employee training and development
- EEO plans, goals, objectives and supervisory responsibilities
- Personnel management role
- Position classification, position management
- Staffing, recruitment, selection and promotion

## ON-SITE TRAINING

The Institute recognizes that some organizations prefer having their employees trained as a group at a site convenient to them. There are several advantages to this arrangement, among them, lower unit cost per person. The Institute has conducted over 100 such sessions in the last two years.

Inquiries should be directed to Joe McClure or Jim Lundberg (202) 483-5000.

# TRAINING FOR SUPERVISORS

Washington, D.C.:  
March 14-18  
May 23-27  
July 18-22  
October 3-7  
December 12-16

Chicago:  
August 22-26

San Francisco:  
September 19-22



The Institute for Manpower Management is a non-profit, unsubsidized, public service organization with offices at 1717 Massachusetts Ave. N.W., Washington, D.C. 20036 (202) 483-5000.



Name \_\_\_\_\_  
Organization \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_  
State \_\_\_\_\_  
Zip \_\_\_\_\_  
Phone No. (Area Code) \_\_\_\_\_  
Course Title \_\_\_\_\_  
Date & Location of Course \_\_\_\_\_

Registration payment enclosed.  
 Please send invoice. Purchase order enclosed (if applicable)  
 Hotel arrangements requested.  
 Single  Double  
Arrival Date \_\_\_\_\_

Registration  
Registrations may be submitted up until the time of the course—either by mail or telephone. Early registration is recommended, however, since attendance is limited. Please complete the Registration Form and return it to the Institute at the address listed. Telephone registrations should be directed to the IMM Registrar at (202) 483-5000.

Fees  
The full registration fee is \$350, which includes all course materials, but does not include hotel accommodations. Confirmed reservations can be cancelled with full refund up to five days prior to the course date. Later cancellations are non-refundable. Substitutions may be made at any time.

Multiple Registration Discount  
Organizations sending 3 or more employees to the same course are entitled to a 20% discount.

IPMA Members  
Members of IPMA are entitled to a 10% reduction in tuition fee for all regularly scheduled IMM subscription courses. If 3 or more IPMA members from your organization attend the same class, the Multiple Registration Discount applies as stated.

Tax Deduction of Expenses  
An income tax deduction is allowed for expenses for education (including registration fees, travel, meals, lodging) undertaken to maintain and improve professional skills (see Treas. Reg. 1.162-5) (Coughlin vs. Commissioner, 203 F. 2d 307).

Hotels  
Hotel arrangements can be made for you by the Institute if you wish. The hotel arrangements will be explained by mail with confirmation of your registration.

Continuing Education Units  
Continuing Education Units, displayed on the Certificates of Completion, are awarded for participation in all Institute courses, based upon ten classroom contact hours per unit, as recommended by the National Task Force on the Continuing Education Unit.



# Registration Information

**ENROLLMENTS** may be made by returning the registration form. Enrollment is limited and will be accepted on a first-come, first-served basis. Telephone reservations are also acceptable.

**CONFIRMATION** of your registration will be made within two weeks after receipt of your application. Information on seminar schedule, starting times and the like will be included.

**HOTEL ACCOMMODATIONS** are, of course, not included in your registration fee. However, if you desire overnight accommodations, please call 303/753-2927 for the names of convenient hotels and motels.

**COURSE FEE:** \$395, is payable to: University of Denver  
Fee includes luncheons and all meeting materials.

**TRAVEL EXPENSES** for all expenses of continuing management education (including registration fees, travel, meals and lodging) undertaken to maintain and improve professional skills (Treas Reg. 1-162-5 Coughlin vs. Commissioner, 203F 2d307).

**CANCELLATIONS AND REFUNDS**—Cancellations made less than three working days prior to the seminar are subject to a \$25 cancellation fee. Refunds will not be granted after class has begun. If insufficient enrollment necessitates cancelling the course, all tuition will be refunded.

**TIME:** 9 AM-4:30 PM

**TEAM REGISTRATIONS**—A 10 percent discount is automatically available for your organization if you send 3 or more people. Should you desire to send your entire team, a larger discount can be easily arranged.

**CONTINUING EDUCATION UNIT**—All participants in the seminar will receive Continuing Education Units for attendance. The CEU has been designed to give recognition to persons continuing their education and keeping up-to-date in their chosen field or profession.

The CBA Business Partners will receive appropriate fee discount for this program.  
**IN-COMPANY PRESENTATIONS** are available. Please contact the Seminar Administrator for detail.

For further information call: Program Director 303/753-2927.

The University of Denver admits students of any race, color, national or ethnic origin.  
You may receive a duplicate brochure. If so, please pass it to interested associate. Brochures are frequently mailed to individuals which cannot be cross-checked against our files.

## Alternate Date:

We are cooperating with other universities in developing a continuing series of seminars. This seminar will be held:

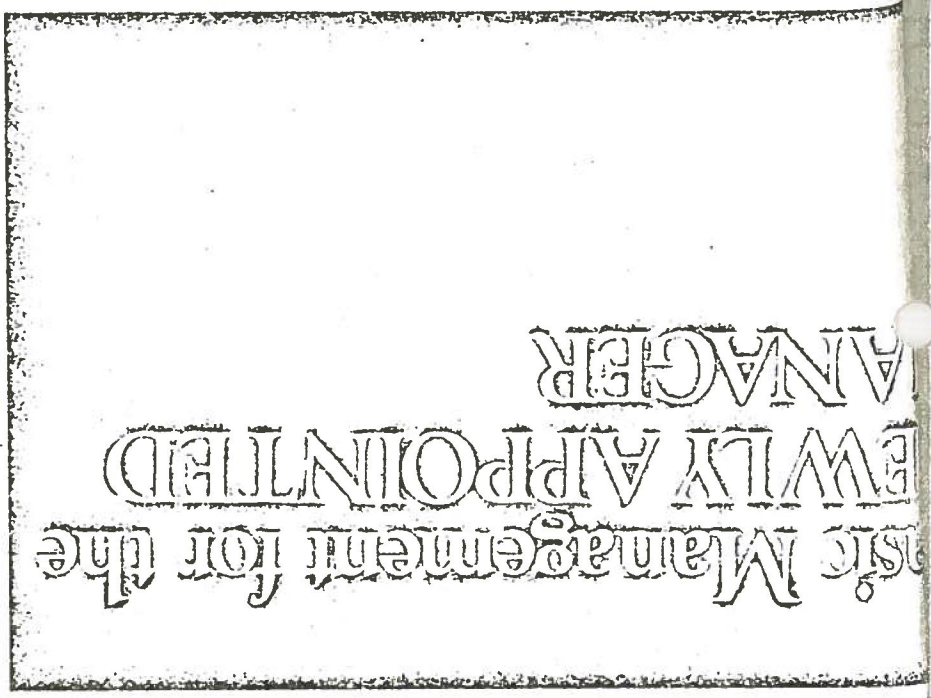
Sept. 28-30/Georgia State U./Atlanta 404/652-1111

University of Denver  
College of Business Administration  
Beaumont Center for  
Management Development



Denver  
Henric's at Writers' Manor,  
1-25 at South Colorado Blvd.

A three-day seminar  
SEPTEMBER 7-8-9, 1977  
Wednesday, Thursday & Friday



Please return entire panel in an envelope

## Registration Form

Please Register the Following:

097-184-49 BM

Name \_\_\_\_\_

Title \_\_\_\_\_

Name \_\_\_\_\_

Title \_\_\_\_\_

Organization \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Company Phone \_\_\_\_\_ Home Phone \_\_\_\_\_

University of Denver  
College of Business Administration  
Beaumont Center for Management Development  
Denver, Colorado 80208

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STATE DEPT ADMINISTRATION  
617 STATE SERVICES BLDG  
DENVER CO 80203

- Payment Enclosed  Purchase Order Enclosed
- Please send information on other seminars
- Business Partners . . . check here if you would like this

# Basic Management for the NEWLY APPOINTED MANAGER

## At this Seminar

and knowledge required for the management of people are being almost daily. As a result, the job of a manager in today's demanding business environment is growing more and more

At this seminar you will discuss the basic functions of a manager, with strong emphasis on the interpersonal skills and management techniques required of an effective and alert manager today.

## Seminar Outline

### Introduction

- A Management—An Overview
- B The Functions of a Professional Manager
  - 1. Planning
  - 2. Organizing
  - 3. Motivating
  - 4. Controlling
- C Important Managerial Concepts
- D Performance is the Key

### The Dynamics of Communication

- A Importance and Universal use of Communications
  - 1. Understanding yourself—the key to understanding others
  - 2. Understanding others—from THEIR point of view
  - 3. Language of common understanding
- B Techniques in downward communications

### III Time Management—Key to Managerial Success

- A Relevance of Human Assets
- B The Process of Delegation
  - 1. Facilitating mechanics
  - 2. Benefits to be realized
  - 3. Problems encountered
- C Recent Trends in Evaluating Executive Ability

### IV Planning: The Fundamental Function

- A Why Plan?
- B Objectives in Planning
- C The Corporate Planning System
- D Planning and Practice

### V Organizing: The Ordering Function

- A Reasons for Organizing
- B Authority, Power, and Responsibility
- C Principles Based on Authority
- D Contingency Approach

### VI Motivation: The Motivating Function

- A The Meaning of Motivation
- B Traditional Theory
- C Motivation—Maintenance Theory
- D Implications for Management

### VII Decision-Making and Problem Solving—Case Approach

### VIII Managing By Results and Objectives

- A Goal Setting
- B Action Planning
- C Performance Reviews

### IX Developing Your Personal Leadership Style

### X Plotting Your Future As A Manager

## Who Should Attend

This workshop is designed to aid recently appointed managers, individuals who will soon become managers, and experienced managers who want exposure to professional management

## Faculty

LLOYD L. BYARS, Ph.D., is an Associate Professor of Management in the School of Business Administration and a member of the Urban Life faculty at Georgia State University. He has published numerous articles in business and professional journals and has served as a consultant and trainer to over thirty private and government organizations. His two published books are: *The Management of Enterprise* published by Macmillan, Inc. in 1973 and *The Other Side of Profit* published by W. B. Saunders in 1975.

LESLIE W. RUE, Ph.D., is an Assistant Professor of Management at Georgia State University. Dr. Rue has been a consultant to several firms and associations in the areas of planning, control, and long-range forecasting. He is a member of a number of professional organizations. Dr. Rue is author of approximately twenty articles and papers which have appeared in *Business Horizons*, *Long Range Planning*, *California Management Review*, and other related journals; he has also co-authored a monograph on the topic of long-range planning.

### A COMMITMENT TO EXCELLENCE

*Excellence in teaching*—Teachers who can deliver their material in a clear and dynamic way, and who make no unrealistic assumptions about participants' prior knowledge.

*Excellence in course materials*—Materials which permit you to maximize your seminar experience by being able to write less and listen more.

*Excellence in staff*—Staff assistants who are courteous and trained to make certain every detail is attended to, and to make you as comfortable as possible.

Please Post  
route to interested parties

RESOURCE JUSTIFICATION

Title: Employ one (1) professional FTE to review, modify, and submit RFP's for competitive bidding and to audit purchasing operations of Group II agencies/institutions.

Submission date July 29, 1977

Submitted by E. R. Roon

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

SUMMARY

The present system of reviewing contracts, preparing and executing Requests for Proposals, and audits of Group II purchasing offices is not adequate. It is believed that an investment of \$18,500 for the first year will return 580.3%. The present value cost equals \$17,080.61. Total estimated savings is \$100,000. It is recommended that one professional FTE be employed.

RESOURCE JUSTIFICATION

Title: Employ one (1) professional FTE to review, modify, and submit RFP's for competitive bidding and to audit purchasing operations of Group II agencies/institutions.

Submission date July 29, 1977

Submitted by E. R. Roon

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

NARRATIVE

Over fifty-five hundred (5,500) contracts are screened by the Attorney General's Office each year. Fiscal rules require that any contract for equipment or services be approved by the State Purchasing Director. Throughout each year the Attorney General's Office refers a number of contracts to this Division for approval. These contracts should have been routed to us by the issuing Department or Division. Far too often the process has proceeded to the point that time will not permit proper purchasing procedures.

Another problem exists. The Division of Purchasing is often being contacted for assistance in the preparation and execution of Requests for Proposals (RFPs). Procedures related to RFPs are extremely time consuming for our buyers who have their regular and routine requisitions to process. Both functions, therefore, suffer. Dollars can be saved by using RFPs in many more areas than we are now doing. The RFP procedures can become far more efficient, but this cannot or will not occur with the present FTE allocated to the Division of Purchasing.

A third function needs additional attention. Division of Purchasing personnel now audit activities of Group II agencies/institutions after the fact. Copies of all purchase orders they execute over \$200 are sent to us for review and approval. The State Purchasing Director and his Assistant do make periodic visits to Group II agencies and do at these times review their procedures. It is believed that greater controls are needed. The Division of Purchasing should be sending its representative into the "field" in order to conduct procedures and bidding audits on all Group II agencies/institutions. The Division is responsible for the expenditure of approximately one hundred million dollars (\$100,000,000) a year. The audits conducted by the State Auditor or his designee are not normally conducted in depth for procurement functions. A need exists to have this accomplished on a regular and routine basis.

(Continued)



RESOURCE JUSTIFICATION

Title: Employ one (1) professional FTE to review, modify, and submit RFP's for competitive bidding and to audit purchasing operations of Group II agencies/institutions.

Submission date July 29, 1977

Submitted by E. R. Roon

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

(Continued)

As reflected in the calculations section, if it is assumed that the above functions would save .5% of \$20,000,000 (\$100,000). The investment of \$18,500 for the first year would provide a return of 580.3%.

It must be added that the \$20,000,000 represents only an audit sample of the \$100,000,000 expenditure. Further, there will not be a scientific method of validating the savings. Good business practices dictate that these functions should be undertaken.

RESOURCE JUSTIFICATION

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Submission date July 29, 1977

Submitted by E. R. Roon

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

ASSUMPTIONS

1. One-half of 1% of purchase volume will be saved as a result of Group II purchase review and evaluation.
2. Approximately \$20,000,000 worth of Group II purchases will be reviewed annually.

RESOURCE JUSTIFICATION

Title: Employ one (1) professional FTE to review, modify, and submit RFP's for competitive bidding and to audit purchasing operations of Group II agencies/institutions.

Submission date July 29, 1977

Submitted by E. R. Roon

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

RECOMMENDATION

Employ one professional FTE to review contracts, handle RFPs and do field audits.

RESOURCE JUSTIFICATION

Title: Employ one (1) professional FTE to review, modify, and submit RFP's for competitive bidding and to audit purchasing operations of Group II agencies/institutions.

Submission date July 29, 1977

Submitted by E. R. Roon

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

TIME DIAGRAMS

Alternative #1 (continue present system)

\$0

0      1 - - - - - 12

Alternative #2 (1.0 additional FTE)

\$6,791.67

0      1 - - - - - 12

Present Worth of Cost (15% Cost of Capital) = \$17,080.61

$$\begin{aligned}
 & \$18,600 \div \$1,541.67 \text{ per month} \\
 \text{PWC} &= \$1,541.67 (P/A_{1.25}, 12) \\
 &= \$1,541.67 (11.08) \\
 &= \$17,080.61
 \end{aligned}$$

Present Worth Savings (15% Cost of Capital) = \$92,472.57

$$\begin{aligned}
 & \$100,000 \div 12 = \$8,333 \text{ per month} \\
 \text{PWS} &= \$88,333 (P/A_{1.25}, 12) \\
 &= \$8,333 (11.08) \\
 &= \$92,472
 \end{aligned}$$

Net Present Value = \$92,472 - \$17,080 = \$75,391

Rate of Return = 580.3%

$$\begin{aligned}
 \text{PWC} &= \text{Monthly Savings } (P/A_i, 12) \\
 \$17,080 &- \$8,333 (P/A_i, 12) \\
 i &= 48.36 \\
 48.36 \times 12 &= 580.3\%
 \end{aligned}$$



RESOURCE JUSTIFICATION

Title: Employ one (1) professional FTE to review, modify, and submit RFP's for competitive bidding and to audit purchasing operations of Group II agencies/institutions.

Submission date July 29, 1977

Submitted by E. R. Roon

Approval date \_\_\_\_\_

Approved by \_\_\_\_\_

Executive Director \_\_\_\_\_

APPENDIX

Savings:                    .5% x \$20,000,000 = \$100,000

plus

- review of contracts
- better specifications
- improved RFPs
- improved control

Cost:

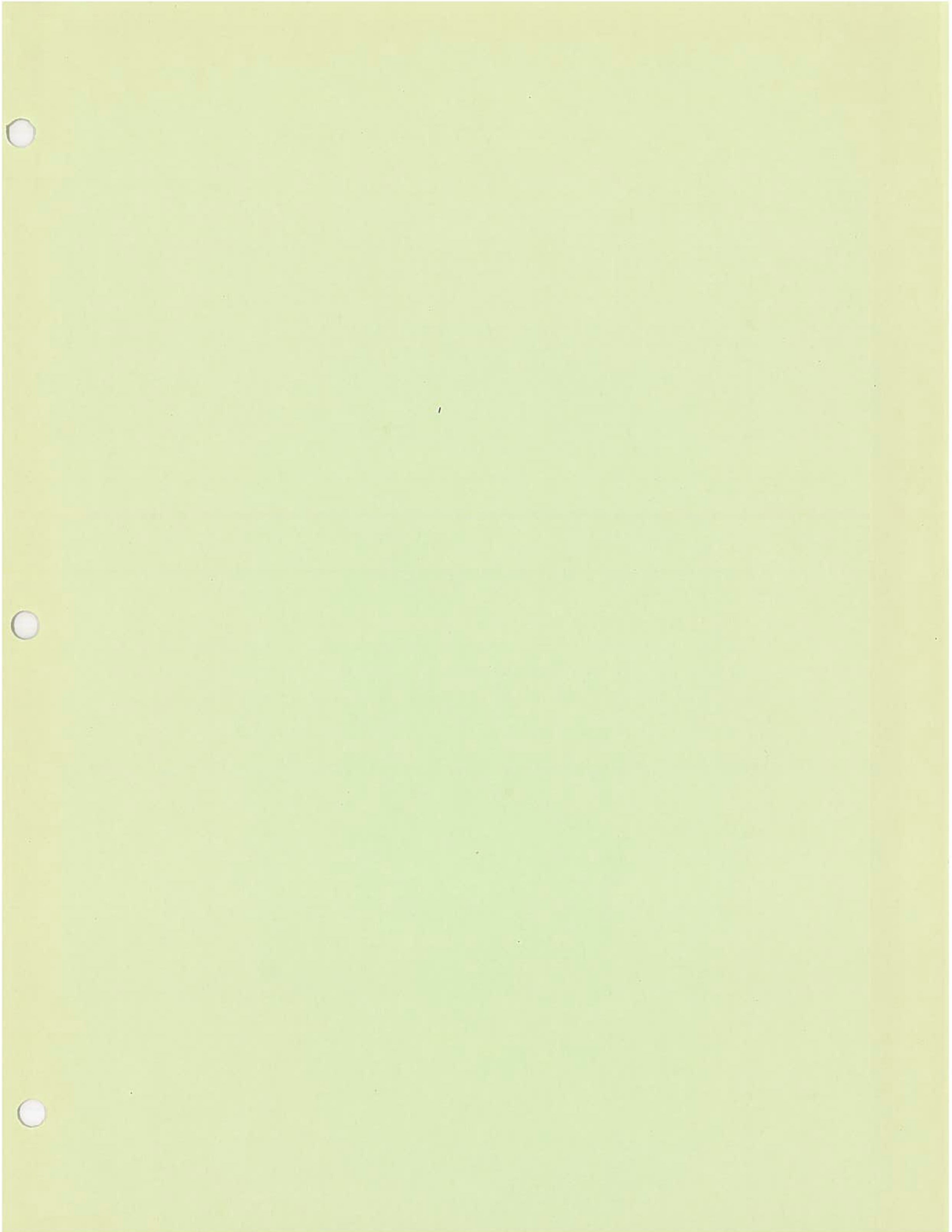
Personnel	\$16,955
Travel	1,000
Operating	245
Capital	<u>300</u>
Total	\$18,500

Monthly Cash Flow: (Used in time diagram)

Annual Savings	\$100,000
Less Annual Cost	<u>18,500</u>

Net Annual Savings                    \$81,500.00

Net Monthly Savings                    \$ 6,791.67



Levine's Copy

DEPARTMENT OF ADMINISTRATION

1978-79 BUDGET PRESENTATION

This is an appendix to Part IV, "Detail Economic Analyses" dated November 1, 1977, and includes the economic justification for the expansion of the Division of Central Services.

Distribution:  
Joint Budget Committee  
Lynne Clark

24654

## CENTRAL SERVICES ECONOMIC ANALYSES

### Introduction:

With the recent passage of Senate Bill 285, the Division of Central Services has begun studying and implementing the provisions of the new law.

Essentially, the bill allows Central Services to consolidate, manage, and oversee certain service functions as described in the bill i.e., printing, mailrooms, messengers, copiers, microfilm, office supplies, graphics, etc. The consolidation or elimination of service activities will be based on economic justifications.

Our implementation progress to date involves three areas: messenger service, copier control, and service equipment requests.

The following is the status of the above three areas to date:

1. Copier program: We have inventoried all copiers, checked volumes, checked pricing plans, checked locations, checked monthly invoices, and are currently ready to control all copiers effective March 31, 1978. See economic justification, Exhibit I.
2. Service equipment request procedure: Initiated a service equipment control program on August 1, 1977. See attached log and form, Exhibit IV. To date this program has accomplished the following:
  - a. Saved \$9,700 to date.
  - b. Forced agencies to justify purchase, rental, and lease decisions.
3. Messenger program in four county area: We inventoried all agencies in the four counties in July of 1977. Since July we have devised various routes and are now servicing approximately 100 customers in the four county area. This program has reduced duplicate vehicles, personnel, and resulted in considerable savings. See attached economic justification, Exhibit III.

Based on our preliminary analyses of copiers and messengers we included in our budget sufficient personnel and operating expense to commence consolidation and management of services for fiscal year 1978-1979.

The following sections consist of:

1. Copier economic analyses, Exhibit I.
2. Messenger economic analyses, Exhibit III.
3. Service equipment request, log, savings, and forms, Exhibit IV.
4. Estimated service personnel count in the four county area, Exhibit V.



Title: Office Copiers In Four County Area.

Submission date November 7, 1977

Submitted by J. Keene

Approval date 11-22-77

Approved by \_\_\_\_\_

for Executive Director [Signature]

Summary:

Office copiers are one of the labor savings devices whose use is most frequently abused, whose utilization increases at a rate greater than the organization's growth, and whose costs easily gets out of control.

The previous system in the four county area of letting agencies decide on their own what copier to rent, lease, or purchase has resulted in excessive costs for the State. Currently there are over twenty different manufacturers of office copiers consisting of over 100 different models. Many agencies obtain copier equipment that is excess to their needs.

Senate Bill 285 authorizes Central Services to manage and control service activities. Based on the experience in the Capitol Complex, overall copier management is warranted. The cost to manage copiers is far outweighed by the potential savings. The present value of management costs is \$54,128 and the present value of the savings is \$365,937.

Narrative:

Up until recently most agencies relied on recommendations from vendors in making their copier equipment selections. There are approximately twenty different manufacturers, many of whom constantly call on State

agencies. The results of the sales pressure are too many copiers, copiers of the wrong size, copiers of all makes being used, and lastly, excessive costs for the State.

In order to stop copier proliferation several previous controls were tried. One effort was the attempt to exercise limited control by Management Services, that failed due to lack of authority. The Governor signed an executive order in the Spring of 1976 giving Central Services the authority to control all copiers in the Capitol Complex. The result has been a gradual decline in copier volume and the elimination of high speed expensive copiers. Senate Bill 285 authorized Central Services to expand the copier program into the four county area. Our proposal is to directly control all copiers in the four counties.

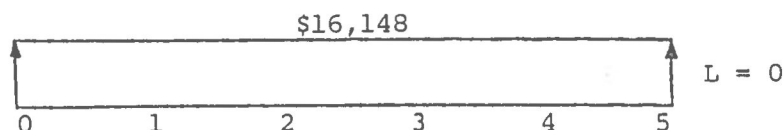
An inventory of copier machines in the four counties indicate there are approximately 147. The 147 is in addition to the 60 located in the Capitol area. The 147 machines generate approximately 30,324,888 copies and cost \$970,396 per year.

Assumptions:

1. Copiers will continue to be required to produce immediate copies of all types of agency material.
2. Copier manufacturers will continue to increase.

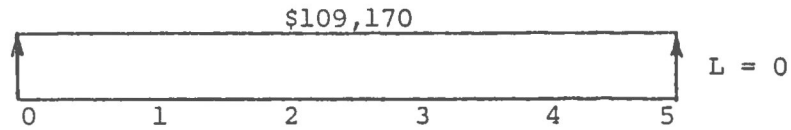
Time Diagrams:

A. Cost to Administer Program:



PV = 16148 (P/A) i5      i = 15%  
PV = 16148 (3.352)  
PV = \$54,128

B. Savings Involved With Copier Management Program:



PV = 109170 (P/A i5)      i = 15%  
PV = 109170 (3.352)  
PV = \$365,937

Recommendation:

Implement the copier control program in the four county area by  
March 1, 1978.

Appendix:

1. Calculations illustrating how cost figures were calculated, see Exhibit II.

Note:

Backup material on the types, location, volumes and costs of copiers  
in the four counties are on file in Central Services.

## COPIER BACKUP COMPUTATIONS

### I. Reduce Copier Costs By:

1. Sharing equipment.
2. Key control.
3. Down-grading equipment to fit customer needs.
4. Convert long run volume to less expensive Quick Copy Centers.
5. Management planning.
6. Equipment purchases.

### II. Savings:

Savings can be achieved in all of the areas mentioned in item I above. However, based on our experience in the Capitol Complex savings primarily come from tighter control using monitoring devices and switching volume from copiers to less expensive Quick Copy Centers. The above two should result in a 20% reduction in volume.

#### A. Basic data required to calculate savings:

1. Volume based on machines and three months average usage equals 30,324,888 copies.
2. Total cost per year equals .027 average cost per copy X 30,324,888 equals \$818,772.

#### B. Savings based on the above data are as follows:

1. Ten percent reduction based on tighter copier control e.g., fewer machines, Manitou Control System, etc., therefore,  $\$818,772 \times .10 = \$81,877$  in savings.
2. Ten percent volume switch from copiers to Quick Copy Centers  $30,324,888 \times .10 = 3,032,488$  copies.

Current cost of  $\$3,032,488 \times .027$  cost per copy on copiers equals \$81,877.

Proposed cost  $\$3,032,488 \times .018$ , cost per copy on Quick Copy equals \$54,584.

Difference: \$27,293.

Therefore, total potential savings with Central Services Management of copiers in the four county area equal \$81,877 plus \$27,293 or \$109,170.

### III. Cost For Central Services To Manage Program:

- A. Clerical time (Billing) 2 hours per day.
- B. Administration time (Analysis) 6 hours per day.
- C. Clerical time (Service Calls) 1.0 hours per day.



D. Total Central Services costs to administer the additional 144 copier machines in the four county area as follows:

1. Clerical time: 3.0 hours X 4.70 = \$4.70 per day.  
 21 days per month X \$14.10 = \$296.10 per month.  
 12 months X \$296.10 = \$3,553.20 per year.

Clerical rate:  $\$585 + 20 + 62.24 = \frac{667.24 \times 12}{1703} = \$4.70$  per hour.  
 (ins + PERA)

2. Administration time: 6 hours per day X 8.33 = \$49.98 per day.  
 \$49.98 per day X 21 days per month = \$1,049.58 per month.  
 \$1,049.58 per month X 12 months per year  
 = \$12,594.96 per year.

Administration rate:  $\$1,050 + 20 + 111.72 = \frac{1,181.72 \times 12}{1703}$   
 (ins + PERA)

= \$8.33 per hour.

3. Total costs: 12,594.96  
3,553.20  
\$16,148.16 = Cost to administer four county copier program per year.

Title: Messenger System For Metro Denver.

Submission date November 7, 1977

Submitted by J. Keene

Approval date 11-22-77

Approval by \_\_\_\_\_

f Executive Director [Signature]

Summary:

Part of the implementation of Senate Bill 285 involves messenger services. Therefore, Central Services studied and has implemented a four county messenger program serving approximately 100 customers. The reason for having a consolidated messenger program is to reduce duplicate routes involving duplicate vehicles and personnel. In addition, the overall program will be able to deliver many items previously sent through the U.S. Mail.

Using economic analyses the current program and the proposed system are compared. The present values are \$289,784 for the current program and \$121,131 for the proposed.

Narrative:

In order to efficiently utilize state resources Senate Bill 285 was recently passed. The purpose of Senate Bill 285 is to monitor, consolidate, eliminate, etc., certain service activities in order to reduce overall State costs. One such program we have partially completed is the Metro Denver Messenger System.

Prior to our Metro Denver Program, each agency in the four county area, excluding the Capitol Complex area, employed their own messengers and vehicles to transport material between agencies. The result of agencies using their own vehicles and personnel was a tremendous overlapping of

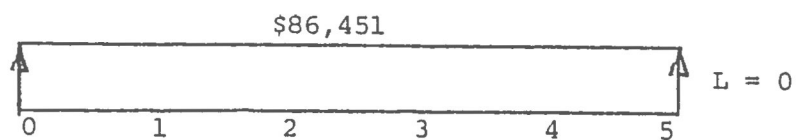
routes, and underutilized vehicles and personnel.

Assumptions:

1. Messenger service is required to cheaply transport material between agencies located several miles apart.
2. The current program is too expensive.

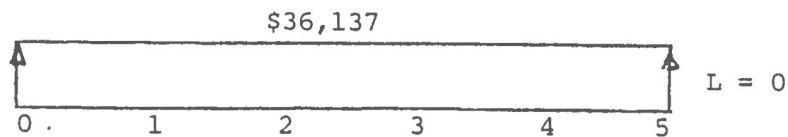
Time Diagram:

Current Costs.



$$\begin{aligned}
 PV &= P/A \ 15,5 & i &= 15\% \\
 PV &= \$86,451 \ (3.352) \\
 PV &= \underline{\$289,784}
 \end{aligned}$$

Proposed Costs.



$$\begin{aligned}
 PV &= P/A \ 15,5 \\
 PV &= \$36,137 \ (3.352) \\
 PV &= \underline{\$121,131}
 \end{aligned}$$

Recommendations:

Central Services proposes to consolidate all messengers in the four county area into one system operated by Central Services.

Note:

Backup material indicating routes, stops on each route, material transported, and a cost analysis of Central Services costs compared to agency costs are on file in Central Services.



SERVICE EQUIPMENT REQUEST PROCEDURE

Senate Bill 285 requires that Central Services approve or disapprove the acquisition of service equipment for all State agencies located in the four counties around Denver.

In order to implement this provision, Central Services has initiated a request form for agencies to use when anticipating the purchase, rent, or lease of service equipment. Following this short narrative is a copy of the form used and a log of all requests processed to date.

# SERVICE EQUIPMENT REQUEST

DATE SUBMITTED: \_\_\_\_\_

TO: Department of Administration  
 Division of Central Services  
 State Services Bldg., Room 15A  
 1525 Sherman Street  
 Denver, CO 80203

FROM: Agency: \_\_\_\_\_  
 Contact Person: \_\_\_\_\_ Phone: \_\_\_\_\_  
 Requestor's Signature: \_\_\_\_\_  
 Installation Address & Room: \_\_\_\_\_

*Insert this form in typewriter, set tabs on the dots below and complete the form.*

This is a  
 Request  
 For:

- |  |    |  |                                 |
|--|----|--|---------------------------------|
| <input type="checkbox"/> New Acquisition           | OF | <input type="checkbox"/> Copier Equipment    | <input type="checkbox"/> Other: |
| <input type="checkbox"/> Old Equipment Replacement |    | <input type="checkbox"/> Printing Equipment  |                                 |
| <input type="checkbox"/> Discontinuance - sent to: |    | <input type="checkbox"/> Postage Equipment   |                                 |
| <input type="checkbox"/> Surplus Property          |    | <input type="checkbox"/> Bindery Equipment   |                                 |
| <input type="checkbox"/> Storage                   |    | <input type="checkbox"/> Microfilm Equipment |                                 |
| <input type="checkbox"/> State Agency              |    | <input type="checkbox"/> Storage / Shelving  |                                 |
|  |    | <input type="checkbox"/> Graphics Equipment  |                                 |

Place information on relocation area in Section "C" below.

EQUIPMENT DESCRIPTION: *(Use one set of forms per unit except where discontinuing like pieces of equipment from a single vendor or when equipment is one component of a system.)*

What does it do?	
Monthly rental cost	\$
Monthly lease cost	\$
Monthly 3rd party lease cost	\$
Monthly lease purchase from vendor cost	\$
Total Purchase Price	\$
Monthly supplies cost	\$
Paper costs per month	\$
Contract maintenance cost per month	\$
Electrical requirements	<input type="checkbox"/> sole use circuit <input type="checkbox"/> 110 volt <input type="checkbox"/> 220 volt
Cost for installing electric service	\$
Delivery / Removal charges	\$
Salvage value when replaced	\$
Estimated machine lifetime	_____ years
Floor space required	_____ square feet
Machine make, model, catalog number	
Equipment is State owned, transfer from:	
Accessories required	
Proposed vendor	
Operator skills required	
FTE grade required	
How soon after a call does repairman appear	_____ hours

**JUSTIFICATION** *(Not required for discontinuing or relocating equipment)*

A - Describe the monthly workload for this equipment using the terms below:

_____ *copies _____ impressions	_____ metered mail documents
_____ microfilm 100 foot rolls	_____ microfilm images
_____ mail / message documents	_____ cubic feet of storage

Other: \_\_\_\_\_

B - Describe how you presently get the service this new equipment will provide and what it presently costs each month.

C - Selection: What testing process was used to select this equipment including at minimum, your experience in hands-on use, operators used, duration of test, location of test, reliability of machine, and machine capacity.

\* Two weeks of usage data must be submitted when copier equipment changes are requested!

*FOR CENTRAL SERVICES USE ONLY*

Cost benefits checked by \_\_\_\_\_ Break even analysis by \_\_\_\_\_ Economic analysis by \_\_\_\_\_  
 Justification Analysis: \_\_\_\_\_ "A" adequate \_\_\_\_\_ "B" adequate \_\_\_\_\_ "C" adequate \_\_\_\_\_

- APPROVED     DISAPPROVED AS SUBMITTED  
 DISAPPROVED - RECOMMEND:

Title and Signature, DIVISION OF CENTRAL SERVICES	DATE
--	------

SERVICE EQUIPMENT REQUEST LOG

REQUEST NO.	AGENCY	DESCRIPTION	REQ. DATED	RECEIVED DATE	COMP. DATE	A	R	OTHER
01	Highway Dept.	Discontinous of A-10 Collator	8-10	8-10	8-15	A		
02	School of Mines	GBC Electric Comb	8-16	8-17	8-23	A		
03	School of Mines	Paper Logger, 11 X 17	8-16	8-17	8-23	A		
04	School of Mines	Paper Logger, 8 1/2 X 11	8-16	8-17	8-23	A		
05	School of Mines	GBC Manual Binder 16"	8-16	8-17	8-23	A		
06	School of Mines	Portable light table	8-16	8-17	8-31		R	
07	School of Mines	Lamp with micro-filming glass	8-16	8-17	8-31		R	
08	Treasury Dept.	Copier X-3100	8-17	8-18	8-31	A		
09	Colo. Conventional Center	Pitney Bowes 2540 from Treasury, need copier	8-24	8-25	8-31	A		
10	School of Mines	Coin operated IBM copier II	8-29	8-29	9-01	A		
11	School of Mines	Coin operated 3M Microfilm printer 5-read	8-29	8-29	9-01	A		
12	School of Mines	Change Maker	8-29	8-29	9-01	A		
13	Nat. Resources Wildlife Div.	A.B. Dick 150 copier wanted	8-29	8-30	9-12	A		
14	Communications	Saxon I	9-21	9-21	10-24	A		
15	Metro State College	A.B. Dick 217	9-16	?	9-27	A		
16	Colo. Office of Human Res.	Xerox or IBM	?	10-05	10-20		R	
17	Metro State College	A.B. Dick 217	10-03	10-05	10-06	A		
18	ADP	X-3107	10-11	10-14				

REQUEST NO.	AGENCY	DESCRIPTION	REQ. DATED	RECEIVED DATE	COMP. DATE	A	R	OTHER
19	Historical Soc.	X-3100 CDC	10-?	10-17	11-03		R	
20	Highway Dept.	X-3107	10-17	10-17	10-20	A		
21	Highway Dept.	A.M. 4875 from UNC	10-21	10-21				
22	Univ. of Colo. at Denver Arts & Hum.	Sharp Copier SF-501	10-19	10-21				
23	Revenue, Master File W. 6th Ave.	IBM II copier	11-02	11-02				

A = Approved      D = Disapproved as Submitted      R = Recommend

ESTIMATED SERVICE PERSONNEL  
LOCATED IN THE FOUR COUNTIES OF  
ADAMS, ARAPAHOE, JEFFERSON, AND DENVER

In order to determine how many FTE's are being utilized in the above four counties, we examined records kept by the Department of Personnel plus information gained through studies conducted by Management Services.

The identifiable service personnel totaled 169. Based on our preliminary surveys in several areas, we anticipate transferring approximately 90 FTE from agencies to Central Services.



SERVICE F.T.E. LOCATED IN THE FOUR COUNTIES  
 (DATA FROM PERSONNEL, DEPARTMENT OF RECORDS.)

	REO	BEO	DEO	GRAPHICS	TYPE SETTING	STORES KEEPER	SUPPLY OFFICER	PRINTING PLANT MGR.	VEHICLE DRIVER	MAIL/ MESS.	TOTAL
Health	3		1	1			1				6
Medical Center	6	2		2		25	3	2			40
U.C., Denver	1										1
Mines	5		1	1		6				1	14
Metro	3					4					7
Arapahoe	3					1/2				1/2	5
C.C.D.			3			3			2		8
Auraria						3	1		2		6
Highways	20			4	2	14	10	2	1	2	55
Revenue	2		2	1							5
Social Services						1	1				2
Misc.	5	4	2	2		1	6				20
TOTAL	48	6	9	11	2	57.5	22	4	5	3.5	169