

APPENDIX C

SPECIAL PROGRAM DOCUMENTATION

SAN JOSE COMPUTER TRAFFIC CONTROL PROJECT

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# I N T R O D U C T I O N

## P U R P O S E

THIS DOCUMENT WAS WRITTEN TO PROVIDE ALL THOSE WITH ACCESS TO THE CITY OF SAN JOSE TRAFFIC CONTROL COMPUTER (IBM 1800) WITH DOCUMENTATION ON SOME OF THE PROGRAMS AVAILABLE. THESE PROGRAMS WERE WRITTEN AND DOCUMENTED BY KENTON H JOHNSON WHILE EMPLOYED AS AN ENGINEERING TRAINEE IN THE TRAFFIC RESEARCH SECTION OF THE COMPUTER TRAFFIC CONTROL PROJECT. THE PROGRAMS WERE WRITTEN IN RESPONSE TO REQUESTS BY OTHER DEPARTMENTS OR RESEARCH REQUIREMENTS. THE PROGRAMS ARE DOCUMENTED IN THE PROGRAM DESCRIPTIONS SECTION. THIS SECTION INCLUDES INPUTS, OUTPUTS, ALGORITHMS, RESTRICTIONS, REFERENCES, OPERATING INSTRUCTIONS, SUBROUTINE REQUIREMENTS, PROBLEM DESCRIPTIONS, FLOWCHARTS, AND SAMPLE INPUTS AND OUTPUTS. THE SUBROUTINES ARE DOCUMENTED IN THE NEXT SECTION. THESE DOCUMENTATIONS INCLUDE INPUTS, OUTPUTS, RESTRICTIONS, ALGORITHMS, USER INSTRUCTIONS, AND VARIABLE DESCRIPTIONS. THE SUBROUTINES ARE DOCUMENTED WELL ENOUGH TO BE USED IN PROGRAMS WRITTEN BY OTHER PROGRAMMERS. THE LAST SECTION CONTAINS THE LISTINGS OF THE PROGRAMS AND SAMPLE INPUT CARDS.

## H A R D W A R E   R E Q U I R E M E N T S

1. DISK DRIVE- DRIVE 0 ON THE 1810 DISK DRIVE
2. CARD READER- IBM 1442 CARD READER/PUNCH
3. PRINTER- IBM 1443 PRINTER
4. CORE- 32,000 WORDS

## I N T R O D U C T I O N ( C O N )

### A U X I L I A R Y E Q U I P M E N T

1. KEYPUNCH- IBM 29 KEYPUNCH
2. CARDS- 80 COLUMN 'IBM' CARDS
3. PAPER- AT LEAST 11 X 11 INCHES
4. DISK - IBM 2315 DISK CARTRIDGE (MPX BP-MASTER)

### S T A R T - U P P R O C E D U R E S

1. PUT THE MPX BP-MASTER DISK ON DRIVE 0 AND READY THE DRIVE
2. PUT THE MPX COLD START CARDS IN THE 1442 CARD READER HOPPER
3. FOLLOW WITH THE PROGRAMS TO BE RUN
4. PLACE THE CARD WEIGHT ON THE STACK OF CARDS
5. PRESS 'IMMEDIATE STOP' ON THE CONSOLE
6. READY THE CARD READER
7. HOLD THE CONSOLE 'CLEAR STOR' AND PRESS 'START'
8. PRESS 'IMMEDIATE STOP', 'RESET', AND 'PROGRAM LOAD'
9. TURN ON PROGRAM SWITCH 7 AND PRESS 'CONSOLE INTERRUPT'
10. SET DESIRED DATA SWITCHES PROMPTLY
11. PRESS 'START' ON THE 1443 PRINTER

P R O G R A M   D O C U M E N T A T I O N

ABSTRACT

PURPOSE  
HISTORY  
OUTPUT DESCRIPTION  
INPUTS  
RESTRICTIONS  
ALGORITHMS  
INPUT FORMAT DESCRIPTIONS  
OPERATING INSTRUCTIONS  
SUBROUTINES USED

FLOWCHART

SAMPLE PROBLEM DESCRIPTION

COMPLETED INPUT FORMAT FORMS

SAMPLE OUTPUTS(S)

BLANK INPUT FORMAT FORMS

P T H L A

NETWORK PATH LIST AND EVALUATION

THIS PROGRAM IS USED TO DETERMINE, LIST, AND EVALUATE EVERY PATH IN A NETWORK OF NODES AND BRANCHES(ARCS) BETWEEN TWO NODES AS SPECIFIED BY THE USER. THE PROGRAM ALSO ORDERS THE PATHS ACCORDING TO THEIR EVALUATION VALUES AND LISTS THE MAXIMUM AND MINIMUM PATHS. THE EVALUATION IS EITHER THE SUM, AVERAGE, OR PROBABILITY PRODUCT OF THE LOADS ON EACH BRANCH IN THE PATHS. THE PROBABILITY PRODUCT IS THE PRODUCT OF THE BRANCH LOADS IN THE PATH EACH DIVIDED BY 100 ENABLING THE USER TO ENTER PROBABILITY VALUES AS LOADS ON THE BRANCHES. THE USER SUPPLIES THE NETWORK DEFINITION IN THE FORM OF NODE NUMBERS AND LOADS CONNECTED TO EACH NODE BY A BRANCH. THE PROGRAM OUTPUTS A NUMBERED LIST OF ALL THE PATHS IN THE NETWORK (AND THE EVALUATION OF EACH) AS WELL AS THE ORDERED LIST MENTIONED ABOVE.