

# **DPM Travel Prediction System Users' Manual**



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October 1978

DPM Travel Prediction System

Users' Manual

prepared for the  
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PART I

OVERVIEW

## A. Introduction

The purpose of this manual is to provide computer-related information needed by the transportation and computer analysts who wish to use the DPM Travel Prediction System (DTPS). This system was developed by Cambridge Systematics, Incorporated (CS) as a tool to assist in developing DPM patronage estimates as part of the Preliminary Engineering Phase of the Los Angeles Downtown People Mover Demonstration Project. The system operates on IBM 360/370 and Amdahl 470 computers.

The transportation analyst will require, in addition to this manual, the full description of the travel demand models implemented in DTPS, which is provided in the Model Refinement section of CS's Final Report titled "Models and Estimates of Los Angeles DPM Demand." The computer analyst will also require additional material. The program and data files provided on a computer tape will be essential, and additional documentation of a number of programs used will be required if any procedures are to be modified for unique analysis needs. Information on these materials and how they can be accessed is included in this manual.

In this overview, Part I of the Users' Manual, the structure of DTPS is first presented. Then, the various kinds of additional information useful to the computer analyst are described, followed by definitions of commonly-used system conventions. Finally, the format of the step descriptions included in Part II are described.

The remaining parts of the manual provide complete listings of the control data and Job Control Language for all of DTPS (Part III), a definition of each component of the DPM alternatives run in the Preliminary Engineering Phase (Part IV), a listing of each program and data set provided on the DTPS computer tape (Part V), and program documentation for

two DTPS programs, LOGAP~~01~~ and LOGAP~~03~~ (Parts VI and VII).

## B. DTPS System Structure

DTPS is a modular set of 18 computer jobs which proceed from definitions of an activity center and its transportation facilities and services; through the prediction of demand by zones of origin and destination, and by mode; to the assignment of demand to transit facilities. A modular structure is provided so that changes in limited portions of the input data can be analyzed as cheaply as possible, without redoing a large number of the computations which are not affected by the changes. Because this type of flexibility can easily cause difficulties in identifying and locating the input and output data sets associated with particular alternatives and computer jobs, more rigid system structures are often chosen as the only feasible alternative. However, by also providing facilities to support the required data management effort (standardized data set labelling and cataloguing, as described in Section D.4 and in Part IV), DTPS is able to provide a highly modular system.

The overall structure of DTPS is summarized in Figure I-1. The five major blocks are shown, along with the major types of input data to each of these blocks, and the names of the computer jobs (in the form Step xx, where xx is a number ranging from 1 to 13) included within each block. (Originally, only 13 steps were planned and numbered. Later, three of these steps - 1, 10, and 11 - were further subdivided, creating steps 1.1, 1.2, 1.3, 10.1, 10.2, 10.3, 11.1, 11.2, for a final total of 18 steps.) Figures I-2 through 5 expand upon the summary figure, showing the relationships between each of the 18 computer steps, one or two blocks at a time.

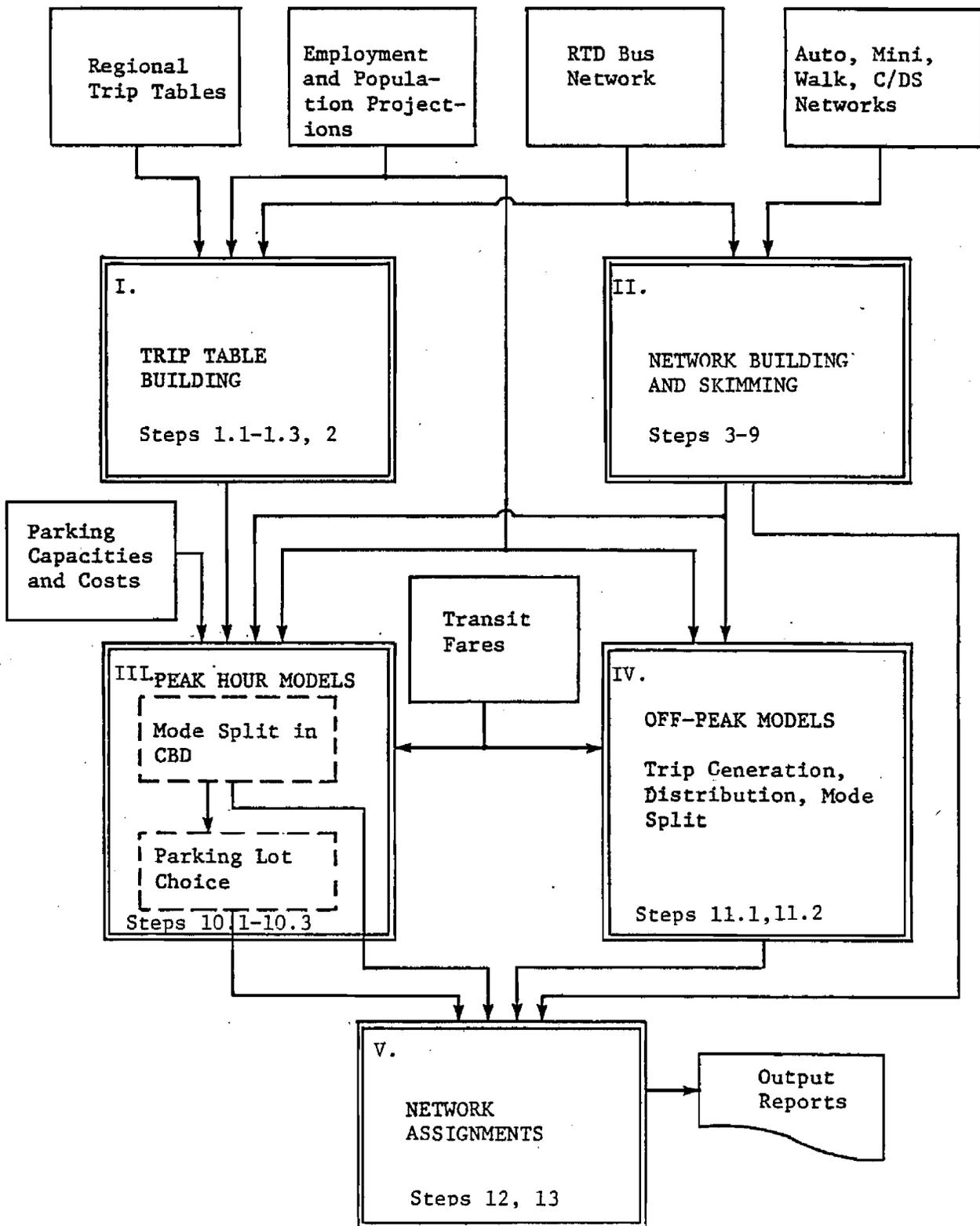


FIGURE I-1

The Structure of the DPM Travel Prediction System

In Block I (Figure I-2), regional trip tables are converted from daily travel at the 1325 zone level to PM peak period CBD auto and transit cordon crossings at the 117 zone level in three steps to minimize tape mounting costs (only needed for Step 1.1) and to allow the factors used in Step 1.3 to be based on the unfactored results of Step 1.2. The transit cordon crossings are then further processed to obtain intra-CBD trips by allocating their non-CBD end to the CBD zone in which they will board or alight from their regional transit vehicle.

Figure I-3 shows Block II, in which auto and walk/transit networks are built, and level of service tables are developed for each mode available for intra-CBD travel. Also, DPM paths are determined for later use in travel assignments.

The peak hour models are applied in Block III (Figure I-4), generating first of all the mode splits for regional auto and transit trips, (Step 10.1). These mode splits differ because regional transit travellers can transfer to a second regional bus in the CBD for the reduced cost of a transfer, but regional auto travellers must pay a full fare to use regional bus in the CBD. After regional transit travel is predicted, then both parking lot and mode choice for inbound and outbound regional auto travel can be computed (Steps 10.2 and 10.3).

Figure I-5 shows both Blocks IV and V. In Block IV, the noon hour models for workers and non-workers are applied. In Block V, all of the trip tables generated in Blocks III and IV are summed by mode and by time period, and the DPM trips are assigned to the appropriate networks.

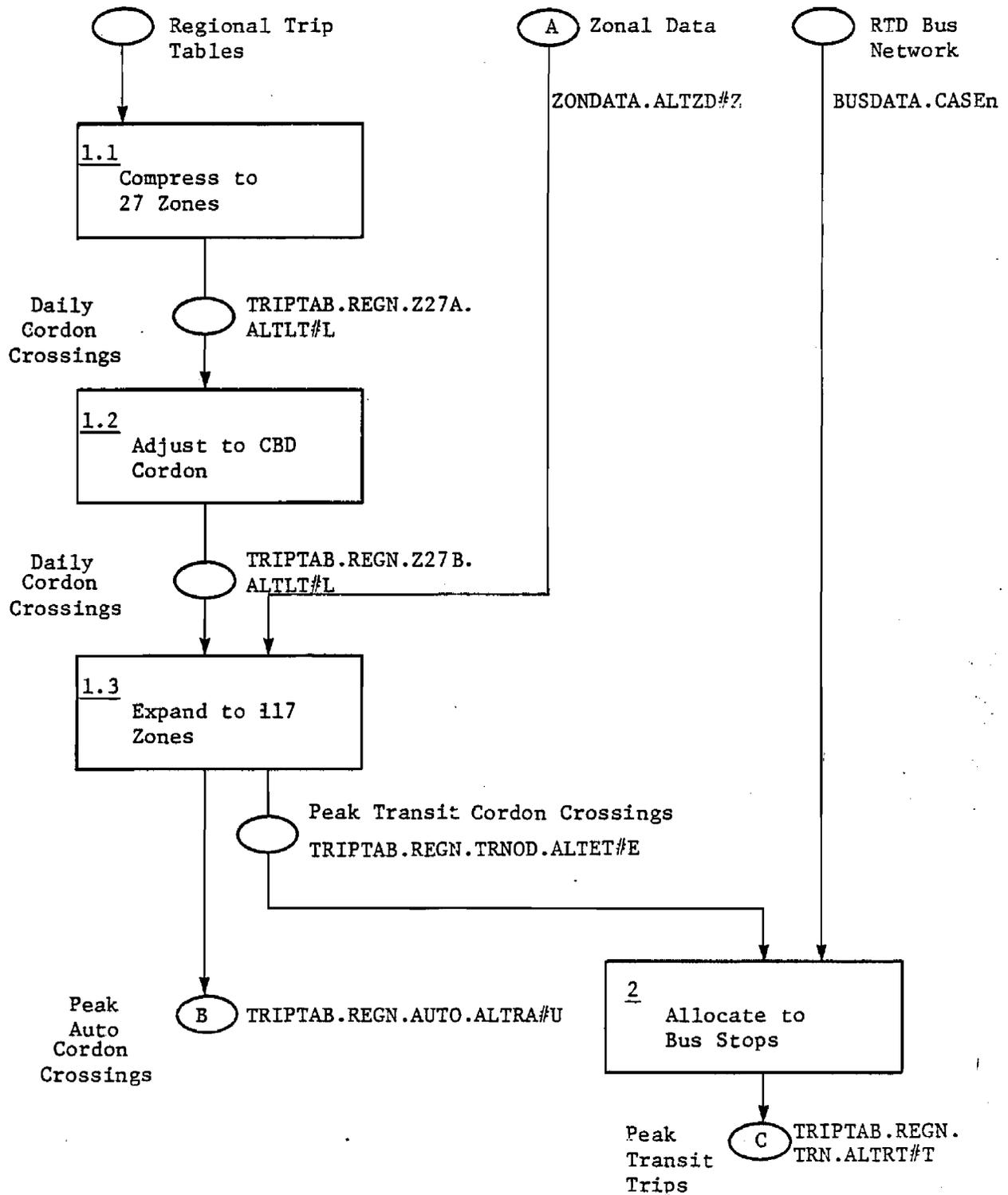


FIGURE I-2

DTPS Block I: Trip Table Building

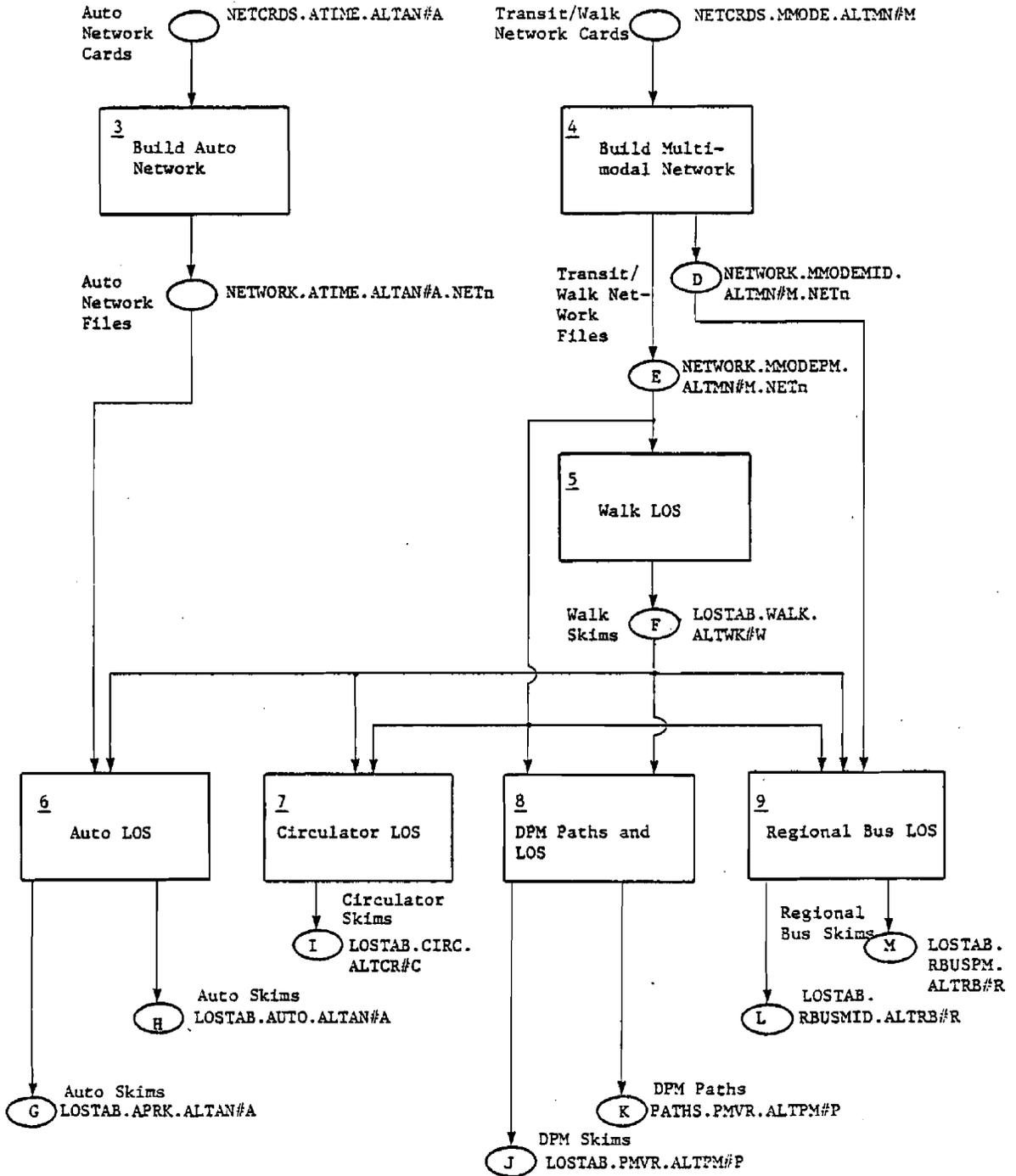


FIGURE I-3

DTPS Block II: Network Building and Skimming

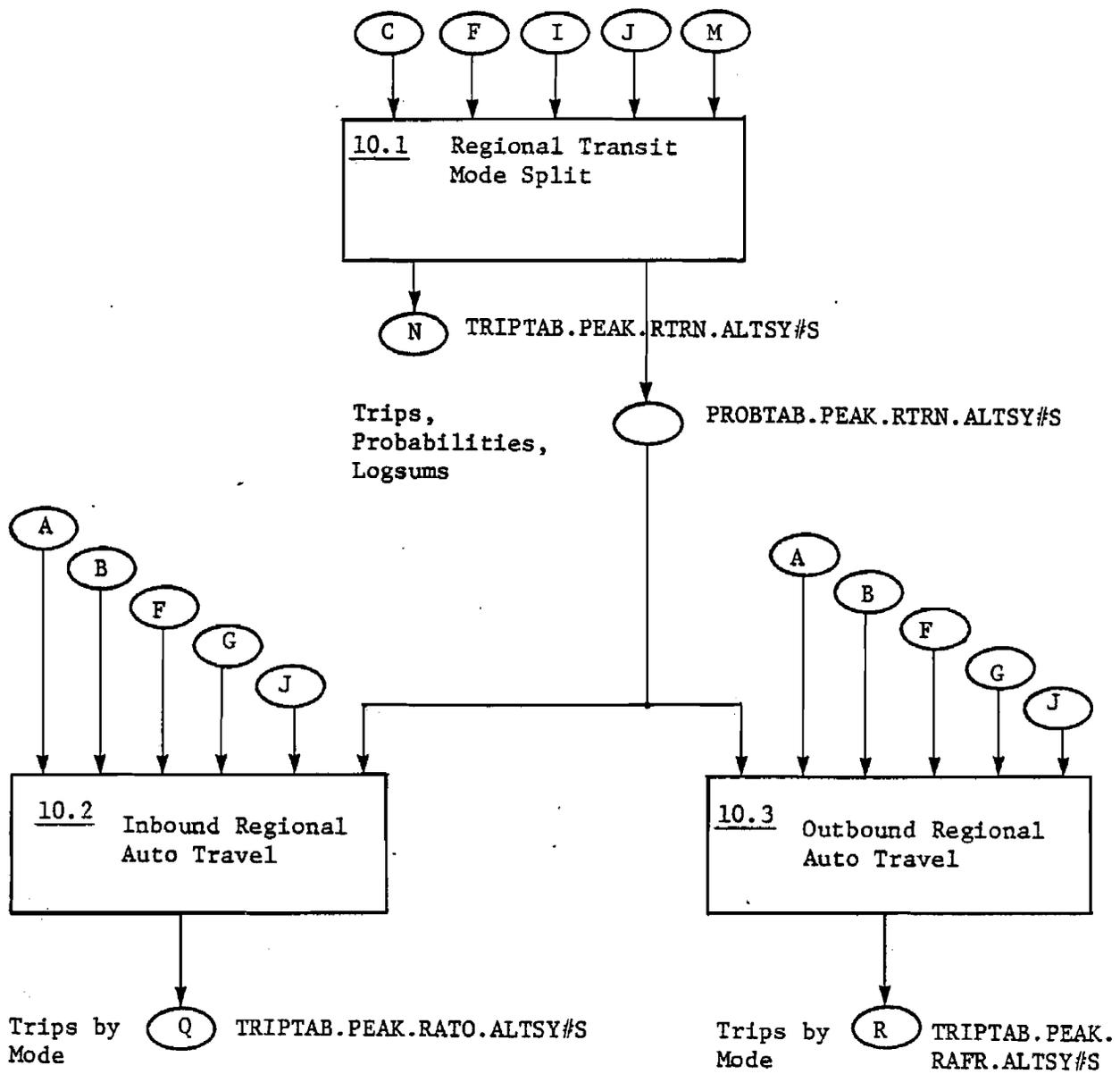


FIGURE I-4

DIPS Block III: Peak Hour Models

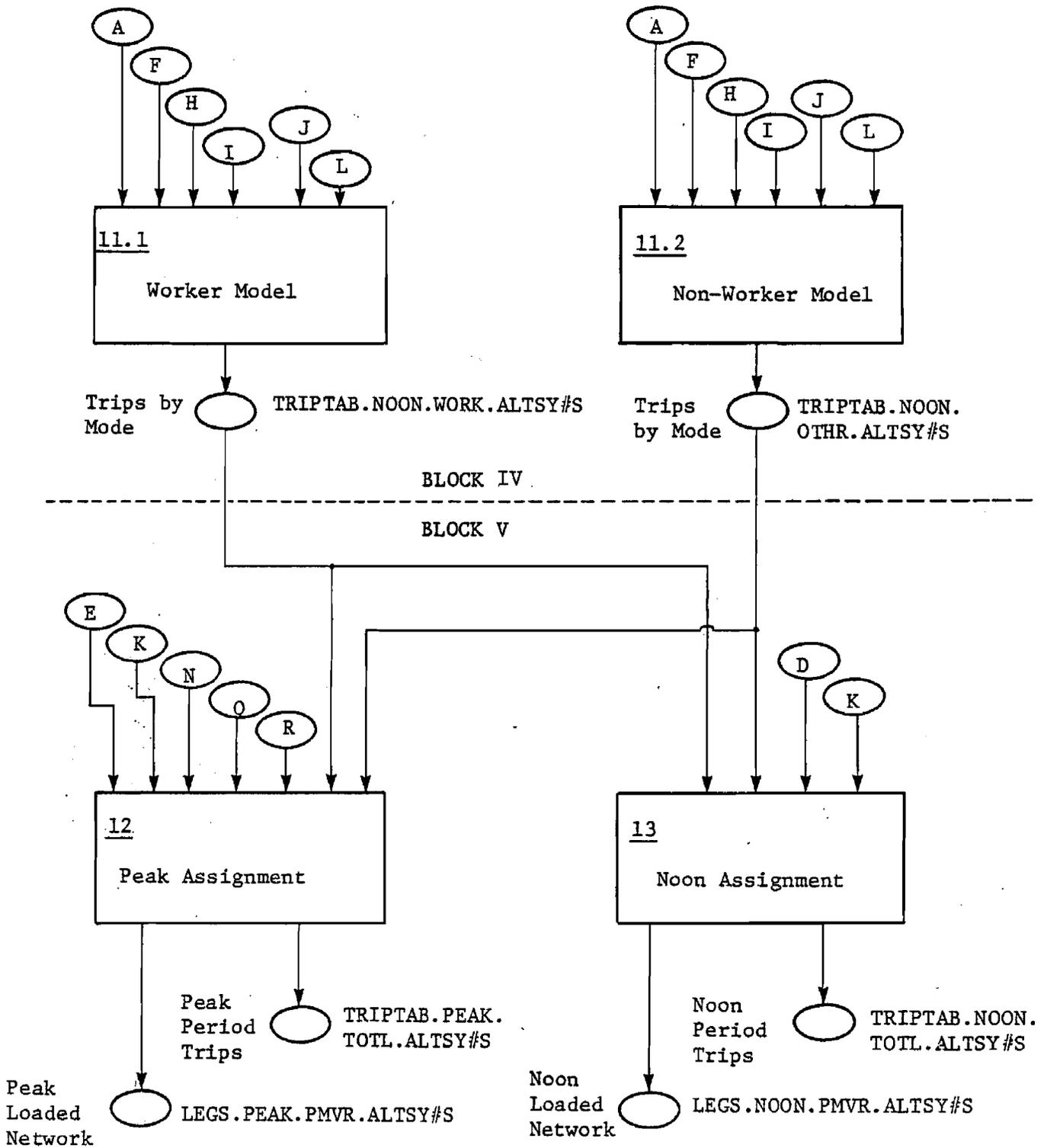


FIGURE I-5

DTPS Blocks IV and V: Noon Hour Models and Assignments

## C. Support Materials

### 1. Back-up Tape

Both the programs which are executed in DTPS and all data sets which were created in the LA DPM project have been saved on a computer tape which is a copy of a 3330 disk pack. Each useful file on this tape can be generally classified as one of the following types:

a. Program libraries - Each program executed in DTPS is available in object (executable) form in one of the following program libraries:

- CSI.URD.PROGLIB: all UTPS programs
- CSI.LADPM.BUSSTOP: BUSSTOP program used in Step 2
- CSI.URD.PROGLIB.V76: previous versions of UPATH and UPSUM, needed in Steps 7, 8, and 9
- CSI.LOGAP01.MAY1777: mode choice program used in Steps 10.1 - 10.3
- CSI.LOGAP03.MAY1777: frequency/destination/mode choice program used in Steps 11.1 and 11.2
- CSI.LOGAP04.VLM2: parking lot choice program used in Steps 10.2 and 10.3

b. Program source code - The following files contain card images of the Fortran source code for programs only used in DTPS:

- CSI.LADPM.BUSSTOP.SOURCE
- CSI.LADPM.LOGAP04.SOURCE

Source code is not available for UTPS programs, and can be obtained for the CS programs not listed above directly from Cambridge Systematics.

c. Procedure libraries - The distributed UTPS procedure library, and two specialized versions of portions of it needed in DTPS are included on the tape:

- CSI.URD.PROCLIB: version distributed by UTPS
- CSI.DISK.PROCLIB: modified to refer to a mountable disk pack, CSIO01, for all program libraries and data sets
- CSI.USER04.PROCLIB: modified to refer to an on-line disk pack, USER04, for all program libraries and data sets

d. Additional UTPS files - All UTPS release data sets for the 07JUL77 version are included on the backup tape. These data sets include UTPS object programs and subroutines, data sets for test runs, documentation, etc. The UTPS Reference Manual should be read for further information on these files. The naming convention for these files prefixes the UTPS data set name with the characters CSI. The subroutine library, for example, therefore becomes: CSI.URD.SUBRLIB

e. DTPS Input Files - A number of card image files of DTPS input data exist on the tape. These are generally identified by the characters CRDS or BOX as part of the data set name. The following types of input files exist:

- Miscellaneous data used in Phase II of the LA DPM project: CSI.LADPM.BOXn; n = 1 to 6
- Zonal data: CSI.LADPM.ZONCRDS.xxxx
- Network data - link and line cards: CSI.LADPM.NETCRDS.xxxx
- Inputs to the BUSSTOP program: CSI.LADPM.BUSCRDS.xxxx

f. DTPS Procedure Libraries - The setups listed in Part III for each DTPS step are provided as members of the partitioned data set named:

CSI.LADPM.USELIB

A second procedure library contains revisions for steps 6, 10.2, 10.3, 12, and 13; which also assign intra-CBD auto travel to the CBD auto links. This library is named:

CSI.LADPM.CASE3LIB

g. Data Sets Created by DTPS - Most of the data sets fall into this class. The conventions used in naming these files are described in Section D.

Part V of this Manual contains a complete listing of all data sets included on the backup tape.

## 2. Aids to System Execution

a. Restoring the DTPS Backup Tape to Disk - The entire contents of the DTPS backup tape can be restored to a 3330 disk pack using the first job listed in Figure I-6, after substituting the six-character volume serial name for the character string <DNME>. If only selected data sets, of those listed in Part V, are wanted on disk, then the second job should run after making the same substitution, and after providing full names and space information for each data set to be moved to disk.

FIGURE I-6

Restoring the DTPS Backup Tape

1) To copy the entire tape to disk

```

//      <JOB CARD>
//*SETUP      DISK  <DNME>  <FIRM/AGENCY NAME>
//*SETUP      TAPE  DTPS01  <FIRM/AGENCY NAME>
//*****
//***** DOCUMENTATION FOR USING THE RESTORE FCN OF FDR.
//*****
//* PARM      USE
//* -----
//* <DNME>    VOLSER OF DISK RECEIVING BACKUP COPY
//*****
//* WHEN RESTORING DATASET, USE CHANGE COMMAND TO SUBSTITUTE
//* THE NECESSARY INFO IN THE ABOVE PARM.
//*****
//STEP1 EXEC  PGM=FDR,REGION=100K,PARM=N
//SYSPRINT DD  SYSOUT=A
//DISK1 DD    UNIT=3330,VOL=SER=<DNME>,DISP=OLD
//TAPE1 DD    UNIT=TAPE,DSN=DTPS.BACKUP,DISP=OLD,VOL=SER=DTPS01
//MAPDISK EXEC MAPDISK,PARM='NODIR,NOEXT',REGION=80K
//DD1 DD UNIT=3330,VOL=SER=<DNME>,DISP=OLD
//NOTIFY EXEC WTT

```

2) To copy selected data sets to disk

```

//      <JOB CARD>
//RESTORE EXEC  PGM=FDRDSF
//*****
//***** DOCUMENTATION FOR USING THE RESTORE FCN OF FDR.
//*****
//* PARMS      USE
//* -----
//* <DNME>    VOLSER OF DISK RECEIVING BACKUP COPY
//* <DSNAME>  DATASET NAME TO BE RESTORED
//* <SPACE>   JCL SPACE ALLOCATION INFO FOR <DSNAME>
//*****
//* WHEN RESTORING DATASET, USE CHANGE COMMAND TO SUBSTITUTE
//* THE NECESSARY INFO IN THE THREE < > PARMS ABOVE.  EACH DATASET
//* TO BE RESTORED MUST HAVE A CORRESPONDING RESTORE CARD AND
//* DD# JCL CARD FOR DATASET PREALLOCATION.
//*****
//SYSPRINT DD  SYSOUT=A
//DISK1 DD    UNIT=3330,VOL=SER=<DNME>,DISP=OLD
//TAPE1 DD    UNIT=TAPE,VOL=SER=DTPS01,DSN=DTPS.BACKUP,DISP=OLD
//SYSIN DD    *
//RESTORE DSN=<DSNAME>
//DD1 DD DSN=<DSNAME>,DISP=(,KEEP),
//      UNIT=3330,VOL=SER=<DNME>,SPACE=<SPACE>
//NOTIFY EXEC  WTT

```

FIGURE I-7

WYLBUR Execute Procedure to Setup and Run DTPS Steps

```

; SET UP AND RUN DTPS STEP &S1
SET EXEC TER NOLOG
; BY EARL R. RUITER APRIL 14, 1978
SET ESCAPE &
SET VAL S1=''
READ STRING S1 PROMPT 'ENTER STEP NUMBER, OR <CR> TO STOP:'
IF('&S1' EQ '') EXEC LAST
USE USELIP(STEP&S1) CLE
POINT 'P' (1) UNN
IF(CURRENT EQ -1.) EXEC 15
READ STRING S2 USING * COLUMNS 14/15
READ STRING S3 PROMPT 'ENTER &S2 SUBSTITUTE:'
CH '&S2' TO '&S3' NOL
EXEC 9
COMMENT FOLLOWING LINES STILL HAVE '#' IN THEM:
COMMENT IF NOT 'VOID RANGE', HIT BREAK AND FIX THE STEP&S1 FILE
SET EXEC VERBOSE
L '#'
SET EXEC TERSE
COMMENT ENTER 'EXEC' TO SUBMIT STEP&S1
EXEC PAUSE
RUN UNN
EXEC 5
CLE EXEC

```

1.  
2.  
3.  
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21.  
22.  
23.  
24.

These jobs use programs FDR and FDRDSE, which are generally available at any IBM 360/370 computer center with provides commercial service. The programs are proprietary products of Innovation Data Processing, Incorporated.

b. Preparing DTSP Steps for Execution - If DTSP is run on a computer facility which provides the WYLBUR system for text editing and file maintenance, then the WYLBUR execution file shown in Figure I-7 can be used to facilitate the preparation of steps for submittal as computer jobs. As the execution file is defined, it assumes that the DTSP procedure library is available as a partitioned data set with standard WYLBUR naming conventions plus the name USELIB. If this execution file is saved with standard WYLBUR naming conventions plus the name RUNSTEP, then the following WYLBUR command will initiate execution of the step preparation file:

```
EXECUTE FROM RUNSTEP
```

After this command is given, RUNSTEP itself prompts for a step number (e.g., 012 for Step 1.2, 03 for Step 3, 101 for Step 10.1, 12 for Step 12), and then for each alternative number required to specify the step's inputs and define its outputs. Following all substitutions, the user may further modify the procedure as necessary, and then submit it for execution. Multiple steps may also be prepared and submitted following a single EXECUTE command.

c. Additional Program Documentation - Because most of the DTFS system involves the execution of general programs, a great deal of additional program documentation is available for those who wish to modify the system as it presently exists. A large amount of documentation is available for the UTPS system, and all of it is included on the DTFS backup tape. Full instructions for accessing it can be obtained by running the job shown in Figure I-8, with <DNME> replaced by the volume label of an on-line 3330 disk pack on which a temporary data set can be created.

Documentation for the general purpose Cambridge Systematics programs LOGAP01 and LOGAP03 is provided as Parts VI and VII of this manual.

FIGURE I-8

Obtaining Introductory UTPS Information

```

1. // <JOB CARD>
2. //RESTORE EXEC PGM=EDRDSF
3. //SYSPRINT DD SYSOUT=A
4. //DISK1 DD UNIT=3330,VOL=SER=<DNME>,DISP=OLD
5. //TAPE1 DD UNIT=TAPE,VOL=SER=DTPS01,DSN=DTPS.BACKUP,DISP=OLD
6. //DD1 DD DSN=CSI.UTPS,DISP=(,PASS),UNIT=3330,
7. // VOL=SER=<DNME>,SPACE=(TRK,(15,3),RLSE)
8. //SYSIN DD *
9. RESTORE DSN=CSI.UTPS
10. /*
11. //PRINT EXEC PGM=IEBGENER,REGION=60K,TIME=(,15)
12. //SYSPRINT DD SYSOUT=A
13. //SYSUT2 DD SYSOUT=A,DCB=(RECFM=FBA,LRECL=72,BLKSIZE=3600)
14. //SYSUT1 DD DISP=SHR,DSN=CSI.UTPS,UNIT=3330,VOL=SER=<DNME>
15. //SYSIN DD *
16. GENERATE MAXFLDS=1
17. RECORD FIELD=(72,1,,1)
18. /*

```

## D. DTPS Conventions

### I. Data Set Naming Conventions

All DTPS output data sets have been named using the following general convention:

<prefix>.<body>.<suffix>

where:

<prefix> can be used to provide information on the agency using DTPS, the problem being analysed, the analysis year, etc. For the Los Angeles DPM project work done by Cambridge Systematics, the prefix CSI.LADPM was uniformly used, and remains in each output data set definition, within each step listed in Part III. An alternative prefix, for example CRA.DPM.YEAR83, could be substituted wherever CSI.LADPM appears, to change the prefix.

<body> is one character string of up to 8 characters, or two or more 8-character strings separated by periods, which describes the kind of data included in the data set. This portion of the name is unique in that it is only used in a single DTPS step to define a new data set. The character strings which are substitutes for <body> are shown in Figures I-2 through I-5, and are listed in the step descriptions in Part II. In both cases, the steps which create them, and those which subsequently use them, are indicated. Their contents are also detailed in Part II.

<suffix> is an alternative identifier which has the form ALT<id>#<j> in the step listings, with the following sets of <id> and <j>:

<u>&lt;id&gt;</u>	<u>&lt;j&gt;</u>	<u>data type</u>
LT	L	LARTS trip table
ET	E	External trip table
AN	A	Auto network
MN	M	Multimodel network
WK	W	Walk LOS data
CR	C	Circulator LOS data
RB	R	Regional bus LOS data
PM	P	People mover LOS data
RT	T	Regional transit trips
RA	U	Regional auto trips
ZD	Z	Zonal data
SY	S	Output system alternative

The string #<j> is designed to be changed to two or three characters prior to the execution of any step. These characters then serve to identify a specific alternative of the data type implied by the <id> and <j> pair. For example, when walk LOS data for alternative 47 is referred to, the the suffix ALTWK#W in a step listing is modified to become ALTWK47.

This data set naming convention, plus an up-to-date file of descriptions of each alternative, structured as Part IV is, supports the modular structure of the DTPS system and minimizes the effort required to make the generalized steps listed in Part III usable for running a specific alternative.

## 2. Zone Systems

As presently set up, DTPS assumes the following zone systems:

- a. Regional trip data exists for 1285 zones, numbered 41 to 1325.
- b. Regional trip data is compressed to 27 zones, 9 of which are CBD approach corridors (1-9), and 18 of which are completely or partially in the CBD (10-27).
- c. CBD modelling is done for 117 zones, including the following subsets:
  - 101 internal zones (1-101)
  - 9 approach corridors (102-110)
  - 7 potential fringe parking and/or integrated DPM transfer facilities (111-117)

## 3. Travel Modes

### 3.1 Auto Networks

In the auto network building, skimming, and level of service table development process which occurs in steps 3 and 6, a single mode number, 2, is used to define both the streets and highways in the CBD area and the access links which connect zone centroids and the facilities on which autos can operate.

### 3.2 Multimodal Networks

In DTPS, a single multimodal network is defined which includes both walk facilities and all transit facilities available for intra-CBD travel. In the multimodal network building, skimming, and level of service table development process which occurs in steps 4, 5, and 7 to 9, the following mode numbers, and their

corresponding names and descriptions, are used to describe network links and lines. This numbering scheme is consistent with the standard UTPS conventions of programs UNET, UPATH, and UPSUM:

<u>Number</u>	<u>Name</u>	<u>Description</u>
1	Walk	Sidewalks and pedways
2	DPM Transfers	Walk links connecting DPM station platforms serving opposing directions of travel, at stations where travellers wish to change directions due to split DPM alignments
3	Walk	Connectors between zone centroids and "real" network links
4	Circulator	Minibus or other non-grade separated downtown circulation/distribution service
5	DPM	Grade-separated automated downtown circulation/distribution service
6	Regional Bus - local	Intra-CBD portion of a regional bus route providing all local service
7	Regional bus - express	Intra-CBD portion of a regional bus route providing express service
8	Rail Transit	Intra-CBD portion of a regional rail transit route

### 3.3 Demand Models

In steps 10.1 - 11.2, modes for which demand is predicted are identified by number. In these steps, DTSP deals with a maximum of six intra-CBD travel modes. Since all of these modes are not relevant or applicable in all demand steps, the number of modes in individual steps varies from 4 to 6. In all demand

steps, however, the modes used are numbered consistently. Mode numbers, names, and descriptions follow.

<u>Number</u>	<u>Name</u>	<u>Description</u>
1	Walk	No vehicles used from origin to destination
2	Circulator	Minibus or other non-grade separated downtown circulation/distribution service
3	Regional bus	Intra-CBD portion of a regional transit service: either bus or rail
4	DPM	Grade separated automated downtown circulation/distribution system
5	Auto	Private vehicle or taxi used for intra-CBD travel
6	Zero frequency	This "pseudo-mode" represents employees who do <u>not</u> make a noon-hour intra-CBD trip.

#### 4. Zonal Data Sets

Zonal data sets, named <prefix>.ZONDATA.ALTZD#Z, must be created outside DTPS; because specialized ad hoc programming is usually necessary for this task. These data sets should be fixed block, with a logical record length of 80. Each logical record represents one zone, and must contain the following fields:

Columns	Data Type*	Contents	Units
1-5	I	Zone number	-
8-15	R	Total employment density	employees/(acres*10)
18-25	R	Noon-hour trip attraction density **	trips/(acres*10)
28-35	R	Natural logarithm of zonal area	LN (acres*10)
38-45	R	Total employment	employees
48-55	R	Daily parking cost	1975 cents
58-65	R	Non-worker trip productions	trips
68-75	R	Natural logarithm of parking capacity	LN (vehicle spaces)

\* I = integer; R = real, with decimal explicitly included  
\*\* Total (worker plus non-worker) trip attractions

The zone numbers should be consecutive, from 1 to the total number of zones. Noon-hour trip attraction densities and non-worker trip productions should be calculated using the procedures described in the CRA report, "Models and Estimates of Los Angeles DPM Demand," with noon-hour trip attractions equal to the sum of worker and non-worker trip attractions.

## E. Presentation Format in Part II

Each DTPS step is described in Part II using a standard format. This format is presented and described in the remainder of this section:

1.0 PURPOSE: A brief description of the step

2.0 PROGRAM(S) AND SOURCE(S): Each program used in the step

is named, and its source is given as one of the following:

- UTPS: a standard Urban Transportation Planning System program. Unless otherwise stated, the version date is 07JUL77, and the program used is available in the following library on the backup tape:  
CSI.URD.PROGLIB  
In Steps 7-9, older versions of UTPS programs must be used because an error exists in the 07JUL77 version of program UPATH. These versions are available in the following library on the backup tape:  
CSI.URD.PROGLIB.V76
- CS/General: these are programs which have been developed by Cambridge Systematics as general purpose logit model application programs, with differences to handle different model structures. These programs are:  
LOGAP01: to apply mode choice models  
LOGAP03: to apply frequency/destination/mode choice and destination/mode choice models.
- CS/DTPS: these are programs developed by Cambridge Systematics specifically as part of DTPS. The programs are:  
BUSSTOP: to allocate regional transit trips to downtown zones in which bus boarding or alighting is predicted  
LOGAP04: to apply a parking facility choice model

3.0 INPUT DATA SET(S): All input data sets are named, and the step in which they are created is identified. By referring to section 4.0 of the creating step, details concerning the

data set's format and contents can be obtained. All names are given with the prefix unspecified, and with the suffix in its general form.

4.0 OUTPUT DATA SET(S): Each data set created by the step becomes a subsection (i.e., 4.1, 4.2). Within each subsection an output data set is described by specifying the following:

4.1 DATA SET NAME: Given in the same form as that used for input data sets in Section 3.0.

4.1.1 FORMAT: All output data sets exist in a UTPS format. Details on these formats are included in the UTPS documentation (see Section C.3). The following types of UTPS formats are used:

- UTPS matrix, for all trip tables and level of service data.. This format is also used for utilities, probabilities, and logsums output from LOGAP~~01~~; but because the data items are in real rather than integer form, tables of these variables can only be read by other LOGAP programs.
- UTPS network, for transit or transit format networks
- UTPS paths, for transit or transit format networks
- UTPS loaded legs, for transit or transit format networks.

4.1.2 SIZE: The size is expressed in zones and tables for matrix data sets, in zones and maximum number of links for network and path data sets, and in maximum number of links for loaded legs data sets.

4.1.3 DESCRIPTION: A description of the variable name and/or contents of each table for matrix data sets, or of the complete file for other data sets.

5.0 DISCUSSION: Each program executed within the step is briefly described.

PART II

STEP DESCRIPTIONS

## Step 1.1

1.0 PURPOSE: Compress LARTS Regional Trip Tables from 1325 to 27 Zones

2.0 PROGRAM AND SOURCE: USQUEX; UTPS

3.0 INPUT DATA SET

3.1 LARTS.TRIPS

3.1.1 FORMAT: UTPS matrix

3.1.2 SIZE: 1325 LARTS zones, 7 tables

3.1.3 DESCRIPTION

Table 3: Total transit person trips

Table 6: Total auto driver trips

3.1.4 SOURCE: LARTS

4.0 OUTPUT DATA SET

4.1 <prefix>.TRIPTAB.REGN.Z27A.ALTLT#L

4.1.1 FORMAT: UTPS matrix

4.1.2 SIZE: 27 zones, representing 9 approach corridors to the CBD (zones 1-9) and 18 LARTS zones partially or entirely within the CBD analysis area (zones 10-27); 2 tables

4.1.3 DESCRIPTION

Table 1: Total daily transit person cordon crossings, in production/attraction format, labelled 'TOTTRN'.

Table 2: Total daily auto driver cordon crossings, in production/attraction format, labelled 'TOTADR'.

5.0 DISCUSSION

This step consists of the execution of the single program which must access LARTS data, normally on tape, This structure minimizes charges for tape mounting.

## Step 1.2

1.0 PURPOSE: Adjust Regional Cordon Crossing Tables to Correspond to the CBD Analysis Area

2.0 PROGRAMS AND SOURCE: USQUEX, UFMTR; UTPS

3.0 INPUT DATA SET

<prefix>.TRIPTAB.REGN.Z27A.ALTLT#L, from Step 1.1

4.0 OUTPUT DATA SET

4.1 <prefix>.TRIPTAB.REGN.Z27B.ALTLT#L

4.1.1 FORMAT: UTPS matrix

4.1.2 SIZE: 27 zones, representing 9 approach corridors to the CBD (zones 1-9) and the portions of 18 LARTS zones which are within the CBD analysis area (zones 10-27); 2 tables

4.1.3 DESCRIPTION

Table 1: Total daily transit person cordon crossing, in production/attraction format, labelled 'TOTTRN'.

Table 2: Total daily auto driver cordon crossings, in production/attraction format, labelled 'TOTADR'.

5.0 DISCUSSION

5.1 Two USQUEX steps move the trips in those portions of the LARTS zones which straddle the CBD analysis area boundary from inside to outside zones 10-27. The first step, EXPAND, divides each of these "straddle" zones into two, based on the fractions of employment inside and outside the analysis area boundary. This step also includes factors to adjust for differences in the levels of 1990 employment by zone assumed by CRA and LARTS, respectively. These factors adjust the LARTS trips to be consistent with the 1990 employment levels assumed by CRA. The second step, SQUEEZ, combines the outside portions of these zones with the appropriate corridor zones (1-9).

5.2 UFMTR prints out the resulting cordon crossings by zone and district of production and attraction, and by interchange: district of production and attraction. Districts are defined to include each corridor (1-9) and the entire CBD (10).

### Step 1.3

1.0 PURPOSE: - Factor Regional Cordon Crossings and Expand to 117 Zones

2.0 PROGRAMS AND SOURCE: UMATRIX, UFMTR, USQUEX: UTPS

3.0 INPUT DATA SET

<prefix>.TRIPTAB.REGN.Z27B.ALTLT#L, from Step 1.2

4.0 OUTPUT DATA SETS

4.1 <prefix>.TRIPTAB.REGN.TRONOD.ALTT#E

4.1.1 FORMAT: UTPS matrix

4.1.2 SIZE: 117 zones, 2 tables

4.1.3 DESCRIPTION

Table 1: PM peak hour transit person cordon crossings in origin/destination format, labeled 'TRNET#E'.

Table 2: PM peak hour auto person cordon crossings in origin/destination format, labeled 'AUTOET#E'.

4.2 <prefix>.TRIPTAB.REGN.AUTO.ALTRA#U

4.2.1 FORMAT: UTPS matrix

4.2.2 SIZE: 117 rows, representing CBD analysis zones; by 9 columns, representing corridors of approach to the CBD, 2 tables

4.2.3 DESCRIPTION

Table 1: PM peak hour auto person cordon crossings inbound to the CBD, labeled 'AUTORA#U'.

Table 2: PM peak hour auto person cordon crossings outbound from the CBD, labeled 'AFRRA#U'.

5.0 DISCUSSION

5.1 UMATRIX factors the LARTS total daily cordon crossings in production/attraction format to PM peak hour cordon crossings in origin/destination format. For both transit and auto data, the combined factor represents each of the following components:

- PM peak hour as a fraction of total daily
- directional volumes as a fraction of total two-directional volumes

Step 1.3 (continued)

- a factor to ensure that the total number of PM peak hour cordon crossings per CBD employee equals .55.

In addition, auto data must be multiplied by average auto occupancy to convert from auto drivers to total auto person cordon crossings. Each of these factors are documented as comments within the UMATRIX step.

- 5.2 UFMTR prints trip ends by zone and district of origin and destination
- 5.3 USQUEX expands from 18 internal LARTS zones to 101 internal CBD analysis zones. This is done in two steps because some CBD zones straddle LARTS ZONE boundaries. The fractions used for this expansion each represent the ratio of total employment predicted by CRA in a CBD zone to total employment assumed by LARTS in their larger zone.
- 5.4 UMATRIX and USQUEX compress the columns of auto cordon crossings to eliminate all but the 9 approach corridors to the CBD.

## Step 2

1.0 PURPOSE: Build Regional Transit Trip Table Between Final CBD Trip Ends and Bus Stops

2.0 PROGRAMS AND SOURCES:

BUSSTOP; CS/DTPS  
MBUILD; UTPS  
UMATRIX; UTPS  
UFMTR; UTPS

3.0 INPUT DATA SETS

3.1 <prefix>.TRIPTAB.REGN.TRNOD.ALTTET#E, from Step 1.3

3.2 Input to BUSSTOP, prepared with the following format:

3.2.1 Header Card 1:

Columns 01-08: \*COMMENT  
Columns 09-16: blank  
Columns 17-72: any message

Any number of COMMENT cards can be used. The message contained on the first card will appear at the top of selected pages of program output.

3.2.2 Header Card 2:

Columns 01-06: \*TABLE  
Columns 07-12: blank  
Columns 13-16: UTPS table number for the input trip table  
(auto person trips between corridors and CBD zones)

The default table number is 1001

3.2.3 Header Card 3

Columns 01-08: \*CORLINE

This header must be followed by data cards with the following format:

Column 02: Corridor number C(1-9)  
Columns 04-05: First bus line number L(1-16)  
Columns 07-10: 10\* percent of corridor C's trips which use bus line L(integer)

Columns 14-20: Same as 04-10. for second bus line

⋮

Columns 74-80: Same as 04-10, for eighth bus line

The last data card before another header card must have 99 in

Columns 1-2

Step 2 (continued)

3.2.4 Header Card 4:

Columns 01-08: \*INTCEPT

This header must be followed by data cards with the following format:

Column 02: Corridor number, C(1-9)  
Columns 04-05: First bus line number, L(1-16)  
Columns 08-10: CBD intercept zone, to which all trips from corridor L,  
line L, will be assigned  
Columns 14-20: Same as 04-10, for second bus line  
⋮  
Columns 74-80: Same as 04-10, for eighth bus line

The last data card before another header card must have 99 in  
Columns 01-02.

All bus lines coded on INTCEPT cards should be numbered consecutively  
starting with line number 1 in each corridor.

3.2.5 Header Card 5:

Columns 01-08: \*ZONLINE  
Column 10: Corridor number C(1-9)  
Columns 11-12: First bus line number on subsequent data cards, L

The first line number, L, should be greater than the largest line  
number used in INTCEPT data for each corridor.

This header must be followed by data cards with the following format:

Columns 02-04: CBD Zone number, Z(1-117)  
Columns 06-08: Bus stop zone, B, for passengers travelling between  
corridor C, bus line L, and zone Z.  
Columns 10-12: Same as 06-08, for bus line L + 1.  
⋮  
Columns 66-68: Same as 06-08, for bus line L + 15.

The last data card before another header card must have 999 in  
Columns 02-04.

3.2.6 Header Card 6:

Columns 01-04: \*END

This card signals the end of data input, and allows trip table  
processing to begin.

Step 2 (continued)

4.0 OUTPUT DATA SET

4.1 <prefix>. TRIPTAB.REGN.TRN.ALTRT#T

4.1.1 FORMAT: UTPS matrix

4.1.2 SIZE: 117 zones, 1 table

4.1.3 DESCRIPTION:

Table 1: Regional transit PM peak hour trips from CBD trip ends (usually origins) to CBD bus stops, labelled 'TRNRT#T'.

5.0 DISCUSSION

5.1 BUSSTOP and MBUILD change the non-CBD ends of all transit cordon crossings from a corridor of approach to an internal CBD zone in which the bus stop is located where passengers on a specific line, with a specific CBD origin/destination, will board/alight from the bus on which they will cross the CBD cordon line.

To accomplish this zone change, the program must be provided with:

- the fraction of trips in each corridor which will use each bus route
- the internal zone which contains the bus stop which will be used for each corridor, bus route, and CBD origin/destination zone

5.2 UMATRIX adds single trips from external zones to zone 1, to avoid error conditions in later UTPS steps.

5.3 UFMTR prints trip ends by zone.

### Step 3

1.0 PURPOSE: Build Auto Network

2.0 PROGRAM AND SOURCE: UNET: UTPS

3.0 INPUT DATA SET

Auto link cards in standard UNET input format, inserted as part of the &DATA input.

4.0 OUTPUT DATA SETS

4.1 <prefix>.NETWORK.ATIME.ATLAN#A.NETn (n = 1 to 5)

4.1.1 FORMAT: UTPS transit network

4.1.2 SIZE: 117 zones, maximum of 600 links

4.1.3 DESCRIPTION: The CBD auto network, coded as non-transit mode 2 of a transit network.

5.0 DISCUSSION

The auto network is built and its link data is printed out in as-built form.

#### Step 4

1.0 PURPOSE: Build PM Peak and Midday Multimodal Networks

2.0 PROGRAM AND SOURCE: UNET; UTPS

3.0 INPUT DATA SET

Multimodal link and line cards in standard UNET input format inserted in identical form as part of the &DATA input to each of the steps.

The line cards should have headways, as a minimum, for PM peak and midday periods.

4.0 OUTPUT DATA SETS

4.1 <prefix>.NETWORK.MMODEPM.ALTMN#M.NETn (n = 1 to 5)

4.1.1 FORMAT: UTPS transit network

4.1.2 SIZE: 117 zones, maximum of 750 links

4.1.3 DESCRIPTION: The CBD multimodal network containing each of the following modes:

- 1 - sidewalks
- 2 - DPM transfer links
- 3 - centroid connectors
- 4 - circulator
- 5 - DPM
- 6, 7, 8 - regional bus

The network also contains PM peak period headways for all transit modes.

4.2 <prefix>.NETWORK.MMODEMID.ALTMN#M.NETn (n = 1 to 5)

4.2.1 FORMAT: UTPS transit network

4.2.2 SIZE: 117 zones, maximum of 750 links

4.2.3 DESCRIPTION: The CBD multimodal network containing each of the following modes:

- 1 - sidewalks
- 2 - DPM transfer links
- 3 - centroid connectors
- 4 - circulator
- 5 - DPM
- 6, 7, 8 - regional bus

Step 4 (continued)

5.0 DISCUSSION:

Two UNET steps are included so that networks can be developed with varying headways in the PM peak and midday periods. Otherwise, the networks are normally identical.

## Step 5

1.0 PURPOSE: Develop Walk Level of Service Data

2.0 PROGRAMS AND SOURCE: UPATH and UMATRIX, UTPS

3.0 INPUT DATA SETS

<prefix>.NETWORK.MMODEPM.ALTMN#M.NETn (n - 1 to 5),  
from Step 4.

4.0 OUTPUT DATA SET

4.1 <prefix>.LOBSTAB.WALK.ALTKW#@

4.1.1 FORMAT: UTPS matrix

4.1.2 SIZE: 117 zones; 3 tables

4.1.3 DESCRIPTION

Table 1: Walk distances in tenth of miles, labelled WDISWK#W.

Table 2: Walk grades (no grade = 0; grade = 1), labelled WGRDWK#W

Table 3: Walk times in tenths of minutes, labelled WTIMWK#W.

5.0 DISCUSSION

5.1 UPATH determines minimum walk time paths and skims distances, "fares," and times on these paths. Because the fare cards are used to specify which links have significant grades (either up- or down-hill), the skimmed "fares" actually represent the number of grade links used from origin to destination.

5.2 UMATRIX adjusts each skimmed table:

- distances less than .1 mile are set to .1 mile.
- grades are collapsed to a zero/one variable
- times longer than 23.4 minutes are set to a large number to indicate the walk mode is not available
- times less than 2.1 minutes are set to 2.0 minutes

## Step 6

1.0 PURPOSE: Develop Auto Level of Service Data

2.0 PROGRAMS AND SOURCE: UPATH, UMATRIX, and USQUEX; UTPS

3.0 INPUT DATA SETS

3.1 <prefix>.NETWORK.ATIME.ALTAN#A.NETn (n = 1 to 5), from Step 3

3.2 <prefix>.LOSTAB.WALK.ALTWK#W, from Step 5

4.0 OUTPUT DATA SETS

4.1 <prefix>.LOSTAB.AUTO.ALTAN#A

4.1.1 FORMAT: UTPS matrix

4.1.2 SIZE: 117 zones; 2 tables

4.1.3 DESCRIPTION

Table 1: Auto distances in tenths of miles, labelled 'ADISAN#A'

Table 2: Auto times in tenths of minutes, labelled 'ATIMAN#A'

4.2 <prefix>.LOSTAB.APRK.ALTAN#A

4.2.1 FORMAT: UTPS matrix

4.2.2 SIZE: 9 rows (corridors) by 117 columns (zones); 1 table

4.2.3 DESCRIPTION

Table 1: Auto distances in tenths of miles, labelled 'ADISAN#A'

5.0 DISCUSSION

5.1 UPATH determines minimum auto time paths and skims distances and times on these paths.

5.2 UMATRIX adjusts each skimmed table:

- distances less than .1 mile are set to .1 mile
- if either walk times are less than 5.6 minutes, or auto times are less than 2.6 minutes, then the auto time is set to a large number to indicate the auto mode is not available

5.3 USQUEX compresses the rows of the distance table to eliminate all but the 9 approach corridors to the CBD in the second output data set.

## Step 7

- 1.0 PURPOSE: Develop Circulator Level of Service Data
- 2.0 PROGRAMS AND SOURCE: UPATH, UPSUM, UMATRIX; UTPS. (UPATH and UPSUM versions prior to 07JUL77)
- 3.0 INPUT DATA SETS
  - 3.1 <prefix>.NETWORK.MMODEPM.ALTMN#M.NETn (n = 1 to 4); from Step 4
  - 3.2 <prefix>.LOSTAB.WALK.ALTWK#W, from Step 5.
- 4.0 OUTPUT DATA SET
  - 4.1 <prefix>.LOSTAB.CIRC.ALTCR#C
    - 4.1.1 FORMAT: UTPS matrix
    - 4.1.2 SIZE: 117 zones, 1 table
    - 4.1.3 DESCRIPTION:

Table : Circulator times in minutes, labelled 'CTIMCR#C'
- 5.0 DISCUSSION
  - 5.1 UPATH uses weights favoring the circulator mode to determine minimum time paths, and skims various components of these paths
  - 5.2 UPSUM collects the path time components into two tables: times in and out of the circular vehicles
  - 5.3 UMATRIX creates the final values of O/D time by circulator:
    - if either walk times are less than 5.6 minutes, or circulator on-vehicle times are less than 2 minutes, then the O/D times by circulator are set to a large number to indicate the circulator mode is not available
    - otherwise, O/D times by circulator are obtained by adding their in- and out-of-vehicle components

## Step 8

- 1.0 PURPOSE: Develop People Mover Level of Service Data and Network Paths for Assignment
- 2.0 PROGRAMS AND SOURCE: UPATH, UPSUM, UMATRIX; UTPS. (UPATH and UPSUM versions prior to 07JUL77)
- 3.0 INPUT AND DATA SETS
  - 3.1 <prefix>.NETWORK.MMODEPM.ALTMN#M.NETn (n = 1 to 4), from Step 4
  - 3.2 <prefix>.LOBSTAB.WALK.ALTKW#W, from Step 5
- 4.0 OUTPUT DATA SETS
  - 4.1 <prefix>.PATHS.PMVR.ALTPM#P
    - 4.1.1 FORMAT: UTPS transit path file
    - 4.1.2 SIZE: 117 zones
    - 4.1.3 DESCRIPTION: Minimum time DPM paths for use in assignments
  - 4.2 <prefix>.LOSTAB.PMVR.ALTPM#P
    - 4.2.1 FORMAT: UTPS matrix
    - 4.2.2 SIZE: 117 zones; 2 tables
    - 4.2.3 DESCRIPTION:  
  
Table 1: DPM times in minutes, labelled 'PTIMPM#P'  
  
Table 2: DPM integrated transfer facility location variable, labelled 'PLDMPM#P'
- 5.0 DISCUSSION
  - 5.1 UPATH uses weights favoring the DPM mode to determine minimum time paths, and skims various components of these paths
  - 5.2 UPSUM collects the path time components into two tables: times on and off the DPM vehicles

Step 8 (continued)

5.3 UMATRIX creates the final values of O/D time by DPM:

- if either walk times are less than 5.6 minutes, or DPM on-vehicle times are less than 1 minute, then the O/D times by DPM are set to a large number to indicate the DPM mode is not available.
- otherwise, O/D times by DPM are obtained by adding their in- and out-of-vehicle components

Also, UMATRIX creates the zero/one integrated transfer facility location variable.

Step 9

1.0 PURPOSE: Develop Regional Bus Level of Service Data for Peak and Midday Networks

2.0 PROGRAMS AND SOURCE: UPATH, UPSUM, UMATRIX; UTPS (UPATH and UPSUM versions prior to 07JUL77)

3.0 INPUT DATA SETS

3.1 <prefix>.NETWORK.MMODEPM.ALTMN#M.NETn (n = 1 to 4), from Step 4

3.2 <prefix>.NETWORK.MODEMED.ALTMN#M.NETn (n = 1 to 4), from Step 4

3.3 <prefix>.LOSTAB.WALK.ALTWK#W, from Step 5.

4.0 OUTPUT DATA SETS

4.1 <prefix>.LOSTAB.RBUSPM.ALTRB#R

4.1.1 FORMAT: UTPS matrix

4.1.2 SIZE: 117 zones

4.1.3 DESCRIPTION

Table 1: Peak period regional bus times in minutes, labelled 'RTIMRB#R'

4.2 <prefix>.LOSTAB.RBUSMID.ALTRB#R

4.2.1 FORMAT: UTPS Matrix

4.2.2 SIZE: 117 zones

4.2.3 DESCRIPTION

Table 1: Midday regional bus times in minutes, labelled 'RTIMRB#R'

5.0 DISCUSSION

The following sequence of steps is executed twice, first for peak period data, and then for midday data

5.1 UPATH uses weights favoring the DPM mode to determine minimum time paths, and skims various components of these paths

5.2 UPSUM collects the path time components into two tables: times on and off the regional buses

Step 9 (continued)

5.3 UMATRIX creates the final values of O/D time by regional bus:

- if either walk times are less than 5.6 minutes, or regional bus on-vehicle times are less than 2 minutes, then the O/D times by regional bus are set to a large number to indicate the regional bus mode is not available
- otherwise, O/D times by regional bus are obtained by adding their in- and out-of-vehicle components

## Step 10.1

1.0 PURPOSE: Run Regional Transit Mode Split Model

2.0 PROGRAMS AND SOURCES:

LOGAP01, CS/General  
UFMTR; UTPS

3.0 INPUT DATA SETS

3.1 <prefix>.LOSTAB.WALK.ALTKW#W, from Step 5

3.2 <prefix>.LOSTAB.RBUSPM.ALTRB#R, from Step 9

3.3 <prefix>.LOSTAB.CIRC.ALTCR#C, from Step 7

3.4 <prefix>.LOSTAB.PMVR.ALTRM#P, from Step 8

3.5 <prefix>.TRIPTAB.REGN.TRN.ALTRT#T, from Step 2

4.0 OUTPUT DATA SETS

4.1 <prefix>.TRIPTAB.PEAK.RTRN.ALTSY#S

4.1.1 FORMAT: UTPS Matrix

4.1.2 SIZE: 117 zones; 8 tables

4.1.3 DESCRIPTION

Tables 1-4: Logit utilities for modes 1-4; regional bus utility based on transfer fare, labelled 'UxxxS4#S'; where xxx indicates the mode

Tables 5-8: Regional transit trips for modes 1-4, labelled 'xRTTSY#S', where x indicates the mode.

4.2 <prefix>.PROBTAB.PEAK.RTRN.ALTSY#S

4.2.1 FORMAT: UTPS Matrix

4.2.2 SIZE: 117 zones; 5 tables

4.2.3 DESCRIPTION

Tables 1-4: Probabilities for modes 1-4 based on full regional bus fare, labelled 'PxxxS4#S', where xxx indicates the mode.

Table 5: Logsums for use in parking choice model, labelled LSUMS4#S.

Step 10.1 (continued)

5.0 DISCUSSION

- 5.1 LOGAPØ1 determines regional transit utilities and trips, using regional bus transfer fares.
- 5.2 LOGAPØ1 modifies regional bus utilities to reflect full regional bus fares, and outputs probabilities and logsums for use in the parking lot/mode choice process for regional auto users.
- 5.3 UFMTR prints trip ends and average trip lengths by mode, for regional transit users.

## Step 10.2

1.0 PURPOSE: Run Inbound Regional Auto Parking Lot/Mode Choice Models

2.0 PROGRAMS AND SOURCES

LOGAP04; CS/DTPS  
UFMTR; UTPS  
LOGAP01; CS/General

3.0 INPUT DATA SETS

3.1 <prefix>.ZONDATA.ALTZD#Z (See Overview Section D.4)

3.2 <prefix>.LOSTAB.APRK.ALTAN#A, from Step 6

3.3 <prefix>.PROBTAB.PEAK.RTRN.ALTSY#S, from Step 10.1

3.4 <prefix>.TRIPTAB.REGN.AUTO.ALTRA#U, from Step 1.3

3.5 <prefix>.LOSTAB.WALK.ALTWK#W, from Step 5

3.6 <prefix>.LOSTAB.PMVR.ALTPM#P, from Step 8

4.0 OUTPUT DATA SET

4.1 <prefix>.TRIPTAB.PEAK.RATO.ALTSY#S

4.1.1 FORMAT: UTPS Matrix

4.1.2 SIZE: 117 zones; 4 tables

4.1.3 DESCRIPTION:

Tables 1-4: Transposed inbound regional auto trips by modes 1-4, labelled 'xRATSY#S', where x indicates the mode

5.0 DISCUSSION

5.1 LOGAP04 determines parking lot choice

5.2 LOGAP01 determines mode choice for the trip from parking lot to CBD destination

5.3 UFMTR prints various summaries of each model

Step 10.3

1.0 PURPOSE: Run Outbound Regional Auto Parking Lot/Mode Choice Model

2.0 DISCUSSION:

This step duplicates Step 10.2, dealing with outbound rather than transposed inbound trips. Other changes are:

2.1 The name of the output data set:

<prefix>.TRIPTAB.PEAK.RAFR.ALTSY#S

2.2 The labels of the tables in this data set: 'xRATSY#S'.

Step 11.1

1.0 PURPOSE: Run the Noon-Hour Worker Travel Model

2.0 PROGRAMS AND SOURCES

LOGAP03; CS/General  
UMATRIX; UTPS  
UFMTR; UTPS

3.0 INPUT DATA SETS:

3.1 <prefix>.LOSTAB.WALK.ALTKW#W, from Step 5

3.2 <prefix>.LOSTAB.RBUSMID.ALTRB#R, from Step 9

3.3 <prefix>.LOSTAB.CIRC.ALTCR#C, from Step 7

3.4 <prefix>.LOSTAB.PMVR.ALTPM#P, from Step 8

3.5 <prefix>.LOSTAB.AUTO.ALTAN#A, from Step 6

3.6 <prefix>.ZONDATA.ALTZD#Z. (See Overview Section D.4)

4.0 OUTPUT DATA SET:

4.1 <prefix>.TRIPTAB.NOON.WORK.ALTSY#S

4.1.1 FORMAT: UTPS matrix

4.1.2 SIZE: 117 zones; 7 tables

4.1.2 DESCRIPTION

Tables 1-6: Noon-hour worker trips by modes 1-6, labelled  
'xNWTSY#S', where x indicates modes

Table 7: Total noon-hour worker trips by modes 1-5, labelled  
'THWTSY#S'.

5.0 DISCUSSION

5.1 LOGAP03 predicts frequency, destination, and mode choice for noon worker round trips by modes 1-6

5.2 UMATRIX converts to one-way trips, and sums modes 1-5 to obtain total travel

5.3 UFMTR outputs trip ends and average trip lengths by mode and in total.

## Step 11.2

1.0 PURPOSE: Run the Noon-Hour Non-Worker Travel Model

2.0 PROGRAMS AND SOURCES

LOGAP03; CS/General

UMATRIX; UTPS

UFMTR; UTPS

3.0 INPUT DATA SETS

3.1 <prefix>.LOSTAB.WALK.ALTKW#W, from Step 5

3.2 <prefix>.LOSTAB.RBUSMID.ALTRB#R, from Step 9

3.3 <prefix>.LOSTAB.CIRC.ALTCR#C, from Step 7

3.4 <prefix>.LOSTAB.PMVR.ALTPM#P, from Step 8

3.5 <prefix>.LOSTAB.AUTO.ALTA#A, from Step 6

3.6 <prefix>.ZONDATA.ALTDZ#Z. (See Overview Section D.4)

4.0 OUTPUT DATA SET

4.1 <prefix>.TRIPTAB.NOON.OTHR.ALTXY#S

4.1.1 FORMAT: UTPS matrix

4.1.2 SIZE: 117 zones; 6 tables

4.1.3 DESCRIPTION

Tables 1-5: Noon-hour non-worker trips by modes 1-5, labelled 'xNNTSY#S', where x indicates mode

Table 6: Total noon-hour non-worker trips labelled 'TNNTSY#S'

5.0 DISCUSSION

LOGAP03 predicts destination and mode choice for noon non-worker one-way trips by modes 1-5

5.2 UMATRIX sums to obtain total travel

5.3 UFMTR outputs trip ends and average trip lengths by mode and in total

## Step 12

1.0 PURPOSE: Perform PM Peak Hour People Mover Assignment

2.0 PROGRAMS AND SOURCE: UMATRIX, ULOAD; UTPS

### 3.0 INPUT DATA SETS

<prefix>.TRIPTAB.PEAK.RTRN.ALTSY#S, from Step 10.1

3.2 <prefix>.TRIPTAB.PEAK.RATO.ALTSY#S, from Step 10.2

3.3 <prefix>.TRIPTAB.PEAK.RAFR.ALTSY#S, from Step 10.3

3.4 <prefix>.TRIPTAB.NOON.WORK.ALTSY#S, from Step 11.1

3.5 <prefix>.TRIPTAB.NOON.OTHR.ALTSY#S, from Step 11.2

3.6 <prefix>.PATHS.PMVR.ALTPM#P, from Step 8

3.7 <prefix>.NETWORK.MMODEPM.ALTMN#M.NETn (n = 1 to 5), from Step 4

### 4.0 OUTPUT DATA SETS

4.1 <prefix>.TRIPTAB.PEAK.TOTL.ALTSY#S

4.1.1 FORMAT: UTPS matrix

4.1.2 SIZE: 117 zones; 5 tables

#### 4.1.3 DESCRIPTION

Tables 1-5: Total PM peak hour trips by modes 1-5, labelled 'PKxxSY#S', where xx indicates mode

4.2 <prefix>.LEGS.PEAK.PMVR.ALTSY#S

4.2.1 FORMAT: UTPS loaded legs

4.2.2 SIZE: maximum of 750 links

#### 4.2.3 DESCRIPTION

PM Peak hour DPM volumes by link

### 5.0 DISCUSSION

5.1 UMATRIX combines all PM peak hour travel into a single file

5.2 ULOAD loads the DPM trips on the the DPM and access links

## Step 13

- 1.0 PURPOSE: Perform Noon Hour People Mover Assignment
- 2.0 PROGRAMS AND SOURCE: UMATRIX, ULOAD; UTPS
- 3.0 INPUT DATA SETS
  - 3.1 <prefix>.TRIPTAB.NOON.WORK.ALTSY#S, from Step 11.1
  - 3.2 <prefix>.TRIPTAB.NOON.OTHR.ALTSY#S, from Step 11.2
  - 3.3 <prefix>.PATHS.PMVR.ALTPM#P, from Step 8
  - 3.4 <prefix>.NETWORK.MMODEMID.ALTMN#M.NETn (n - 1 to 5), from Step 4
- 4.0 OUTPUT DATA SETS
  - 4.1 <prefix>.TRIPTAB.NOON.TOTL.ALTSY#S
    - 4.1.1 FORMAT: UTPS matrix
    - 4.1.2 SIZE: 117 zones; 5 tables
    - 4.1.3 DESCRIPTION

Tables 1-5: Total noon hour trips by modes 1-5, labelled 'NNxxSY#S', where xx indicates mode
  - 4.2 <prefix>.LEGS.NOON.PMVR.ALTSY#S
    - 4.2.1 FORMAT: UTPS loaded legs
    - 4.2.2 SIZE: maximum of 750 links
    - 4.2.3 DESCRIPTION

Noon hour DPM volumes by link
- 5.0 DISCUSSION
  - 5.1 UMATRIX combines all noon hour travel into a single file
  - 5.2 ULOAD loads the DPM trips on to the DPM and access links

PART III  
STEP LISTINGS

```

1. // JOB ( ,HERE), 'CSIB/STEP01.1', CLASS=U,
2. // MSGLEVEL=(1,1)
3. /*SFTUP TAPE #X CAMBRIDGE SYSTEMATICS, INC.
4. //PROCLIB DD DSN=CSI.DISK.PROCLIB, DISP=SHR, UNIT=SYSDA, VOL=SER=USER04
5. /**
6. /** STEP011 -- COMPRESS REGIONAL TRIP TABLES: 1325 TO 27
7. /**
8. /** MAKE THE FOLLOWING SUBSTITUTIONS BEFORE RUNNING --
9. /** #L = LARTS REGIONAL TRIP TABLE ALTERNATIVE NUMBER
10. /** #X = EXTERNAL TAPE LABEL
11. /**
12. //SQUEEZ EXEC USQUEX, TIME=1,
13. // J9=, DSN=CSI.LADPM.TRIPTAB.REGN.Z27A.ALTLT#L
14. //FT11F001 DD LABEL=(2,BLP), VOL=SER=#X, UNIT=TAPE, DISP=OLD,
15. // DSN=LARTS.TRIPS, DCH=(RECFM=VBS, LRECL=1604, BLKSIZE=1608)
16. //SYSIN DD *
17. COMPRESS LARTS 1325 ZONE TRIP TABLES TO 27 DISTRICTS -- ALT LT#L
18. DISTRICTS 1 - 9 = CORRIDORS 1 - 9
19. DISTRICTS 10 - 27 = LARTS CBD ZONES
20. &PARAM ZONES=1325, DIST=27, TABLES=1003, 1006, OUTBPT=4, NAME1='TOTTRN',
21. NAME2='TOTADR' &END
22. &OPTION SQUEEZ=T &END
23. &SELECT REPORT=4, PRINT=1, -27 &END
24. &EQUIV DIST=1, Z=402, -405, 415, -431, 444, 448, 449, 451, -454, 459, -461,
25. 463, -514, 569, 570, 595, 599, 602, 603, 609, 617, 618,
26. 623, -626, 630, 634, -641, 719, -721 &END
27. &EQUIV DIST=2, Z=308, -341, 358, -364, 374, -384, 387, -390, 395, -401, 406,
28. -414, 432, -443, 445, -447, 450, 455, -458, 462 &END
29. &EQUIV DIST=3, Z=365, -370, 372, 373, 385, 386, 391, -394, 700, -703, 705, 706,
30. 711, 712 &END
31. &EQUIV DIST=4, Z=41, -133, 194, -247, 253, 256, 257, 262, -264, 269, -277,
32. 342, -345, 347, -357, 371, 746, -748, 750 &END
33. &EQUIV DIST=5, Z=134, -150, 190, 248, -252, 254, 255, 258, -261, 265, -268,
34. 278, -307, 346, 723, -738, 742, -745, 749, 752, 757 &END
35. &EQUIV DIST=6, Z=151, -189, 191, -193, 739, -741, 753, -756, 758, -763, 767,
36. -789, 806, -808 &END
37. &EQUIV DIST=7, Z=554, -557, 562, 564, -567, 764, -766, 790, -805, 809, -841,
38. 842, -871, 875, 876, 885, -939, 941, -1026 &END
39. &EQUIV DIST=8, Z=515, -552, 561, 563, 571, -584, 589, -594, 598, 606, -608,
40. 612, -616, 621, 622, 627, -629, 631, -633, 642, -699, 872,
41. -874, 877, -884, 940, 1027, -1325 &END
42. &EQUIV DIST=9, Z=585, -588, 596, 597, 600, 601, 604, 605, 610, 611, 619,
43. 620 &END
44. &EQUIV DIST=10, Z=558 &END
45. &EQUIV DIST=11, Z=559 &END
46. &EQUIV DIST=12, Z=560 &END
47. &EQUIV DIST=13, Z=568 &END
48. &EQUIV DIST=14, Z=704 &END
49. &EQUIV DIST=15, Z=751 &END
50. &EQUIV DIST=16, Z=707 &END
51. &EQUIV DIST=17, Z=708 &END
52. &EQUIV DIST=18, Z=709 &END
53. &EQUIV DIST=19, Z=710 &END
54. &EQUIV DIST=20, Z=713 &END
55. &EQUIV DIST=21, Z=714 &END
56. &EQUIV DIST=22, Z=715 &END
57. &EQUIV DIST=23, Z=716 &END
58. &EQUIV DIST=24, Z=717 &END

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MEMBER LIST FOR STEPG11 (CONTINUED)

59.     &EQUIV   DIST=25,Z=718     &END  
60.     &EQUIV   DIST=26,Z=722     &END  
61.     &EQUIV   DIST=27,Z=553     &END  
62.     //ALFRT EXEC WTI

62 RECORDS IN MEMBER           2,704 BYTES IN COMPRESSED FORMAT

```

1. // JOB ( ,HERE),*CSI/STFP01.2*,CLASS=Y,
2. // MSGLEVEL=(1,1)
3. //PROCLIB DD DSN=CSI.DISK.PROCLIB,DISP=SHR,UNIT=SYSDA,VOL=SER=USER04
4. /**
5. /** STEP012 -- ADJUST REGIONAL TRIP TABLES TO LADPM CORDON
6. /**
7. /** MAKE THE FOLLOWING SUBSTITUTIONS BEFORE RUNNING --
8. /** #L = LARTS REGIONAL TRIP TABLE ALTERNATIVE NUMBER
9. /**
10. //EXPAND EXEC USQUEX,TIME=(,15),
11. // J1='DSN=CSI.LADPM.TRIPTAB.REGN.Z27A.ALTLT#L',
12. // J9='DSN=&&TRIPS',
13. //FI19F001 DD DISP=(,PASS)
14. //SYSIN DD *
15. REDUCE DISTRICTS 10 - 27 TO LADPM ZONES ONLY -- ALT LT#L
16. &PAFAM ZONES=33,DISTS=27,TABLES=1001,1002,OUTBPT=4,NAME1='TOTTRN',
17. NAME2='TOTADR' &END
18. &OPTION EXPAND=T &END
19. &SELECT REPORT=3,4,PRINT=1,-33 &END
20. &EQUIV SAME=1,-13,16,-19,23,-26 &END
21. &EQUIV DIST=14,Z=14,28 &END
22. &EQUIV DIST=15,Z=15,29 &END
23. &EQUIV DIST=20,Z=20,30 &END
24. &EQUIV DIST=21,Z=21,31 &END
25. &EQUIV DIST=22,Z=22,32 &END
26. &EQUIV DIST=27,Z=27,33 &END
27. &DATA
28. 1 1.0 1.0 1.0 1.0
29. 2 1.0 1.0 1.0 1.0
30. 3 1.0 1.0 1.0 1.0
31. 4 1.0 1.0 1.0 1.0
32. 5 1.0 1.0 1.0 1.0
33. 6 1.0 1.0 1.0 1.0
34. 7 1.0 1.0 1.0 1.0
35. 8 1.0 1.0 1.0 1.0
36. 9 1.0 1.0 1.0 1.0
37. 10 .620 .620 .620 .620
38. 11 1.392 1.392 1.392 1.392
39. 12 1.334 1.334 1.334 1.334
40. 13 1.396 1.396 1.396 1.396
41. 14 .110 .110 .110 .110
42. 15 .007 .007 .007 .007
43. 16 1.056 1.056 1.056 1.056
44. 17 1.279 1.279 1.279 1.279
45. 18 .572 .572 .572 .572
46. 19 .955 .955 .955 .955
47. 20 .089 .089 .089 .089
48. 21 .080 .080 .080 .080
49. 22 .477 .477 .477 .477
50. 23 .894 .894 .894 .894
51. 24 .989 .989 .989 .989
52. 25 1.253 1.253 1.253 1.253
53. 26 .850 .850 .850 .850
54. 27 .187 .187 .187 .187
55. 28 .890 .890 .890 .890
56. 29 .993 .993 .993 .993
57. 30 .911 .911 .911 .911
58. 31 .920 .920 .920 .920

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## MEMBER LIST FOR STEP012 (CONTINUED)

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59.          32          .523          .523          .523          .523
60.          33          .813          .813          .813          .813
61. //SQUEEZ EXEC USQUEX,TIME=(,15),
62. //      J1='DSN=%%TRIPS',
63. //      J9='DSN=CSI.LADPM.TRIPTAB.REGN.Z27B.ALTLT#L'
64. //SYSIN DD *
65. COMPRESS AGAIN -- TO LADPM CORDON -- ALT LT#L
66. DISTRICTS 1 - 9 = CORRIDORS 1 - 9
67. DISTRICTS 10 - 27 = PORTIONS OF LARTS CBD ZONES INSIDE LADPM CORDON
68. &PARAM ZONES=33,DISTS=27,TABLES=1001,1002,OUTBPT=4,NAME1='TOTTRN',
69.        NAME2='TOTADR' &END
70. &OPTION SQUEEZ=T &END
71. &SELECT REPORT=4,PRINT=1,-27 &END
72. &EQUIV SAME=1,2,5,6,8,-27 &END
73. &EQUIV DIST=3,2=3,28,30,-32 &END
74. &EQUIV DIST=4,2=4,29 &END
75. &EQUIV DIST=7,2=7,33 &END
76. //UFMTR1 EXEC UFMTR,TIME=(,15),
77. //      J1='DSN=CSI.LADPM.TRIPTAB.REGN.Z27B.ALTLT#L'
78. //SYSIN DD *
79. TRIP ENDS FOR 27 ZONE TABLES -- ALT LT#L
80. &PARAM ZONES=27,DISTS=10,TABLES=1001,1002,TITLE1='TOTTRN',
81.        TITLE2='TOTADR' &END
82. &SELECT REPORT=3 &END
83. &EQUIV SAME=1,-9 &END
84. &EQUIV DIST=10,Z=10,-27 &END
85. //UFMTR2 EXEC UFMTR,TIME=(,15),
86. //      J1='DSN=CSI.LADPM.TRIPTAB.REGN.Z27B.ALTLT#L'
87. //SYSIN DD *
88. TOTAL DAILY TRANSIT PERSON AND AUTO DRIVER TRIPS -- ALT LT01
89. &PARAM ZONES=27,DISTS=10,TABLES=1001,1002,TITLE1='TOTTRN',
90.        TITLE2='TOTADR' &END
91. &OPTION DONLY=T &END
92. &SELECT REPORT=1 &END
93. &EQUIV SAME=1,-9 &END
94. &EQUIV DIST=10,Z=10,-27 &END
95. //ALERT EXEC WTT

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95 RECORDS IN MEMBER

3,275 BYTES IN COMPRESSED FORMAT

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1. // JOB ( ,HERE), 'CSI/STEP01.3', CLASS=Y,
2. // MSGLEVEL=(1,1)
3. //PROCLIB DD DSN=CSI.DISK.PROCLIB,DISP=SHR,UNIT=SYSDA,VOL=SER=USER04
4. /**
5. /** STEP013 -- FACTOR REGIONAL TRIPS AND EXPAND TO 117 ZONES
6. /**
7. /** MAKE THE FOLLOWING SUBSTITUTIONS BEFORE RUNNING --
8. /** #L = PARTS REGIONAL TRIP TABLE ALTERNATIVE NUMBER
9. /** #E = REGIONAL EXTERNAL TRANSIT TRIP TABLE ALTERNATIVE
10. /** NUMBER
11. /** #U = REGIONAL AUTO TRIP TABLE ALTERNATIVE NUMBER
12. /**
13. //UMATR1 EXEC UMATRIX,TIME=(,30),
14. // J1='DSN=CSI.LADPM.TRIPTAR.REGN.Z27B.ALT#L',
15. // J9='DSN=##TRIPS1'
16. //FT19F001 DD DISP=(,PASS)
17. //SYSIN DD *
18. CONVERT FROM 24 HOUR TO PEAK HOUR TRIPS -- ALT LT#L
19. * ASSUMPTIONS --
20. * .55 PM PEAK HOUR TRIPS PER CBD EMPLOYEE
21. * 9.7% OF AUTO TRIPS IN PM PEAK
22. * 14.5% OF TRANSIT TRIPS IN PM PEAK
23. * DIRECTIONAL SPLITS:
24. * IN OUT
25. * AUTO 23% 77%
26. * TRANSIT 18% 82%
27. * 1.35 PERSONS/AUTO ENTERING AND LEAVING THE CBD
28. *
29. &PARAM ZONES=27,OUTBPT=4,COMBIN1='IF (I <= 9) AND (J >= 10) THEN
30. .0469*(T101 + TR(T101)) ELSE (IF (I >= 10) AND (J <= 9) THEN
31. .2136*(T101 + TR(T101)) ELSE 0)',
32. COMBIN2='IF (I <= 9) AND (J >= 10) THEN
33. .0541*(T102 + TR(T102)) ELSE (IF (I >= 10) AND (J <= 9) THEN
34. .1811*(T102 + TR(T102)) ELSE 0)',NAME1='TRNLT#L',
35. NAME2='AUTOLT#L' &END
36. &SELECT PRINT=1,-27 &END
37. //UFMTR EXEC UFMTR,TIME=(,15),
38. // J1='DSN=##TRIPS1'
39. //SYSIN DD *
40. FINAL FACTORED PM PEAK TRIP ENDS FOR 27 ZONE TABLES -- ALT LT#L
41. &PARAM ZONES=27,DISTS=10,TABLES=1001,1002,TITLE1='TRNLT#L',
42. TITLE2='AUTOLT#L' &END
43. &SELECT REPORT=3 &END
44. &EQUIV SAME=1,-9 &END
45. &EQUIV DIST=10,Z=10,-27 &END
46. //EXPAND1 EXEC USQUEX,TIME=(,30),
47. // J1='DSN=##TRIPS1',
48. // J9='DSN=##TRIPS2'
49. //FT19F001 DD DISP=(,PASS)
50. //SYSIN DD *
51. EXPAND TO 127 ZONES -- ALT LT#L
52. &PARAM ZONES=127,DISTS=27,TABLES=1001,1002,OUTBPT=4,NAME1='TRNLT#L',
53. NAME2='AUTOLT#L' &END
54. &OPTION EXPAND=T &END
55. &SELECT REPORT=3,4,PRINT=14,19,106 &END
56. &EQUIV DIST=1,Z=102 &END
57. &EQUIV DIST=2,Z=103 &END
58. &EQUIV DIST=3,Z=104 &END

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MEMBER LIST FOR STEP013 (CONTINUED)

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59. &EQUIV DIST=4,Z=105 &END
60. &EQUIV DIST=5,Z=106 &END
61. &EQUIV DIST=6,Z=107 &END
62. &EQUIV DIST=7,Z=108 &END
63. &EQUIV DIST=8,Z=109 &END
64. &EQUIV DIST=9,Z=110 &END
65. &EQUIV DIST=10,Z=62,66,88,89,96,97 &END
66. &EQUIV DIST=11,Z=70,96,111,112 &END
67. &EQUIV DIST=12,Z=74,78,99 &END
68. &EQUIV DIST=13,Z=82,100,113 &END
69. &EQUIV DIST=14,Z=24,30 &END
70. &EQUIV DIST=15,Z=83 &END
71. &EQUIV DIST=16,Z=90,-92 &END
72. &EQUIV DIST=17,Z=84,-87,114,115 &END
73. &EQUIV DIST=18,Z=1,-11 &END
74. &EQUIV DIST=19,Z=12,-23 &END
75. &EQUIV DIST=20,Z=58 &END
76. &EQUIV DIST=21,Z=50,54 &END
77. &EQUIV DIST=22,Z=36,40,46,116 &END
78. &EQUIV DIST=23,Z=25,-29,31,-35,37,-39,41,-45,47,-49,51,-53 &END
79. &EQUIV DIST=24,Z=63,-65,67,-69,71,-73,75,-77 &END
80. &EQUIV DIST=25,Z=59,-61,93,-95,117,-119 &END
81. &EQUIV DIST=26,Z=55,-57,79,-81,120,-127 &END
82. &EQUIV DIST=27,Z=101 &END

```

&DATA

84.	1	.000	.000	.000	.000
85.	2	.020	.020	.020	.020
86.	3	.002	.002	.002	.002
87.	4	.0	.0	.0	.0
88.	5	.425	.425	.425	.425
89.	6	.131	.131	.131	.131
90.	7	.012	.012	.012	.012
91.	8	.004	.004	.004	.004
92.	9	.031	.031	.031	.031
93.	10	.371	.371	.371	.371
94.	11	.004	.004	.004	.004
95.	12	.020	.020	.020	.020
96.	13	.022	.022	.022	.022
97.	14	.087	.087	.087	.087
98.	15	.199	.199	.199	.199
99.	16	.052	.052	.052	.052
100.	17	.010	.010	.010	.010
101.	18	.093	.093	.093	.093
102.	19	.054	.054	.054	.054
103.	20	.077	.077	.077	.077
104.	21	.222	.222	.222	.222
105.	22	.079	.079	.079	.079
106.	23	.085	.085	.085	.085
107.	24	.270	.270	.270	.270
108.	25	.216	.216	.216	.216
109.	26	.014	.014	.014	.014
110.	27	.058	.058	.058	.058
111.	28	.056	.056	.056	.056
112.	29	.002	.002	.002	.002
113.	30	.328	.328	.328	.328
114.	31	.066	.066	.066	.066
115.	32	.108	.108	.108	.108
116.	33	.015	.015	.015	.015

NUMBER LIST FOR SITE#13 (CONTINUED)

117.	34	.088	.088	.088	.088
118.	35	.033	.033	.033	.033
119.	36	.402	.402	.402	.402
120.	37	.027	.027	.027	.027
121.	38	.017	.017	.017	.017
122.	39	.017	.017	.017	.017
123.	40	.898	.898	.898	.898
124.	41	.051	.051	.051	.051
125.	42	.070	.070	.070	.070
126.	43	.015	.015	.015	.015
127.	44	.020	.020	.020	.020
128.	45	.040	.040	.040	.040
129.	46	.005	.005	.005	.005
130.	47	.005	.005	.005	.005
131.	48	.027	.027	.027	.027
132.	49	.004	.004	.004	.004
133.	50	.393	.393	.393	.393
134.	51	.005	.005	.005	.005
135.	52	.016	.016	.016	.016
136.	53	.030	.030	.030	.030
137.	54	.607	.607	.607	.607
138.	55	.060	.060	.060	.060
139.	56	.063	.063	.063	.063
140.	57	.344	.344	.344	.344
141.	58	1.00	1.00	1.00	1.00
142.	59	.105	.105	.105	.105
143.	60	.271	.271	.271	.271
144.	61	.092	.092	.092	.092
145.	62	.332	.332	.332	.332
146.	63	.020	.020	.020	.020
147.	64	.090	.090	.090	.090
148.	65	.021	.021	.021	.021
149.	66	.044	.044	.044	.044
150.	67	.065	.065	.065	.065
151.	68	.189	.189	.189	.189
152.	69	.041	.041	.041	.041
153.	70	.289	.289	.289	.289
154.	71	.229	.229	.229	.229
155.	72	.082	.082	.082	.082
156.	73	.108	.108	.108	.108
157.	74	.329	.329	.329	.329
158.	75	.023	.023	.023	.023
159.	76	.032	.032	.032	.032
160.	77	.100	.100	.100	.100
161.	78	.139	.139	.139	.139
162.	79	.084	.084	.084	.084
163.	80	.037	.037	.037	.037
164.	81	.071	.071	.071	.071
165.	82	.564	.564	.564	.564
166.	83	1.000	1.000	1.000	1.000
167.	84	.180	.180	.180	.180
168.	85	.019	.019	.019	.019
169.	86	.000	.000	.000	.000
170.	87	.468	.468	.468	.468
171.	88	.270	.270	.270	.270
172.	89	.002	.002	.002	.002
173.	90	.086	.086	.086	.086
174.	91	.267	.267	.267	.267

## MEMBER LIST FOR STEP013 (CONTINUED)

175.	92	.647	.647	.647	.647
176.	93	.072	.072	.072	.072
177.	94	.211	.211	.211	.211
178.	95	.092	.092	.092	.092
179.	96	.150	.150	.150	.150
180.	97	.202	.202	.202	.202
181.	98	.403	.403	.403	.403
182.	99	.532	.532	.532	.532
183.	100	.420	.420	.420	.420
184.	101	1.00	1.00	1.00	1.00
185.	102	1.00	1.00	1.00	1.00
186.	103	1.00	1.00	1.00	1.00
187.	104	1.00	1.00	1.00	1.00
188.	105	1.00	1.00	1.00	1.00
189.	106	1.00	1.00	1.00	1.00
190.	107	1.00	1.00	1.00	1.00
191.	108	1.00	1.00	1.00	1.00
192.	109	1.00	1.00	1.00	1.00
193.	110	1.00	1.00	1.00	1.00
194.	111	.135	.135	.135	.135
195.	112	.173	.173	.173	.173
196.	113	.016	.016	.016	.016
197.	114	.313	.313	.313	.313
198.	115	.020	.020	.020	.020
199.	116	.097	.097	.097	.097
200.	117	.039	.039	.039	.039
201.	118	.094	.094	.094	.094
202.	119	.024	.024	.024	.024
203.	120	.012	.012	.012	.012
204.	121	.060	.060	.060	.060
205.	122	.006	.006	.006	.006
206.	123	.022	.022	.022	.022
207.	124	.047	.047	.047	.047
208.	125	.044	.044	.044	.044
209.	126	.033	.033	.033	.033
210.	127	.117	.117	.117	.117

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211. //SQUEEZ1 EXEC USQUEX,TIME=(,30),
212. // J1='DSN=8&&TRIPS2',
213. // J9='DSN=CSI.LADPM.TRIPTAB.REGM.TRNOD.ALTT#E'
214. //SYSIN DD *
215. COMPRESS TO 117 ZONES -- ALT ET#E
216. &PARAM ZONES=127,DISTS=117,TABLES=1001,1002,OUTBPT=4,NAME1='TRNET#E',
217. NAME2='AUTOET#E' &END
218. &OPTION SQUEEZ=T &END
219. &SFLECT REPORT=4,PRINT=14,19,106 &END
220. &EQUIV SAME=1,-49,54,-62,67,-74,79,-81,83,-87,90,-96,98,-110 &END
221. &EQUIV DIST=50,Z=50,116 &END
222. &EQUIV DIST=51,Z=51,122 &END
223. &EQUIV DIST=52,Z=52,123 &END
224. &EQUIV DIST=53,Z=53,124 &END
225. &EQUIV DIST=63,Z=63,117 &END
226. &EQUIV DIST=64,Z=64,118 &END
227. &EQUIV DIST=65,Z=65,119 &END
228. &EQUIV DIST=66,Z=66,111 &END
229. &EQUIV DIST=75,Z=75,125 &END
230. &EQUIV DIST=76,Z=76,126 &END
231. &EQUIV DIST=77,Z=77,127 &END
232. &EQUIV DIST=78,Z=78,113,120 &END

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233.      &FQUIV      DIST=82,Z=82,121      &END
234.      &FQUIV      DIST=88,Z=88,114      &END
235.      &FQUIV      DIST=89,Z=89,115      &END
236.      &FQUIV      DIST=97,Z=97,112      &END
237.      //UMATR2    EXEC  UMATRIX,TIME=(,30),
238.      //          J1='DSN=CSI.LADPM.TRIPTAB.REGN.TKNOD.ALTTET#',
239.      //          J9='DSN=&TRIPS4'
240.      //FT19F001  DD  DISP=(,PASS)
241.      //SYSIN      DD  *
242.      TRANSPOSE    AUTO TRIPS -- ALT RA#U
243.      &PARAM      ZONES=117,OUTBPT=4,COMBIN1='TR(T1002)',COMBIN2='T1002',
244.      &SELECT      NAME1='IARA#U',NAME2='OARA#U'      &END
245.      &SELECT      PRINT=14,19,106      &END
246.      //SQUEEZ2    EXEC  USQUELX,TIME=(,30),
247.      //          J1='DSN=&&TRIPS4',
248.      //          J9='DSN=&&TRIPS5'
249.      //FT19F001  DD  DISP=(,PASS)
250.      //SYSIN      DD  *
251.      COMPRESS     INBOUND AUTO TRIPS FROM 117 ZONES TO 9 CORRIDORS -- ALT RA#U
252.      &PARAM      ZONES=117,DISTS=10,TABLES=1001,OUTBPT=2,NAME1='AFRRA#U' &END
253.      &OPTION      SQUEEZ=T,ROW=T      &END
254.      &SELECT      REPORT=4,PRINT=14,19,106      &END
255.      &FQUIV      DIST=1,Z=102      &END
256.      &FQUIV      DIST=2,Z=103      &END
257.      &FQUIV      DIST=3,Z=104      &END
258.      &FQUIV      DIST=4,Z=105      &END
259.      &FQUIV      DIST=5,Z=106      &END
260.      &FQUIV      DIST=6,Z=107      &END
261.      &FQUIV      DIST=7,Z=108      &END
262.      &FQUIV      DIST=8,Z=109      &END
263.      &FQUIV      DIST=9,Z=110      &END
264.      &FQUIV      DIST=10,Z=1,-101,111,-117      &END
265.      //SQUEEZ3    EXEC  USQUEEX,TIME=(,30),
266.      //          J1='DSN=&&TRIPS4',
267.      //          J9='DSN=&&TRIPS6'
268.      //FT19F001  DD  DISP=(,PASS)
269.      //SYSIN      DD  *
270.      COMPRESS     GOUTHOUND AUTO TRIPS FROM 117 ZONES TO 9 CORRIDORS -- ALT RA#U
271.      &PARAM      ZONES=117,DISTS=10,TABLES=1002,OUTBPT=2,NAME1='ATORA#U' &END
272.      &OPTION      SQUEEZ=T,ROW=T      &END
273.      &SELECT      REPORT=4,PRINT=14,19,106      &END
274.      &FQUIV      DIST=1,Z=102      &END
275.      &FQUIV      DIST=2,Z=103      &END
276.      &FQUIV      DIST=3,Z=104      &END
277.      &FQUIV      DIST=4,Z=105      &END
278.      &FQUIV      DIST=5,Z=106      &END
279.      &FQUIV      DIST=6,Z=107      &END
280.      &FQUIV      DIST=7,Z=108      &END
281.      &FQUIV      DIST=8,Z=109      &END
282.      &FQUIV      DIST=9,Z=110      &END
283.      &FQUIV      DIST=10,Z=1,-101,111,-117      &END
284.      //UMATR3    EXEC  UMATRIX,TIME=(,30),
285.      //          J1='DSN=&&TRIPS5',
286.      //          J2='DSN=&&TRIPS6',
287.      //          J9='DSN=CSI.LADPM.TRIPTAB.REGN.AUTO.ALTRA#U'
288.      //SYSIN      DD  *
289.      TRANSPOSE    SHIFTED AUTO TRIPS -- ALT RA#U
290.      &PARAM      ZONES=117,OUTBPT=2,COMBIN1='TR(T2001)',COMBIN2='TR(T1001)',

```

MEMBER LIST FOR STEP013 (CONTINUED)

```
291.      NAME1='ATORA#U',NAME2='AFRRA#U'      &END  
292.      &SELECT PRINT=14,19,106      &END  
293.      //ALERT EXEC WTT
```

293 RECORDS IN MEMBER            9,843 BYTES IN COMPRESSED FORMAT

```

1. // JOB ( ,HERE), 'CSI8/STEP02', CLASS=Y,
2. // MSGLEVEL=(1,1)
3. // PROCLIB DD DSN=CSI.DISK.PROCLIB, DISP=SHR, UNIT=SYSDA, VOL=SER=USER04
4. // *
5. // * STEP02 -- BUILD REGIONAL TRANSIT TRIP TABLE
6. // *
7. // * MAKE THE FOLLOWING SUBSTITUTIONS BEFORE RUNNING --
8. // * #E = REGIONAL EXTERNAL TRANSIT TRIPS --
9. // * BETWEEN CORRIDORS AND CBD ZONES
10. // * #I = REGIONAL INTERNAL TRANSIT TRIPS --
11. // * BETWEEN BUS STOPS AND CBD ZONES
12. // * INSERT BUS STOP INPUT DATA AT LINE 22.001
13. // *
14. // BUSSTOP EXEC PGM=BUSSTOP, TIME=(,15), REGION=150K
15. // STEPLIB DD DSN=CSI.LADPM.BUSSTOP, DISP=SHR, UNIT=SYSDA, VOL=SER=USER04
16. // FT01F001 DD DSN=##TRIPRECS, DISP=(,PASS), UNIT=3330,
17. // VOL=SER=USER04,
18. // SPACE=(TRK,(5,5),RLSE), DCB=(RECFM=FB, LRECL=20, BLKSIZE=3000)
19. // FT06F001 DD SYSOUT=A
20. // FT11F001 DD DSN=CSI.LADPM.TRIPTAB.REGN.TRNOD.ALTET#E, DISP=SHR,
21. // UNIT=SYSDA, VOL=SER=USER04
22. // FT05F001 DD *
23. // MBLDTRN EXEC MBUILD,
24. // INPUT='DSN=##TRIPRECS',
25. // J9='DSN=##TEMPTRIP',
26. // MBUILD.FT19F001 DD DISP=(,PASS)
27. // MBUILD.SYSIN DD *
28. CREATE REGIONAL TRANSIT USER TRIP TABLE FOR INTRA-CBD TRIPS, ALTRT#T
29. &PARAM ZONES=117, OUTBPT=2, I='IN(1,4,1,117)', NAME1='TRNR#T',
30. J='IN(5,8,1,117)',
31. XIJK='IN(11,20,1,9999)',
32. LRECL=20
33. &END
34. &SELECT PRINT=14,19, REPORT=1,-4 &END
35. // FIXTRPS EXEC UMATRIX, TIME=(,30),
36. // J1='DSN=##TEMPTRIP',
37. // J9='DSN=CSI.LADPM.TRIPTAB.REGN.TRN.ALTRT#T',
38. ADJUSTED REGIONAL TRANSIT TRIP TABLES, ALTERNATIVE RT#T
39. &PARAM ZONES=117, OUTBPT=2, COMBIN1='IF (I > 101) AND (J = 1)
40. THEN 1 ELSE T101',
41. NAME1='TRNR#T' &END
42. &SELECT PRINT=14,19 &END
43. // UFMTR1 EXEC UFMTR, TIME=(,15),
44. // J1='DSN=CSI.LADPM.TRIPTAB.REGN.TRN.ALTRT#T',
45. // SYSIN DD *
46. TRIP ENDS FOR REGIONAL TRANSIT TRIP TABLES, ALT RT#T
47. &PARAM ZONES=117, TABLES=1001, TITLE1='TRNR#T' &END
48. &SELECT REPORT=3 &END
49. // ALERT EXEC WTT

```

49 RECORDS IN MEMBER

1,997 BYTES IN COMPRESSED FORMAT

```
1. // JOB ( ,HERE), 'CSIB/STEP03', CLASS=Y,
2. // MSGLEVEL=(1,1)
3. //PROCLIB DD DSN=CSI.DISK.PROCLIB,DISP=SHR,UNIT=SYSDA,VOL=SER=USER04
4. //*
5. //* STEP03 -- BUILD AUTO NETWORK
6. //*
7. //* MAKE THE FOLLOWING SUBSTITUTIONS BEFORE RUNNING --
8. //* #A = ALTERNATIVE NUMBER
9. //* INSERT AUTO NETWORK AT LINE 18.001
10. //*
11. //ATIMENET EXEC UNET,REGION=130K,TIME=(,30),
12. // NNET='DSN=CSI.LADPM.NETWORK.ATIME.ALTAN#A'
13. BUILD AUTO NETWORK, ALTERNATIVE AN#A
14. &PARAM ZONFS=117,NODES=600 &FND
15. &OPTION BUILD=T REND
16. &SFLECT REPORT=1,-3 &FND
17. &DATA
18. 9
19. 9
20. //ALERT EXEC WTT
```

20 RECORDS IN MEMBER

640 BYTES IN COMPRESSED FORMAT

```
1. // JOB ( ,HERE), 'CSIB/STEP04', CLASS=Y,
2. // MSGLEVEL=(1,1)
3. //PROCLIB DD DSN=CSI.DISK.PROCLIB, DISP=SHR, UNIT=SYSDA, VOL=SER=USER04
4. // *
5. // * STEP04 -- BUILD PM PEAK AND MIDDAY MULTIMODAL NETWORKS
6. // *
7. // * MAKE THE FOLLOWING SUBSTITUTIONS BEFORE RUNNING --
8. // * #M = MULTIMODAL NETWORK ALTERNATIVE NUMBER
9. // * INSERT LINK AND LINE CARDS AT LINE 18.001 AND AT LINE 26.001
10. // *
11. //PMNET EXEC UNET, REGION=130K, TIME=(,30),
12. // NNET='DSN=CSI.LADPM.NETWORK.MMODEPM.ALTMN#M'
13. BUILD PM PEAK MULTIMODAL NETWORK, ALTERNATIVE MN#M
14. &PARAM ZONFS=117, NODES=750, LENAM=0, LENPM=1 &END
15. &OPTION BUILD=T, AM=F, PM=T &END
16. &SELECT REPORT=1,-6, RMODES=4,-8 &END
17. &DATA
18. 9
19. //MIDNET EXEC UNET, REGION=130K, TIME=(,30),
20. // NNET='DSN=CSI.LADPM.NETWORK.MMODEMID.ALTMN#M'
21. BUILD MIDDAY MULTIMODAL NETWORK, ALTERNATIVE MN#M
22. &PARAM ZONES=117, NODES=750, LENAM=0, LENMID=1 &END
23. &OPTION BUILD=T, AM=F, MIDDAY=T &END
24. &SELECT REPORT=4,-6, RMODES=4,-8 &END
25. &DATA
26. 9
27. //ALERT EXEC WTT
```

27 RECORDS IN MEMBER

1,076 BYTES IN COMPRESSED FORMAT

```

1. // JOB ( ,HERE), 'CSI/STEP05', CLASS=Y,
2. // MSGLEVEL=(1,1)
3. //PROCLIB DD DSN=CSI.DISK.PROCLIB, DISP=SHR, UNIT=SYSDA, VOL=SER=USER04
4. /**
5. /** STEP05 -- DEVELOP WALK LEVEL OF SERVICE DATA
6. /**
7. /** MAKE THE FOLLOWING SUBSTITUTIONS BEFORE RUNNING --
8. /** #M = MULTIMODAL NETWORK ALTERNATIVE NUMBER
9. /** #W = WALK LOS ALTERNATIVE NUMBER
10. /**
11. //WALKPTH EXEC UPATH, TIME=(,30),
12. // NET='DSN=CSI.LADPM.NETWORK.MMODEPM.ALTMN#M',
13. // J1='DSN=88WLKSKMS'
14. //FT11F001 DD DISP=(,PASS)
15. WALK DISTANCES, GRADES, AND TIMES, ALTERNATIVE WK#W
16. &PARAM LFARE(1,1)=100, NAME1='WDISWK#W', NAME2='WFARWK#W',
17. NAME3='WTTMWK#W' &END
18. &OPTION NOX(1,4)=T, NOX(1,5)=T, NOX(1,6)=T, NOX(1,7)=T,
19. NOX(1,8)=T, IMPED=T, DIST=T, FARE=T,
20. NOX(3,4)=T, NOX(3,5)=T, NOX(3,6)=T, NOX(3,7)=T,
21. NOX(3,8)=T &END
22. &SELECT RFPRT=4,6,7,I=1,-117,PRINT=14,19 &END
23. &DATA
24. 168 170 1 1
25. 334 330 1 1
26. 336 332 1 1
27. 166 170 1 1
28. 173 172 1 1
29. 334 173 1 1
30. 336 334 1 1
31. 184 178 1 1
32. 186 178 1 1
33. 350 346 1 1
34. 378 376 1 1
35. 376 362 1 1
36. 380 378 1 1
37. 218 208 1 1
38. 228 218 1 1
39. 165 168 1 1
40. 330 169 1 1
41. 352 334 1 1
42. 178 170 1 1
43. 184 186 1 1
44. 196 198 1 1
45. 205 200 1 1
46. 216 215 1 1
47. 215 213 1 1
48. 204 207 1 1
49. 203 193 1 1
50. 182 183 1 1
51. 392 378 1 1
52. 512 514 1 1
53. 526 516 1 1
54. 407 518 1 1
55. 550 522 1 1
56. 226 524 1 1
57. 530 526 1 1
58. 200 540 1 1

```

59.	202	542	1	1
60.	543	502	1	1
61.	184	546	1	1
62.	170	546	1	1
63.	170	168	1	1
64.	330	334	1	1
65.	332	336	1	1
66.	170	166	1	1
67.	172	173	1	1
68.	173	334	1	1
69.	334	336	1	1
70.	178	184	1	1
71.	178	186	1	1
72.	346	350	1	1
73.	376	375	1	1
74.	362	376	1	1
75.	378	380	1	1
76.	208	218	1	1
77.	218	228	1	1
78.	168	169	1	1
79.	169	330	1	1
80.	334	352	1	1
81.	170	178	1	1
82.	186	184	1	1
83.	198	196	1	1
84.	200	205	1	1
85.	215	216	1	1
86.	213	215	1	1
87.	207	204	1	1
88.	193	203	1	1
89.	183	182	1	1
90.	378	392	1	1
91.	514	512	1	1
92.	516	528	1	1
93.	518	407	1	1
94.	522	550	1	1
95.	524	225	1	1
96.	526	530	1	1
97.	540	230	1	1
98.	542	202	1	1
99.	502	543	1	1
100.	546	184	1	1
101.	548	170	1	1

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```

102. /*
103. //WALKLOS EXEC UMATRIX,TIME=(.30),
104. // J1='DSN=8&&WLKSKMS',
105. // J9='DSN=CSI.LADPM.LOSTAB.WALK.ALTWK#W'
106. MERGED DISTANCE, GRADE, AND TIMES FOR WALK, ALTERNATIVE WK#W
107. &PARAM ZONES=117,OUTGPT=2,COMBIN1='IF T101 < 1 THEN 1 ELSE T101',
108. COMBIN2='IF T102 > 1 THEN 1 ELSE 0',
109. COMBIN3='IF (I < 102) OR (I > 110) THEN
110. (IF T103 > 234 THEN 16384 ELSE (IF (T103 < 21) THEN 20
111. ELSE T103)) ELSE 16384',NAME1='WDISWK#W',NAME2='WGRDWK#W',
112. NAME3='WTIMWK#W'
113. &END
114. &SELECT PRINT=14,19 &END
115. //ALERT EXEC WTT
116. /*
    
```

```

1. // JOB ( ,HERE), 'CSIG/STEP06', CLASS=Y,
2. // MSGLEVEL=(1,1)
3. //PROCLIB DD DSN=CSI.DISK.PROCLIB,DISP=SHR,UNIT=SYSDA,VOL=SER=USER04
4. /**
5. /**      STEP06 -- DEVELOP AUTO LEVEL OF SERVICE DATA
6. /**
7. /**      MAKE THE FOLLOWING SUBSTITUTIONS BEFORE RUNNING --
8. /**      #A = AUTO NETWORK AND LOS ALTERNATIVE NUMBER
9. /**      #W = WALK LOS ALTERNATIVE NUMBER
10. /**
11. //AUTOPTH EXEC UPATH,TIME=(,30),
12. //      NET='DSN=CSI.LADPM.NETWORK.ATIME.ALTAN#',
13. //      J1='DSN=CSI.AUTOSKMS',
14. //FT11F001 DD DISP=(,PASS)
15. //      AUTO TIME AND DISTANCE SKIMS FOR ALL ZONES, ALTERNATIVE AN#A
16. //      &PARAM NAME1='ATDSAN#',NAME2='ATIMAN#' &END
17. //      &OPTION DIST=T,IMPEC=T &END
18. //      &SELECT REPORT=4,5,7,I=1,-117,PRINT=14,19 &END
19. /**
20. //AUTOLOS EXFC UMATRIX,TIME=(,30),
21. //      J1='DSN=CSI.AUTOSKMS',
22. //      J2='DSN=CSI.LADPM.LOSTAB.WALK.ALTWK#W',
23. //      J9='DSN=CSI.LADPM.LOSTAB.AUTO.ALTAN#',
24. //      ADJUSTED AUTO TIME AND DISTANCE SKIMS, ALTERNATIVE AN#A
25. //      &PARAM ZONES=117,OUTBPT=2,COMBIN1='IF T101 < 1 THEN 1 ELSE T101',
26. //      COMBIN2='IF (T203 < 56) OR (T102 < 26) THEN 16384 ELSE T102',
27. //      NAME1='ADISAN#',NAME2='ATIMAN#' &END
28. //      &SELECT PRINT=14,19 &END
29. /**
30. //SGEZAUTO EXEC USGUEX,TIME=(,30),
31. //      J1='DSN=CSI.LADPM.LOSTAB.AUTO.ALTAN#',
32. //      J9='DSN=CSI.LADPM.LOSTAB.APRK.ALTAN#',
33. //      AUTO DISTANCE TABLE WITH SHIFTED ROWS FOR PARKING MODELS, ALT AN#A
34. //      &PARAM ZONES=117,DISTS=10,TABLES=101,OUTBPT=2,NAME1='ADISAN#'
35. //      &END
36. //      &OPTION SQUEEZ=T,ROW=T &END
37. //      &SELECT PRINT=5 &END
38. //      &EQUIV DIST=1,Z=102 &END
39. //      &EQUIV DIST=2,Z=103 &END
40. //      &EQUIV DIST=3,Z=104 &END
41. //      &EQUIV DIST=4,Z=105 &END
42. //      &EQUIV DIST=5,Z=106 &END
43. //      &EQUIV DIST=6,Z=107 &END
44. //      &EQUIV DIST=7,Z=108 &END
45. //      &EQUIV DIST=8,Z=109 &END
46. //      &EQUIV DIST=9,Z=110 &END
47. //      &EQUIV DIST=10,Z=1,-101,111,-117 &END
48. //ALERT EXFC WTT
49. /**

```

49 RECORDS IN MEMBER

1,906 BYTES IN COMPRESSED FORMAT

```

1. // JOB ( ,HERE), 'CSIE/STEP07', CLASS=Y,
2. // MSGLEVEL=(1,1)
3. //PROCLIB DD DSN=CSI.DISK.PROCLIB,DISP=SHR,UNIT=SYSDA,VOL=SER=USER04
4. //*
5. //* STEP07 -- DEVELOP CIRCULATOR LEVEL OF SERVICE DATA
6. //* CIRCULATOR = MODE 4
7. //*
8. //* MAKE THE FOLLOWING SUBSTITUTIONS BEFORE RUNNING --
9. //* #M = MULTIMODAL NETWORK ALTERNATIVE NUMBER
10. //* #C = CIRCULATOR LOS ALTERNATIVE NUMBER
11. //* #W = WALK LOS ALTERNATIVE NUMBER
12. //*
13. //UPATH EXEC PGM=UPATH,REGION=200K,TIME=(,30)
14. //STEPLIB DD UNIT=3330,DSN=CSI.URD.PROGLIB.V76,DISP=SHR,
15. // VOL=SER=USER04
16. //FT01F001 DD DSN=CSI.LADPM.NETWORK.MMODEPM.ALTMN#M.NET1,UNIT=3330,
17. // DISP=OLD,VOL=SER=USER04 LINKS
18. //FT02F001 DD DSN=CSI.LADPM.NETWORK.MMODEPM.ALTMN#M.NET2,UNIT=3330,
19. // DISP=OLD,VOL=SER=USER04 FREQ
20. //FT03F001 DD DSN=CSI.LADPM.NETWORK.MMODEPM.ALTMN#M.NET3,UNIT=3330,
21. // DISP=OLD,VOL=SER=USER04 LINKS
22. //FT04F001 DD DSN=CSI.LADPM.NETWORK.MMODEPM.ALTMN#M.NET4,UNIT=3330,
23. // DISP=OLD,VOL=SER=USER04 ANODE
24. //FT05F001 DD DDNAME=SYSIN
25. //FT06F001 DD SYSOUT=A
26. //FT09F001 DD DSN=&&CIRCPTH,UNIT=3330,DISP=(,KEEP), PATH
27. // DCB=(RECFM=VBS,LRECL=2004,BLKSIZE=2008),
28. // SPACE=(TRK,(20,10),RLSE)
29. //FT11F001 DD DUMMY FARE
30. //FT20F001 DD UNIT=SYSDA,SPACE=(TRK,(1,1)), SCR1
31. // DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
32. //FT21F001 DD DSN=CSI.URD.LOG,DISP=SHR,UNIT=SYSDA,VOL=SER=USER04
33. //SYSIN DD *
34. CIRCULATOR TIME SKIMS FOR ALL ZONES, ALTERNATIVE CR#C
35. &PARAM RUN(5)=3.0,5.0,
36. WAIT(4)=0.1 &FND
37. &OPTION AM=F,PM=T &END
38. &SELECT I=1,-117,PRINT=14,19 &END
39. /*
40. //UPSUM EXEC PGM=UPSUM,REGION=350K,TIME=(,30)
41. //STEPLIB DD UNIT=3330,DSN=CSI.URD.PROGLIB.V76,DISP=SHR,
42. // VOL=SER=USER04
43. //FT05F001 DD DDNAME=SYSIN
44. //FT06F001 DD SYSOUT=A
45. //FT09F001 DD DSN=&&CIRCPTH,UNIT=SYSDA,DISP=SHR PATH
46. //FT11F001 DD DSN=&&CIRCCKMS,UNIT=SYSDA,DISP=(,PASS), SKIM
47. // DCB=(RECFM=VBS,LRECL=1604,BLKSIZE=1608), PATH
48. // SPACE=(TRK,(20,5),RLSF),VOL=SER=USER04
49. //FT20F001 DD UNIT=SYSDA,SPACE=(TRK,(1,1)), SCR1
50. // DCB=(RECFM=FB,LRECL=80,BLKSIZE=800) FILE
51. //FT21F001 DD DSN=CSI.URD.LOG,DISP=SHR,UNIT=SYSDA,VOL=SER=USER04
52. //SYSIN DD *
53. CIRCULATOR TIME SKIMS FOR ALL ZONES, ALTERNATIVE CR#C
54. &PARAM TAPOUT=2,TRUN(1)=2,2,2,1,4*2,TWAIT=2*2,NAME1='CTTMCR#C',
55. NAME2='NCTMCR#C' &END
56. &SELECT PRINT=14,19 &END
57. //CIRCLOS EXEC UMATRIX,TIME=(,30),
58. // J1='DSN=&&CIRCCKMS',

```

MEMBER LIST FOR STEP07 (CONTINUED)

```
59. // J2='DSN=CSI.LADPM.LOSTAB.WALK.ALTWK#W',
60. // J9='DSN=CSI.LADPM.LOSTAB.CIRC.ALTCR#C'
61. ADJUSTED CIRCULATOR TIME SKIMS, ALTERNATIVE CR#C
62. &PARAM ZONES=117,OUTBPT=2,COMBIN1='IF (I<102) OR (I > 110)
63. THEN (IF (T203 < 56) OR (T101 < 2)
64. THEN 16384 ELSE (T101 +T102)) ELSE 16384',NAME1='CTIMCR#C' &END
65. &SELECT PRINT=14,19 &END
66. //ALERT EXEC WTT
67. /*
```

67 RECORDS IN MEMBER

2,964 BYTES IN COMPRESSED FORMAT

```

1. // JOB ( ,HERE), 'CSIB/STEP08', CLASS=Y,
2. // MSGLEVFL=(1,1)
3. //PROCLIB DD DSN=CSI.DISK.PROCLIB,DISP=SHR,UNIT=SYSDA,VOL=SER=USER04
4. /**
5. /** STEP08 -- DEVELOP PEOPLE MOVER LEVEL OF SERVICE DATA AND
6. /** NETWORK PATHS FOR ASSIGNMENT
7. /** PEOPLE MOVER = MODE 5
8. /**
9. /** MAKE THE FOLLOWING SUBSTITUTIONS BEFORE RUNNING --
10. /** #M = MULTIMODAL NETWORK ALTERNATIVE NUMBER
11. /** #P = PEOPLE MOVER LOS ALTERNATIVE NUMBER
12. /** #W = WALK LOS ALTERNATIVE NUMBER
13. /**
14. //UPATH EXEC PGM=UPATH,REGION=200K,TIME=(,30)
15. //STEP16 DD UNIT=3330,DSN=CSI.URD.PROGLIB.V76,DISP=SHR,
16. // VOL=SER=USER04
17. //FT01F001 DD DSN=CSI.LADPM.NETWORK.MMODEPM.ALTMN#M.NET1,UNIT=3330,
18. // DISP=OLD,VOL=SER=USER04 LINES
19. //FT02F001 DD DSN=CSI.LADPM.NETWORK.MMODEPM.ALTMN#M.NET2,UNIT=3330,
20. // DISP=OLD,VOL=SER=USER04 FREQ
21. //FT03F001 DD DSN=CSI.LADPM.NETWORK.MMODEPM.ALTMN#M.NET3,UNIT=3330,
22. // DISP=OLD,VOL=SER=USER04 LINKS
23. //FT04F001 DD DSN=CSI.LADPM.NETWORK.MMODEPM.ALTMN#M.NET4,UNIT=3330,
24. // DISP=OLD,VOL=SER=USER04 ANODE
25. //FT05F001 DD DDNAME=SYSIN
26. //FT06F001 DD SYSOUT=A
27. //FT09F001 DD DSN=CSI.LADPM.PATHS.PMVR.ALTMP#P, PATH
28. // UNIT=SYSDA,DISP=(,KEEP),VOL=SER=USER04,
29. // DCB=(RECFM=VBS,LRECL=2004,BLKSIZE=2008),
30. // SPACE=(TRK,(20,10),RLSE)
31. //FT11F001 DD DUMMY FARE
32. //FT20F001 DD UNIT=SYSDA,SPACE=(TRK,(1,1)), SCR1
33. // DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
34. //FT21F001 DD DSN=CSI.URD.LOG,DISP=SHR,UNIT=SYSDA,VOL=SER=USER04
35. //SYSIN DD *
36. PEOPLE MOVER TIME SKIMS FOR ALL ZONES, ALTERNATIVE PM#P
37. &PARAM RUN(2)=0.1,1.0,5.0,0.1,3*5.0,
38. WAIT(4)=2.5,0.1,3*2.5 &END
39. &OPTION AM=F,PM=T &END
40. &SELECT I=1,-117,PRINT=14,19 &END
41. /*
42. //UPSUM EXEC PGM=UPSUM,REGION=350K,TIME=(,30)
43. //STEP16 DD UNIT=3330,DSN=CSI.URD.PROGLIB.V76,DISP=SHR,
44. // VOL=SER=USER04
45. //FT05F001 DD DDNAME=SYSIN
46. //FT06F001 DD SYSOUT=A
47. //FT09F001 DD DSN=CSI.LADPM.PATHS.PMVR.ALTMP#P, PATH
48. // DISP=SHR,UNIT=SYSDA,VOL=SER=USER04
49. //FT11F001 DD DSN=&PMVRSKMS,UNIT=3330,DISP=(,PASS), SKIM
50. // DCB=(RECFM=VBS,LRECL=1604,BLKSIZE=1608), PATH
51. // SPACE=(TRK,(20,5),RLSE),VOL=SER=USER04
52. //FT20F001 DD UNIT=SYSDA,SPACE=(TRK,(1,1)), SCR1
53. // DCB=(RECFM=FB,LRECL=80,BLKSIZE=800) FILE
54. //FT21F001 DD DSN=CSI.URD.LOG,DISP=SHR,UNIT=SYSDA,VOL=SER=USER04
55. //SYSIN DD *
56. PEOPLE MOVER TIME SKIMS FOR ALL ZONES, ALTERNATIVE PM#P
57. &PARAM TABOUT=2,TRUN(1)=4*2,1,3*2,TWAIT=2*2,NAMF1='PTTMP#P',
58. NAME2='NPTMP#P' &END

```

MEMBER LIST FOR STEP06 (CONTINUED)

```

59.      &SELECT PRINT=14,19 &END
60.      //FMVRL0S EXEC UMATRIX,TIME=(,30),
61.      //      J1='DSN=&&PMVRSKMS',
62.      //      J2='DSN=CSI.LADPM.LOSTAB.WALK.ALTWK#W',
63.      //      J9='DSN=CSI.LADPM.LOSTAB.PMVR.ALTPM#P'
64.      ADJUSTED PEOPLE MOVER TIME SKIMS, ALTERNATIVE PM#P
65.      &PARAM ZONES=117,OUTEPT=2,COMBIN1='IF (I<102) OR (I > 110)
66.              THEN (IF (T203 < 56) OR (T101 < 1)
67.              THEN 16384 ELSE (T101 +T102)) ELSE 16384',NAME1='PTIMPM#P',
68.              COMBIN2='IF (I>=114) OR (J>=114) THEN 1 ELSE 0',
69.              NAME2='PLDMPM#P' &END
70.      &SELECT PRINT=14,19 &END
71.      //ALFRT EXEC WTT
72.      /*

```

72 RECORDS IN MEMBER            3,210 BYTES IN COMPRESSED FORMAT

```

1. // JOB ( ,HERE), 'CSI/STEP09',CLASS=Y,
2. // MSGLEVEL=(1,1)
3. //PROCLIB DD DSN=CSI.DISK.PROCLIB,DISP=SHR,UNIT=SYSDA,VOL=SER=USER04
4. /**
5. /**      STEP09 -- DEVELOP REGIONAL BUS LEVEL OF SERVICE DATA
6. /**      REGIONAL BUS = MODES 6,7 AND 8
7. /**
8. /**      MAKE THE FOLLOWING SUBSTITUTIONS BEFORE RUNNING --
9. /**      #M = MULTIMODAL NETWORK ALTERNATIVE NUMBER
10. /**      #R = REGIONAL BUS LOS ALTERNATIVE NUMBER
11. /**      #W = WALK LOS ALTERNATIVE NUMBER
12. /**
13. //UPATH1 EXEC PGM=UPATH,REGION=200K,TIME=(,30)
14. //STEPLIB DD UNIT=3330,DSN=CSI.URD.PROGLIB.V76,DISP=SHR,VOL=SER=USER04
15. //FT01F001 DD DSN=CSI.LADPM.NETWORK.MMODEPM.ALT#M.NET1,UNIT=3330,
16. //   DISP=OLD,VOL=SER=USER04 LINES
17. //FT02F001 DD DSN=CSI.LADPM.NETWORK.MMODEPM.ALT#M.NET2,UNIT=3330,
18. //   DISP=OLD,VOL=SER=USER04 FREQ
19. //FT03F001 DD DSN=CSI.LADPM.NETWORK.MMODEPM.ALT#M.NET3,UNIT=3330,
20. //   DISP=OLD,VOL=SER=USER04 LINKS
21. //FT04F001 DD DSN=CSI.LADPM.NETWORK.MMODEPM.ALT#M.NET4,UNIT=3330,
22. //   DISP=OLD,VOL=SER=USER04 ANODE
23. //FT05F001 DD DDNAME=SYSIN
24. //FT06F001 DD SYSOUT=A
25. //FT09F001 DD DSN=&RBP#HSPM,UNIT=SYSDA,DISP=(,PASS),          PATH
26. //   DCB=(RECFM=VBS,LRECL=2004,BLKSIZE=2008),
27. //   SPACE=(TRK,(20,10),RLSE),VOL=SER=USER04
28. //FT11F001 DD DUMMY          FARE
29. //FT20F001 DD UNIT=SYSDA,SPACE=(TRK,(1,1)),          SCR1
30. //   DCB=(RECFM=FB,LRECL=60,BLKSIZE=800)
31. //FT21F001 DD DSN=CSI.URD.LOG,DISP=SHR,UNIT=SYSDA,VOL=SER=USER04
32. //SYSIN DD *
33. REGIONAL BUS PM PEAK TIME SKIMS FOR ALL ZONES, ALTERNATIVE RB#R
34. &PARAM RUN(4)=2*5.0,XFERS=1,
35. WAIT(6)=2.5 &END
36. &OPTION AM=F,PM=T &END
37. &SELECT I=1,-117,PRINT=14,19 &END
38. /*
39. //UPSUM1 EXEC PGM=UPSUM,REGION=350K,TIME=(,30)
40. //STEPLIB DD UNIT=3330,DSN=CSI.URD.PROGLIB.V76,DISP=SHR,VOL=SER=USER04
41. //FT05F001 DD DDNAME=SYSIN
42. //FT06F001 DD SYSOUT=A
43. //FT09F001 DD DSN=&RBP#HSPM,UNIT=SYSDA,DISP=SHR,VOL=SER=USER04 PATH
44. //FT11F001 DD DSN=&RBS#KMSPM,UNIT=SYSDA,DISP=(,PASS),          SKIM
45. //   DCB=(RECFM=VBS,LRECL=1604,BLKSIZE=1608),          PATH
46. //   SPACE=(TRK,(20,5),RLSE),VOL=SER=USER04
47. //FT20F001 DD UNIT=SYSDA,SPACE=(TRK,(1,1)),          SCR1
48. //   DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)          FILE
49. //FT21F001 DD DSN=CSI.URD.LOG,DISP=SHR,UNIT=SYSDA,VOL=SER=USER04
50. //SYSIN DD *
51. REGIONAL BUS PM PEAK TIME SKIMS FOR ALL ZONFS, ALTERNATIVE RB#R
52. &PARAM TABOUT=2,TRUNC(1)=5*2,3*1,TWAIT=2*2,NAME1='RT#R#R#R',
53. NAME2='NR#R#R#R' &END
54. &SELECT PRINT=14,19 &END
55. //PMLOS EXEC UMATRIX,TIME=(,30),
56. //   J1='DSN=&RBS#KNSPM',
57. //   J2='DSN=CSI.LADPM.LOSTAB.WALK.ALTWK#W',
58. //   J9='DSN=CSI.LADPM.LOSTAB.RBUSPM.ALTRB#R'

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## MEMBER LIST FOR STEP09 (CONTINUED)

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59.    ADJUSTED REGIONAL BUS PM PEAK TIME SKIMS, ALTERNATIVE RB#R
60.    &PARAM ZONES=117,OUTBPT=2,COMBIN1='IF (I<102) OR (I > 110)
61.          THEN (IF (T203 < 56) OR (T101 < 2)
62.          THEN 16384 ELSE (T101 +T102)) ELSE 16384',
63.          NAME1='RTIMRB#R' &END
64.    &SFLCT PRINT=14,19 &END
65.    //UPATH2 EXEC PGM=UPATH,REGION=200K,TIME=(,30)
66.    //STEPLIB DD UNIT=3330,DSN=CSI.URD.PROGLIB.V76,DISP=SHR,VOL=SFR=USER04
67.    //FT01F001 DD DSN=CSI.LADPM.NETWORK.MMODEMID.ALTMN#M.NET1,UNIT=3330,
68.    //          DISP=OLD,VOL=SER=USER04 LINES
69.    //FT02F001 DD DSN=CSI.LADPM.NETWORK.MMODEMID.ALTMN#M.NET2,UNIT=3330,
70.    //          DISP=OLD,VOL=SER=USER04 FREQ
71.    //FT03F001 DD DSN=CSI.LADPM.NETWORK.MMODEMID.ALTMN#M.NET3,UNIT=3330,
72.    //          DISP=OLD,VOL=SER=USER04 LINKS
73.    //FT04F001 DD DSN=CSI.LADPM.NETWORK.MMODEMID.ALTMN#M.NET4,UNIT=3330,
74.    //          DISP=OLD,VOL=SER=USER04 ANODE
75.    //FT05F001 DD DDNAME=SYSIN
76.    //FT06F001 DD SYSOUT=A
77.    //FT05FG01 DD DSN=&&RBPTHSMO,UNIT=SYSDA,DISP=(,PASS),          PATH
78.    //          DCB=(RECFM=VBS,LRECL=2004,BLKSIZE=2008),
79.    //          SPACE=(TRK,(20,10),RLSE),VOL=SER=USER04
80.    //FT11F001 DD DUMMY          FARE
81.    //FT20F001 DD UNIT=SYSDA,SPACE=(TRK,(1,1)),          SCR1
82.    //          DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
83.    //FT21F001 DD DSN=CSI.URD.LOG,DISP=SHR,UNIT=SYSDA,VOL=SER=USER04
84.    //SYSIN DD *
85.    REGIONAL BUS MIDDAY TIME SKIMS FOR ALL ZONES, ALTERNATIVE RB#R
86.    &PARAM RUN(4)=2*5.0,XFERS=1,
87.          WAIT(6)=2.5 &END
88.    &OPTION AM=F,MIDDAY=T &END
89.    &SFLCT I=1,-117,PRINT=14,19 &END
90.    /*
91.    //UPSUM2 EXEC PGM=UPSUM,REGION=350K,TIME=(,30)
92.    //STEPLIB DD UNIT=3330,DSN=CSI.URD.PROGLIB.V76,DISP=SHR,VOL=SER=USER04
93.    //FT05F001 DD DDNAME=SYSIN
94.    //FT06F001 DD SYSOUT=A
95.    //FT09F001 DD DSN=&&RBPTHSMO,UNIT=SYSDA,DISP=SHR,VOL=SFR=USER04 PATH
96.    //FT11F001 DD DSN=&&RBSKMSMO,UNIT=SYSDA,DISP=(,PASS),          SKIM
97.    //          DCB=(RECFM=VBS,LRECL=1604,BLKSIZE=1608),          PATH
98.    //          SPACE=(TRK,(20,5),RLSE),VOL=SFR=USER04
99.    //FT20F001 DD UNIT=SYSDA,SPACE=(TRK,(1,1)),          SCR1
100.   //          DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)          FILE
101.   //FT21F001 DD DSN=CSI.URD.LOG,DISP=SHR,UNIT=SYSDA,VOL=SFR=USER04
102.   //SYSIN DD *
103.   REGIONAL BUS MIDDAY TIME SKIMS FOR ALL ZONES, ALTERNATIVE RB#R
104.   &PARAM TABOUT=2,TRUN(1)=5*2,3*1,TWAIT=2*2,NAME1='RTIMRB#R',
105.         NAME2='NATMRB#R' &END
106.   &SFLCT PRINT=14,19 &END
107.   //MIDLOS EXEC UMATRIX,TIME=(,30),
108.   //          J1='DSN=&&RBSKMSMO',
109.   //          J2='DSN=CSI.LADPM.LOSTAB.WALK.ALTWK#W',
110.   //          J9='DSN=CSI.LADPM.LOSTAB.RBUSMID.ALTRB#R'
111.   ADJUSTED REGIONAL BUS MIDDAY TIME SKIMS, ALTERNATIVE RB#R
112.   &PARAM ZONES=117,OUTBPT=2,COMBIN1='IF (I<102) OR (I > 110)
113.         THEN (IF (T203 < 56) OR (T101 < 2)
114.         THEN 16384 ELSE (T101 +T102)) ELSE 16384',
115.         NAME1='RTIMRB#R' &END
116.   &SFLCT PRINT=14,19 &END

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MEMBER LIST FOR SIER09 CONTINUED,

117. //ALERT EXEC WTT  
118. /\*

118 RECORDS IN MEMBER 5,569 BYTES IN COMPRESSED FORMAT

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1. // JOB ( ,HERE), 'CSIB/STEP10.1', CLASS=Y,
2. // MSGLEVEL=(1,1)
3. //PROCLIB DD DSN=CSI.DISK.PROCLIB,DISP=SHR,UNIT=SYSDA,VOL=SER=USER04
4. // *
5. // * STEP10 -- RUN PEAK PERIOD MODELS
6. // * TASK 1 -- RUN REGIONAL TRANSIT MODE SPLIT MODEL
7. // *
8. // * MAKE THE FOLLOWING SUBSTITUTIONS BEFORE RUNNING --
9. // * #W = WALK LOS ALTERNATIVE NUMBER
10. // * #C = CIRCULATOR LOS ALTERNATIVE NUMBER
11. // * #R = REGIONAL BUS LOS ALTERNATIVE NUMBER
12. // * #P = PEOPLE MOVER LOS ALTERNATIVE NUMBER
13. // * #T = REGIONAL TRANSIT TRIP TABLE ALTERNATIVE NUMBER
14. // *
15. // * #S = OUTPUT SYSTEM ALTERNATIVE NUMBER
16. // *
17. //RTRANS EXEC PGM=LOGAP01,REGION=250K,TIME=(,30)
18. //STEPLIB DD DSN=CSI.LOGAP01.MAY1777,DISP=(SHR,PASS),
19. // UNIT=SYSDA,VOL=SER=USER04
20. //FT05F001 DD DDNAME=SYSIN
21. //FT06F001 DD SYSOUT=A
22. //FT11F001 DD DSN=CSI.LADPM.LOSTAB.WALK.ALTKW#W,DISP=SHR,
23. // UNIT=SYSDA,VOL=SER=USER04
24. //FT12F001 DD DSN=CSI.LADPM.LOSTAB.RBUSPM.ALTRB#R,DISP=SHR,
25. // UNIT=SYSDA,VOL=SER=USER04
26. //FT13F001 DD DSN=CSI.LADPM.LOSTAB.CIRC.ALTCR#C,DISP=SHR,
27. // UNIT=SYSDA,VOL=SER=USER04
28. //FT14F001 DD DSN=CSI.LADPM.LOSTAB.PMVR.ALTPM#P,DISP=SHR,
29. // UNIT=SYSDA,VOL=SER=USER04
30. //FT15F001 DD DSN=CSI.LADPM.TRIPTAB.REGN.TRN.ALTRT#T,DISP=SHR,
31. // UNIT=SYSDA,VOL=SER=USER04
32. //FT19F001 DD DSN=CSI.LADPM.TRIPTAB.PEAK.RTRN.ALTSY#S,
33. // DISP=(,KEEP),
34. // DCB=(RECFM=VBS,BLKSIZE=1608,LRECL=1604),
35. // UNIT=SYSDA,VOL=SER=USER04,SPACE=(TRK,(20,5),RLSE)
36. //FT20F001 DD UNIT=SYSDA,SPACE=(TRK,(5,5)),
37. // DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
38. //FT21F001 DD DUMMY
39. //SYSIN DD *
40. PEAK REGIONAL TRANSIT MODE SPLIT, SYSTEM ALTERNATIVE SY#S
41. &PARAM ZONES=117,NMODE=4,TRIPS=7,
42. B=-.007419,-1.461,2.3108,-.07419 &END
43. *NOTE* UTILITIES AND TRIPS OUTPUT, ASSUMING
44. *NOTE* REGIONAL BUS TRANSFER FARES ONLY
45. &OPTION OUTPUT(1)=T,F,T,T,OUTPUT(14)=T,
46. OUTPUT(21)=4*T,F,T,PRINT=14,19 &END
47. *NOTE* MODE 1 =WALK, 2 = CIRCULATOR, 3 = RTD BUS, 4 = PEOPLE MOVER
48. *NOTE* ORDER OF OUTPUT TABLES:
49. *NOTE* 1-4 UTILITIES FOR MODES 1-4
50. *NOTE* 5-8 REGIONAL TRANSIT TRIPS FOR MODES 1-4
51. *NOTE*
52. *NOTE*
53. *NOTE* ALL FARES ASSUMF:
54. *NOTE* 1) 1978 FARES ARE MAINTAINED IN CONSTANT-VALUE DOLLARS
55. *NOTE* 2) DPM FARE IS 15 CENTS IN 1978 DOLLARS
56. *NOTE*
57. *NOTE* CPI = CONSUMER PRICE INDEX
58. *NOTE* CPI(75) = 161.2

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59. *NOTE*          CPI(78) = 191.0
60. *NOTE*
61. *NOTE* CHANGE IN COEFFICIENT/CONSTANTS:
62. *NOTE*      B(1) = -.07419 * MINUTES PER WALK TIME UNIT(0.1)
63. *NOTE*          = -.007419
64. *NOTE*
65. *NOTE*      C(1) = 2.537 BASED ON ADJUSTMENTS TO MATCH PHASE 2 ALT 1
66. *NOTE*
67. *NOTE*      C(2) = .0636 - .00636 * (CIRC FARE (15 CENTS))
68. *NOTE*          * CPI(75) / CPI(78)
69. *NOTE*          = -.0169
70. *NOTE*
71. *NOTE*      C(3) = .1667 - .00636 * (RTD TRANSFER FARE (10 CENTS))
72. *NOTE*          * CPI(75) / CPI(78)
73. *NOTE*          = .1130
74. *NOTE*
75. *NOTE*      C(4) = -.2067 - .00636 * (DPM FARE (15 CENTS))
76. *NOTE*          * CPI(75) / CPI(78)
77. *NOTE*          = -.2872
78. *NOTE*
79. &EQU MODE=1, C=2.537,FORM=1,5,0,0 &END
80. &EQU MODE=2, C=-0.0169,FORM=0,0,0,3 &END
81. &EQU MODE=3, C=.1130,FORM=0,0,0,2 &END
82. &EQU MODE=4, C=-0.2872,FORM=0,0,6,4 &END
83. &VAR NO=1,NAME='WTRMVKHW',FILE=1003,FORMAT=1 &END
84. &VAR NO=2,NAME='RTIMRHR',FILE=2001,FORMAT=1 &END
85. &VAR NO=3,NAME='CTIMCR#C',FILE=3001,FORMAT=1 &END
86. &VAR NO=4,NAME='PTIMPMP',FILE=4001,FORMAT=1 &END
87. &VAR NO=5,NAME='WGRDVKHW',FILE=1002,FORMAT=1 &END
88. &VAR NO=6,NAME='PLDMPMP',FILE=4002,FORMAT=1 &END
89. &VAR NO=7,NAME='TRNRTBT',FILE=5001,FORMAT=1 &END
90. //RAUTOMS EXEC PGM=LOGAP01,REGION=250K,TIME=(,30)
91. //STEPLIB DD DSN=CSI.LOGAP01.MAY1777,DISP=(SHR,PASS),
92. // UNIT=SYSDA,VOL=SER=USER04
93. //FT05F001 DD DDNAME=SYSIN
94. //FT06F001 DD SYSOUT=A
95. //FT11F001 DD DSN=CSI.LADPM.TRIPTAB.PFAK.RTRN.ALTSY#S,DISP=SHR,
96. // UNIT=SYSDA,VOL=SER=USER04
97. //FT19F001 DD DSN=CSI.LADPM.PROBTAB.PEAK.RTRN.ALTSY#S,
98. // DISP=(,KEEP),
99. // DCB=(RECFM=VBS,BLKSIZE=1608,LRECL=1604),
100. // UNIT=SYSDA,VOL=SER=USER04,SPACE=(TRK,(20,5),RLSE)
101. //FT20F001 DD UNIT=SYSDA,SPACE=(TRK,(5,5)),
102. // DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
103. //FT21F001 DD DUMMY
104. //SYSIN DD *
105. PROBABILITIES AND LOGSUMS FOR REGIONAL AUTO MODELS, SYSTEM ALT SY#S
106. KPARAM ZONES=117,NMODE=4,
107. B=1.0 &END
108. *NOTE* PROBABILITIES AND LOGSUMS OUTPUT, FOR FULL REGIONAL BUS FARFS
109. &OPTION OUTPUT(6)=T,OUTPUT(14)=T,
110. OUTPUT(21)=4*T,F,T,PRINT=14,19 &END
111. *NOTE* MODE 1 = WALK, 2 = CIRCULATOR, 3 = RTD BUS, 4 = PEOPLE MOVER
112. *NOTE* ORDER OF OUTPUT TABLES:
113. *NOTE* 1-4 PROBABILITIES FOR MODES 1-4
114. *NOTE* 5 LOGSUMS
115. *NOTE*
116. *NOTE* REVISED REGIONAL BUS CONSTANT:

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## MEMBER LIST FOR STEP101 (CONTINUED)

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117. *NOTE*
118. *NOTE*          C(3) = - .00636 * (RTD BUS FARE (40 CENTS) -
119. *NOTE*          (RTD TRANSFER FARE (10 CENTS))
120. *NOTE*          = - .1610
121. *NOTE*
122. &EQN  MODE=1,FORM=1  &END
123. &FGN  MODE=2,FORM=2  &END
124. &EQN  MODE=3, C=-.1610,FORM=3  &END
125. &EQN  MODE=4,FORM=4  &END
126. &VAR  NO=1,NAME='UWLKSY#S',FILE=1001,FORMAT=2  &END
127. &VAR  NO=2,NAME='UCRCSY#S',FILE=1002,FORMAT=2  &END
128. &VAR  NO=3,NAME='URHSSY#S',FILE=1003,FORMAT=2  &END
129. &VAR  NO=4,NAME='UPMVSYS#S',FILE=1004,FORMAT=2  &END
130. //OUT1 EXEC  UFMTR,TIME=(,15),
131. //      J1='DSN=CSI.LADPM.TRIPTAB.PEAK.RTRN.ALTSY#S',
132. //      J2='DSN=CSI.LADPM.LOSTAB.WALK.ALTK#W'
133. REGIONAL TRANSIT INTRA-CBD TRIPS, ALTERNATIVE SY#S
134. &PARAM  TABLES=1005,1006,1007,1008,TITLE1='WRTTSY#S',
135.         TITLE2='CRTTSY#S',TITLE3='RRTTSY#S',
136.         TITLE4='PRTTSY#S'  &END
137. &SELECT REPORT=3  &END
138. &PLOT  PAIR=2001,1005,FREQ=T,TTITLE='WALK TRIPS/DISTANCE'  &END
139. &PLOT  PAIR=2001,1006,FREQ=T,TTITLE='CIRC TRIPS/DISTANCE'  &END
140. &PLOT  PAIR=2001,1007,FREQ=T,TTITLE='RBUS TRIPS/DISTANCE'  &END
141. &PLOT  PAIR=2001,1008,FREQ=T,TTITLE='PMVR TRIPS/DISTANCE'  &END
142. //ALERT EXEC  WTT

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142 RECORDS IN MEMBER

6,028 BYTES IN COMPRESSED FORMAT

```

1. // JOB ( ,HERE), 'CSI/STEP10.2', CLASS=Y,
2. // MSGLEVEL=(1,1)
3. //PROCLIB DD DSN=CSI.DISK.PROCLIB,DISP=SHR,UNIT=SYSDA,VOL=SER=USER04
4. /**
5. /** STEP10 -- RUN PEAK PERIOD MODELS
6. /** TASK 2 -- RUN PARK LOT/MODE CHOICE, INBOUND
7. /**
8. /** MAKE THE FOLLOWING SUBSTITUTIONS BEFORE RUNNING --
9. /** #A = AUTO LOS ALTERNATIVE NUMBER
10. /** #W = WALK LOS ALTERNATIVE NUMBER
11. /** #P = PEOPLE MOVER LOS ALTERNATIVE NUMBER
12. /** #Z = ZONAL DATA ALTERNATIVE NUMBER
13. /** #U = REGIONAL AUTO TRIP TABLE ALTERNATIVE NUMBER
14. /**
15. /** #S = OUTPUT SYSTEM ALTERNATIVE NUMBER
16. /**
17. //RAUTOIN EXEC PGM=LOGAP04,REGION=150K,
18. // TIME=(,30)
19. //STEPLIB DD DSN=CSI.LOGAP04.V1M2,DISP=SHR,
20. // UNIT=SYSDA,VOL=SER=USER04
21. //A1 DD DSN=CSI.LADPM.ZONDATA.ALZD#Z,DISP=SHR,UNIT=3330,
22. // VOL=SER=USER04
23. //FT06F001 DD SYSOUT=A
24. //FT11F001 DD DSN=CSI.LADPM.LOSTAB.APRK.ALTA#A,DISP=SHR,
25. // UNIT=SYSDA,VOL=SER=USER04
26. //FT12F001 DD DSN=CSI.LADPM.PROBTAB.PEAK.RTRN.ALTSY#S,DISP=SHR,
27. // UNIT=SYSDA,VOL=SER=USER04
28. //FT13F001 DD DSN=CSI.LADPM.TRIPTAB.REGN.AUTO.ALTRA#U,DISP=SHR,
29. // UNIT=3330,VOL=SER=USER04
30. //FT14F001 DD DSN=CSI.LADPM.LOSTAB.WALK.ALTK#W,DISP=SHR,
31. // UNIT=SYSDA,VOL=SER=USER04
32. //FT15F001 DD DSN=CSI.LADPM.LOSTAB.PMVR.ALTPM#P,DISP=SHR,
33. // UNIT=SYSDA,VOL=SER=USER04
34. //FT18F001 DD DSN=CSICORKLOT,DISP=(,PASS),UNIT=3330,VOL=SER=USER04,
35. // SPACE=(TRK,(10,5),RLSE),
36. // DCB=(RECFM=VBS,LRECL=1604,BLKSIZE=1608)
37. //FT19F001 DD DSN=CSILOTDEST,DISP=(,PASS),UNIT=3330,VOL=SER=USER04,
38. // SPACE=(TRK,(10,5),RLSE),
39. // DCB=(RECFM=VBS,LRECL=1604,BLKSIZE=1608)
40. //FT20F001 DD UNIT=SYSDA,SPACE=(TRK,(10,10)),DISP=(,PASS),
41. // DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
42. //FT21F001 DD UNIT=SYSDA,SPACE=(TRK,(10,10)),
43. // DCB=(RECFM=VBS,BLKSIZE=2000),DISP=(,PASS)
44. //FT22F001 DD UNIT=SYSDA,SPACE=(TRK,(10,10)),
45. // DCB=(RECFM=VBS,BLKSIZE=2000),DISP=(,PASS)
46. //FT23F001 DD UNIT=SYSDA,SPACE=(TRK,(10,10)),
47. // DCB=(RECFM=VBS,BLKSIZE=2000),DISP=(,PASS)
48. //FT05F001 DD *
49. PEAK REGIONAL AUTO INBOUND PARK LOT CHOICE, SYSTEM ALT SY#S
50. $PARAM NORIG=9,NDEST=117,NLOT=117,NMODE=1,TRIPS=7,
51. H=-.007169,1.0,1.0,-.01195,-.937,4.13 &END
52. *NOTE* OCOST COEFFICIENT
53. * MODIFIED AS FOLLOWS:
54. *
55. * B(1) = -.01613*(COST/MILE(6 CENTS))*(MILES PFR DISTANCE UNIT(0.1))
56. * / (AUTO OCCUPANCY (1.35))
57. * = -.007169
58. *

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## MEMBER LIST FOR STEP102 (CONTINUED)

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59. *          B(4) = -.01613/(AUTO OCCUPANCY(1.35))
60. *          = -.01195
61. *
62. &VAR NO=1, NAME='ADISAN#A',FILE=1001 &FND
63. &VAR NO=2, NAME='LSUMSY#S',FILE=2005,TYPE=5,CONV=2 &END
64. &VAR NO=3, NAME='LPCFZD#Z',LOC=68,L=8,CONV=2 &END
65. &VAR NO=4, NAME='PRKCZD#Z',LOC=48,L=8,CONV=2 &END
66. &VAR NO=5, NAME='WDISWK#W',FILE=4001,TYPE=5 &END
67. &VAR NO=6, NAME='PLDMF#P',FILE=5002,TYPE=5 &END
68. &VAR NO=7, NAME='ATORA#U',FILE=3001,TYPE=6 &FND
69. &EQU FORM=1,2,3,4,5,6 &END
70. /*
71. //OUT1 EXEC UFMTR,TIME=(,15),
72. // J1='DSN=&&CORRLOT',
73. // J2='DSN=CSI.LADPM.LOSTAB.APRK.ALTAN#A',
74. // J3='DSN=CSI.LADPM.TRIPTAB.REGN.AUTO.ALTRA#U'
75. PEAK REGIONAL AUTO INBOUND PARK LOT CHOICE, SYSTEM ALT SY#S
76. CORDON 5 DATA
77. &PARAM TABLES=1002,2001,3001,TITLE1='CLOTSY#S',
78. TITLE2='ADISAN#A',TITLE3='ATORA#U' &END
79. &SELECT I1=5,REPORT=2 &END
80. &PLOT PAIR=2001,1002,FREQ=T,TTITLE='TRIPS/AUTO DISTANCE' &END
81. //OUT2 EXEC UFMTR,TIME=(,15),
82. // J1='DSN=&&CORRLOT',
83. // J2='DSN=CSI.LADPM.LOSTAB.APRK.ALTAN#A'
84. PEAK REGIONAL AUTO INBOUND PARK LOT CHOICE, SYSTEM ALT SY#S
85. TOTAL DATA
86. &PARAM TABLES=1002,TITLE1='CLOTSY#S' &END
87. &SELECT REPORT=3 &END
88. &PLOT PAIR=2001,1002,FREQ=T,TTITLE='TRIPS/AUTO DISTANCE' &END
89. //OUT3 EXEC UFMTR,TIME=(,15),
90. // J1='DSN=&&LOTDEST',
91. // J2='DSN=CSI.LADPM.LOSTAB.WALK.ALTWK#W'
92. PEAK REGIONAL AUTO INBOUND PARK LOT CHOICE, SYSTEM ALT SY#S
93. PARKING ZONES 14 AND 19 DATA
94. &PARAM TABLES=1002,TITLE1='LOTDEST' &END
95. &SELECT I1=14,19,REPORT=2 &END
96. &PLOT PAIR=2001,1002,FREQ=T,TTITLE='PERSON TRIPS/WALK DISTANCE' &END
97. //OUT4 EXEC UFMTR,TIME=(,15),
98. // J1='DSN=&&LOTDEST',
99. // J2='DSN=CSI.LADPM.LOSTAB.WALK.ALTWK#W'
100. PEAK REGIONAL AUTO INBOUND PARK LOT CHOICE, SYSTEM ALT SY#S
101. TOTAL DATA
102. &PARAM TABLES=1002,TITLE1='LOTDEST' &END
103. &SELECT REPORT=3 &END
104. &PLOT PAIR=2001,1002,FREQ=T,TTITLE='PERSON TRIPS/WALK DISTANCE' &END
105. /*
106. /* PEAK REGIONAL AUTO INBOUND MODE SPLIT
107. /*
108. //RAINMS EXEC PGM=LOGAP01,REGION=192K,TIME=(,30)
109. //STFPLIB DD DSN=CSI.LOGAP01.MAY1777,DISP=(SHR,PASS),
110. // UNIT=SYSDA,VOL=SER=USER04
111. //FT05F001 DD DDNAME=SYSIN
112. //FT06F001 DD SYSOUT=A
113. //FT11F001 DD DSN=CSI.LADPM.PROBTAB.PEAK.RTRN.ALTSY#S,DISP=SHR,
114. // UNIT=SYSDA,VOL=SER=USER04
115. //FT12F001 DD DSN=&&LOTDEST,DISP=(OLD,PASS)
116. //FT19F001 DD DSN=CSI.LADPM.TRIPTAB.PEAK.RATO.ALTSY#S,DISP=(,KEEP),

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## MEMBER LIST FOR STEP102 (CONTINUED)

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117. //      DCB=(RECFM=VBS,BLKSIZE=1608,LRECL=1604),UNIT=SYSDA,
118. //      VOL=SER=USER04,SPACE=(TRK,(10,5),RLSE)
119. //FT20F001 DD  UNIT=SYSDA,SPACE=(TRK,(5,5)),DISP=(,PASS),
120. //      DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
121. //FT21F001 DD  DUMMY
122. //SYSIN DD  *
123. PEAK REGIONAL AUTO INBOUND MODE SPLIT, SYSTEM ALTERNATIVE SY#S
124. &PARAM  NORIG=117,NDEST=117,NMGDE=4,TRIPS=5,PROBS=1  &END
125. &OPTION  OUTPUT(2)=F,T,T,OUTPUT(14)=T,OUTPUT(23)=2*T,PRINT=14,19  &END
126. *NOTE*  TRIPS ONLY OUTPUT IN TABLES 1-4
127. *NOTE*  MODE 1 =WALK, 2 = CIRCULATOR, 3 = RTD BUS, 4 = PEOPLE MOVER
128. &VAR    NO=1,NAME='PWLKSY#S',FORMAT=2,FILE=1001  &END
129. &VAR    NO=2,NAME='PCRCSSY#S',FORMAT=2,FILE=1002  &END
130. &VAR    NO=3,NAME='PRBSSY#S',FORMAT=2,FILE=1003  &END
131. &VAR    NO=4,NAME='PPMVSY#S',FORMAT=2,FILE=1004  &END
132. &VAR    NO=5,NAME='LOTDEST',FILE=2002,FORMAT=1  &END
133. //OUT5  EXEC  UFMTR,TIME=(,15),
134. //      J1='DSN=CSI.LADPM.TRIPTAB.PEAK.RATO.ALTSY#S',
135. //      J2='DSN=CSI.LADPM.LOSTAB.WALK.ALTWK#W'
136. REGIONAL AUTO INBOUND INTRA-CBD TRIPS, ALTERNATIVE SY#S
137. &PARAM  TABLES=1001,1002,1003,1004,TITLE1='WRATSY#S',
138. TITLE2='CRATSY#S',TITLE3='RRATSY#S',
139. TITLE4='PRATSY#S'  &END
140. &SELFC  REPORT=3  &END
141. &PLOT   PAIR=2001,1001,FREQ=T,TTITLE='WALK TRIPS/DISTANCE'  &END
142. &PLOT   PAIR=2001,1002,FREQ=T,TTITLE='CIRC TRIPS/DISTANCE'  &END
143. &PLOT   PAIR=2001,1003,FREQ=T,TTITLE='RBUS TRIPS/DISTANCE'  &END
144. &PLOT   PAIR=2001,1004,FREQ=T,TTITLE='PMVR TRIPS/DISTANCE'  &END
145. //ALERT EXEC  WTT

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145 RECORDS IN MEMBER

6,605 BYTES IN COMPRESSED FORMAT

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1. // JOB ( ,HERE), 'CSIB/STFP10.3', CLASS=Y,
2. // MSGLEVEL=(1,1)
3. //PROCLIB DD DSN=CSI.DISK.PROCLIB, DISP=SHR, UNIT=SYSDA, VOL=SER=USER04
4. /**
5. /** STEP10 -- RUN PEAK PERIOD MODELS
6. /** TASK 3 -- RUN PARK LOT/MODE CHOICE, OUTBOUND
7. /**
8. /** MAKE THE FOLLOWING SUBSTITUTIONS BEFORE RUNNING --
9. /** #A = AUTO LOS ALTERNATIVE NUMBER
10. /** #W = WALK LOS ALTERNATIVE NUMBER
11. /** #P = PEOPLE MOVER LOS ALTERNATIVE NUMBER
12. /** #Z = ZONAL DATA ALTERNATIVE NUMBER
13. /** #O = REGIONAL AUTO TRIP TABLE ALTERNATIVE NUMBER
14. /**
15. /** #S = OUTPUT SYSTEM ALTERNATIVE NUMBER
16. /**
17. //RAUTOUT EXEC PGM=LOGAP04, REGION=150K,
18. // TIME=(,30)
19. //STEPLIB DD DSN=CSI.LOGAP04.V1M2, DISP=SHR,
20. // UNIT=SYSDA, VOL=SER=USER04
21. //A1 DD DSN=CSI.LADPM.ZONDATA.ALTZD#Z, DISP=SHR,
22. // UNIT=3330, VOL=SER=USER04
23. //FT06F001 DD SYSOUT=A
24. //FT11F001 DD DSN=CSI.LADPM.LOSTAB.APRK.ALTA#A, DISP=SHR,
25. // UNIT=SYSDA, VOL=SER=USER04
26. //FT12F001 DD DSN=CSI.LADPM.PROBTAB.PEAK.RTRN.ALTSY#S, DISP=SHR,
27. // UNIT=SYSDA, VOL=SER=USER04
28. //FT13F001 DD DSN=CSI.LADPM.TRIPTAB.REGN.AUTO.ALTRA#U, DISP=SHR,
29. // UNIT=SYSDA, VOL=SER=USER04
30. //FT14F001 DD DSN=CSI.LADPM.LOSTAB.WALK.ALTKW#W, DISP=SHR,
31. // UNIT=SYSDA, VOL=SER=USER04
32. //FT15F001 DD DSN=CSI.LADPM.LOSTAB.PMVR.ALTPM#P, DISP=SHR,
33. // UNIT=SYSDA, VOL=SER=USER04
34. //FT18F001 DD DSN=&&LOT CORR, DISP=(,PASS), UNIT=3330, VOL=SER=USER04,
35. // SPACE=(TRK,(10,5),RLSE),
36. // DCB=(RECFM=VBS, LRECL=1604, BLKSIZE=1608)
37. //FT19F001 DD DSN=&&DESTLOT, DISP=(,PASS), UNIT=3330, VOL=SER=USER04,
38. // SPACE=(TRK,(10,5),RLSE),
39. // DCB=(RECFM=VBS, LRECL=1604, BLKSIZE=1608)
40. //FT20F001 DD UNIT=SYSDA, SPACE=(TRK,(10,10)), DISP=(,PASS),
41. // DCB=(RECFM=FB, LRECL=80, BLKSIZE=800)
42. //FT21F001 DD UNIT=SYSDA, SPACE=(TRK,(10,10)),
43. // DCB=(RECFM=VBS, BLKSIZE=2000), DISP=(,PASS)
44. //FT22F001 DD UNIT=SYSDA, SPACE=(TRK,(10,10)),
45. // DCB=(RECFM=VBS, BLKSIZE=2000), DISP=(,PASS)
46. //FT23F001 DD UNIT=SYSDA, SPACE=(TRK,(10,10)),
47. // DCB=(RECFM=VBS, BLKSIZE=2000), DISP=(,PASS)
48. //FT05F001 DD *
49. PEAK REGIONAL AUTO OUTBOUND PARK LOT CHOICE, SYSTEM ALT SY#S
50. &PARAM NORIG=9, NDEST=117, NLOT=117, NMODE=1, TRIPS=7,
51. B=-.007169, 1.0, 1.0, -.01195, -.937, 4.13 &END
52. *NOTE* OCOST COEFFICIENT
53. * MODIFIED AS FOLLOWS:
54. *
55. * B(1)= -.01613*(COST/MILE(6 CENTS))*(MILES PER DISTANCE UNIT(0.1))
56. * / (AUTO OCCUPANCY (1.35))
57. *
58. *

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## MEMBER LIST FOR STEP103 (CONTINUED)

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59. *      B(4) = -.01613/(AUTO OCCUPANCY(1.35))
60. *      = -.01195
61. *
62. &VAR NO=1, NAME='ADISAN#',FILE=1001 &END
63. &VAR NO=2, NAME='LSUMSY#S',FILE=2005,TYPE=5,CONV=2 &END
64. &VAR NO=3, NAME='LPCPZD#Z',LOC=68,L=8,CONV=2 &END
65. &VAR NO=4, NAME='PRKCZD#Z',LOC=48,L=8,CONV=2 &END
66. &VAR NO=5, NAME='LDISWK#W',FILE=4001,TYPE=5 &END
67. &VAR NO=6, NAME='PLDMP#P',FILE=5002,TYPE=5 &END
68. &VAR NO=7, NAME='AFRRA#U',FILE=3002,TYPE=6 &END
69. &EQN FORM=1,2,3,4,5,6 &END
70. /*
71. //OUT1 EXEC UFMTR,TIME=(,15),
72. // J1='DSN=&&LOT CORR',
73. // J2='DSN=CSI.LADPM.LOSTAB.APRK.ALTAN#A',
74. // J3='DSN=CSI.LADPM.TRIPTAB.REGN.AUTO.ALTRA#U'
75. PEAK REGIONAL AUTO OUTBOUND PARK LOT CHOICE, SYSTEM ALT SY#S
76. CORDON 5 DATA
77. &PARAM TABLES=1002,2001,3002,TITLE1='LOTCSY#S',
78. TITLE2='ADISAN#',TITLE3='AFRRA#U' &END
79. &SELECT I1=5,REPORT=2 &END
80. &PLOT PAIR=2001,1002,FREQ=T,TTITLE='TRIPS/AUTO DISTANCE' &END
81. //OUT2 EXEC UFMTR,TIME=(,15),
82. // J1='DSN=&&LOT CORR',
83. // J2='DSN=CSI.LADPM.LOSTAB.APRK.ALTAN#A'
84. PEAK REGIONAL AUTO OUTBOUND PARK LOT CHOICE, SYSTEM ALT SY#S
85. TOTAL DATA
86. &PARAM TABLES=1002,TITLE1='LOTCSY#S' &END
87. &SELECT REPORT=3 &END
88. &PLOT PAIR=2001,1002,FREQ=T,TTITLE='TRIPS/AUTO DISTANCE' &END
89. //OUT3 EXEC UFMTR,TIME=(,15),
90. // J1='DSN=&&DESTLOT',
91. // J2='DSN=CSI.LADPM.LOSTAB.WALK.ALTWK#W'
92. PEAK REGIONAL AUTO OUTBOUND PARK LOT CHOICE, SYSTEM ALT SY#S
93. PARKING DATA FOR ZONES 14 AND 19
94. &PARAM TABLES=1002,TITLE1='DESTLOT' &END
95. &SELECT I1=14,19,REPORT=2 &END
96. &PLOT PAIR=2001,1002,FREQ=T,TTITLE='PERSON TRIPS/WALK DISTANCE' &END
97. //OUT4 EXEC UFMTR,TIME=(,15),
98. // J1='DSN=&&DESTLOT',
99. // J2='DSN=CSI.LADPM.LOSTAB.WALK.ALTWK#W'
100. PEAK REGIONAL AUTO OUTBOUND PARK LOT CHOICE, SYSTEM ALT SY#S
101. TOTAL DATA
102. &PARAM TABLES=1002,TITLE1='DESTLOT' &END
103. &SELECT REPORT=3 &END
104. &PLOT PAIR=2001,1002,FREQ=T,TTITLE='PERSON TRIPS/WALK DISTANCE' &END
105. /*
106. /* PEAK REGIONAL AUTO OUTBOUND MODE SPLIT
107. /*
108. //RAGUTMS EXEC PGM=LOGAP01,REGION=192K,TIME=(,30)
109. //STEPLIB DD DSN=CSI.LOGAP01.MAY1777,DISP=SHR,
110. // UNIT=SYSDA,VOL=SER=USER04
111. //FT05F001 DD DDNAME=SYSIN
112. //FT06F001 DD SYSOUT=A
113. //FT11F001 DD DSN=CSI.LADPM.PROBTAB.PFAK.RTRN.ALTSY#S,DISP=SHR,
114. // UNIT=SYSDA,VOL=SER=USER04
115. //FT12F001 DD DSN=&&DESTLOT,DISP=(OLD,PASS)
116. //FT19F001 DD DSN=CSI.LADPM.TRIPTAB.PEAK.RAFR.ALTSY#S,DISP=(,KEEP),

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## MEMBER LIST FOR STEP103 (CONTINUED)

```

117. //      DCB=(RECFM=VB,BLKSIZE=1608,LRECL=1604),UNIT=SYSDA,
118. //      VOL=SER=USER04,SPACE=(TRK,(10,5),RLSE)
119. //FT20F001 DD  UNIT=SYSDA,SPACE=(TRK,(5,5)),DISP=(,PASS),
120. //      DCB=(RECFM=FB,LRECL=80,BLKSIZE=800)
121. //FT21F001 DD  DUMMY
122. //SYSIN DD *
123.      FCAK REGIONAL AUTO OUTBOUND MODE SPLIT, SYSTEM ALT SY#S
124.      &PARAM  NORIG=117,NDEST=117,NMODE=4,TRIPS=5,PROBS=1  &END
125.      &OPTION  OUTPUT(2)=F,T,T,OUTPUT(14)=T,OUTPUT(23)=2*T,PRINT=14,19  &END
126. *NOTIF* TRIPS ONLY OUTPUT IN TABLES 1-4
127. *NOTE*  MODE 1 =WALK, 2 = CIRCULATOR, 3 = RTD BUS, 4 = PEOPLE MOVER
128.      &VAR   NO=1,NAME='PWLKSY#S',FORMAT=2,FILE=1001  &END
129.      &VAR   NO=2,NAME='PCRCSY#S',FORMAT=2,FILE=1002  &END
130.      &VAR   NO=3,NAME='PRBSSY#S',FORMAT=2,FILE=1003  &END
131.      &VAR   NO=4,NAME='PPMVSY#S',FORMAT=2,FILE=1004  &END
132.      &VAR   NO=5,NAME='DESTLOT',FILE=2002,FORMAT=1  &END
133. //OUT5 EXEC  UFMTR,TIME=(,15),
134. //      J1='DSN=CSI.LADPM.TRIPTAB.PEAK.RAFR.ALTSY#S',
135. //      J2='DSN=CSI.LADPM.LOSTAB.WALK.ALTK#W'
136.      REGIONAL AUTO OUTBOUND INTRA-CBD TRIPS, ALTERNATIVE SY#S
137.      &PARAM  TABLES=1001,1002,1003,1004,TITLE1='WRAFSY#S',
138.      TITLE2='CRAFSY#S',TITLE3='RRAFSY#S',
139.      TITLE4='PRAFSY#S'  &END
140.      &SELECT REPORT=3  &END
141.      &PLOT   PAIR=2001,1001,FREQ=T,TTITLE='WALK TRIP/DISTANCE'  &END
142.      &PLOT   PAIR=2001,1002,FREQ=T,TTITLE='CIRC TRIP/DISTANCE'  &END
143.      &PLOT   PAIR=2001,1003,FREQ=T,TTITLE='RBUS TRIP/DISTANCE'  &END
144.      &PLOT   PAIR=2001,1004,FREQ=T,TTITLE='PMVR TRIP/DISTANCE'  &END
145. //ALERT EXEC WTT

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145 RECORDS IN MEMBER

6,602 BYTES IN COMPRESSED FORMAT

```

1. // JOB ( ,HERE), 'CSI/STEP11.1', CLASS=Y,
2. // MSGLEVEL=(1,1)
3. //PROCLIB DD DSN=CSI.DISK.PROCLIB, DISP=SHR, UNIT=SYSDA, VOL=SER=USER04
4. // *
5. // * STEP11 -- RUN THE NOON HOUR MODELS
6. // * TASK 1 -- WORKER MODEL
7. // *
8. // * MAKE THE FOLLOWING SUBSTITUTIONS BEFORE RUNNING --
9. // * #A = AUTO LOS ALTERNATIVE NUMBER
10. // * #W = WALK LOS ALTERNATIVE NUMBER
11. // * #C = CIRCULATOR LOS ALTERNATIVE NUMBER
12. // * #R = REGIONAL BUS LOS ALTERNATIVE NUMBER
13. // * #P = PEOPLE MOVER LOS ALTERNATIVE NUMBER
14. // * #Z = ZONAL DATA ALTERNATIVE NUMBER
15. // *
16. // * #S = OUTPUT SYSTEM LOS ALTERNATIVE NUMBER
17. // *
18. //WORK EXEC PGM=LOGAP03, REGION=192K, TIME=(,30)
19. //STEPLIB DD DSN=CSI.LOGAP03.MAY1777, DISP=SHR, UNIT=SYSDA,
20. // VOL=SER=USER04
21. //FT05F001 DD DDNAME=SYSIN
22. //FT06F001 DD SYSOUT=A
23. //FT11F001 DD DSN=CSI.LADPM.LOSTAB.WALK.ALTWK#W, DISP=SHR,
24. // UNIT=SYSDA, VOL=SER=USER04
25. //FT12F001 DD DSN=CSI.LADPM.LOSTAB.RBUSMID.ALTR#R, DISP=SHR,
26. // UNIT=SYSDA, VOL=SER=USER04
27. //FT13F001 DD DSN=CSI.LADPM.LOSTAB.CIRC.ALTCR#C, DISP=SHR,
28. // UNIT=SYSDA, VOL=SER=USER04
29. //FT14F001 DD DSN=CSI.LADPM.LOSTAB.PMVR.ALTPM#P, DISP=SHR,
30. // UNIT=SYSDA, VOL=SER=USER04
31. //FT15F001 DD DSN=CSI.LADPM.LOSTAB.AUTO.ALTA#A, DISP=SHR,
32. // UNIT=SYSDA, VOL=SER=USER04
33. //FT19F001 DD DSN=&RTRIPS, DISP=(,PASS),
34. // DCB=(RECFM=VB, BLKSIZE=1608, LRECL=1604),
35. // UNIT=SYSDA, VOL=SER=USER04, SPACE=(TRK,(20,5),RLSE)
36. //A1 DD DSN=CSI.LADPM.ZONDATA.ALTD#Z, DISP=SHR, UNIT=3330,
37. // VOL=SER=USER04
38. //FT20F001 DD UNIT=SYSDA, SPACE=(TRK,(5,5)),
39. // DCB=(RECFM=FB, BLKSIZE=800, LRECL=80)
40. //FT21F001 DD DUMMY
41. //SYSIN DD *
42. NOON HOUR WORKER FREQ/DEST/MODE CHOICE, SYSTEM ALTERNATIVE SY#S
43. ZPARM ZONFS=117, NMODE=6, TRIPS=12, B=-.005226, -1.52, .008552, .03252,
44. 1.0, -.00269, -.05226, -.30, -.42
45. &END
46. NOTE* ONLY TRIPS ARE OUTPUT
47. &OPTION OUTPUT(2)=F,T,T, OUTPUT(11)=4*T, OUTPUT(21)=4*T, PRINT=14,19 &END
48. NOTE* MODE 1 = WALK, MODE 2 = CIRCULATOR, MODE 3 = RTD BUS,
49. *NOTE* 4 = PEOPLE MOVER, 5 = AUTO, 6 = ZERO FREQ
50. *NOTE* OUTPUT TABLES 1-6:
51. *NOTE* TRIPS BY MODES 1-6
52. &VAR NO=1, NAME='WTIME#W', FILE=1003, FORMAT=1 &END
53. &VAR NO=2, NAME='RTIME#R', FILE=2001, FORMAT=1 &END
54. &VAR NO=3, NAME='CTIME#C', FILE=3001, FORMAT=1 &END
55. &VAR NO=4, NAME='PTIME#P', FILE=4001, FORMAT=1 &END
56. &VAR NO=5, NAME='WGRD#W', FILE=1002, FORMAT=1 &END
57. &VAR NO=6, NAME='ADISAN#A', FILE=5001, FORMAT=1 &END
58. &VAR NO=7, NAME='ATIMAN#A', FILE=5002, FORMAT=1 &END

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## MEMBER LIST FOR STEP111 (CONTINUED)

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59.   &VAR NO=8,NAME='TEMZD#Z',TYPE=1,LOC=8,LENGTH=8,FORMAT=2 &END
60.   &VAR NO=9,NAMF='TRPDZD#Z',TYPE=2,LOC=18,LENGTH=8,FORMAT=2 &END
61.   &VAR NO=10,NAME='LNARZD#Z',TYPE=2,LOC=28,LENGTH=8,FORMAT=2 &END
62.   &VAR NO=11,NAME='WDISWK#W',FILE=1001,FORMAT=1 &END
63.   &VAR NO=12,NAME='TEMPZGH#Z',TYPE=1,LOC=38,LENGTH=8,FORMAT=2 &END
64.   *NOTE*
65.   *NOTE* ALL FARES ASSUME:
66.   *NOTE* 1) 1978 FARES ARE MAINTAINED IN CONSTANT-VALUE DOLLARS
67.   *NOTE* 2) DPM FARE IS 15 CFNTS IN 1978 DOLLARS
68.   *NOTE*
69.   *NOTE* CPI = CONSUMER PRICE INDEX
70.   *NOTE* CPI(75) = 161.2
71.   *NOTE* CPI(78) = 191.0
72.   *NOTE*
73.   *NOTE* COEFFICIENT/CONSTANT CHANGES:
74.   *
75.   * B(1)=-.05226*(MINUTES PER WALK, AUTO TIME UNIT(0.1))
76.   *      =-.005226
77.   *
78.   * B(6)=-.00448*(OPER COST/MILE (6 CENTS))
79.   *      *(MILES PER DISTANCE UNIT(0.1))
80.   *      =-.00269
81.   *
82.   * B(8)=-.30 TRIP LENGTH CORRECTION FACTOR - WALK
83.   *
84.   * B(9)=-.42 TRIP LENGTH CORRECTION FACTOR - RTD BUS
85.   *
86.   * C(2)=-1.498-.00448*(CIRC FARE (15 CENTS))*CPI(75)/CPI(78)
87.   *      =-1.555
88.   *
89.   * C(3)=2.204-.00448*(RBUS FARE (40 CENTS))*CPI(75)/CPI(78)
90.   *      =2.053
91.   *
92.   * C(4)=-.516-.00448*(DPM FARE (15 CENTS))*CPI(75)/CPI(78)
93.   *      =-.573
94.   *
95.   * C(6)=11.892-LN(ZONES (117))
96.   *      =7.130
97.   *
98.   &EQN MODE=1,C=2.922,FORM=1,5,0,9,10,0,0,11,0 &END
99.   &EQN MODE=2,C=-1.555,FORM=0,0,0,9,10,0,3,0,0 &END
100.  &EQN MODE=3,C=2.053,FORM=0,0,0,9,10,0,2,0,11 &END
101.  &EQN MODE=4,C=-.573,FORM=0,0,0,9,10,0,4,0,0 &END
102.  &EQN MODE=5,FORM=7,0,0,9,10,6,0,0,0 &END
103.  &EQN MODE=6,C=7.130,FORM=0,0,8,0,0,0,0,0,0 &END
104.  //UMATRIX EXEC UMATRIX,TIME=(.30),REGION=192K,
105.  // J1='DSN=&&STRIPS',
106.  // J9='DSN=&&NEW'
107.  //UMATRIX.SYSIN DD *
108.  NOON WORKER ONE-WAY TRIPS, ALTERNATIVE SY#S
109.  &PARAM ZONES=117,CUTRPT=2,NAME1='WNWTSY#S',COMBIN1='T101 + TR(T101)',
110.  NAME2='CNWTSY#S',COMBIN2='T102 + TR(T102)',
111.  NAME3='RNWTSY#S',COMBIN3='T103 + TR(T103)',
112.  NAME4='PNWTSY#S',COMBIN4='T104 + TR(T104)',
113.  NAME5='ANWTSY#S',COMBIN5='T105 + TR(T105)',
114.  NAME6='ZNWTSY#S',COMBIN6='T106 + TR(T106)',
115.  &END
116.  &OPTION TRIO=F &END

```

## MEMBER LIST FOR STEP111 (CONTINUED)

```

117.      &SELECT PRINT=14,19 &END
118.      /*
119.      //UMAT2 EXEC UMATRX,TIME=(,30),REGION=192K,
120.      // J1='DSN=&&NEW',
121.      // J9='DSN=CSI.LADPM.TRIPTAB.NOON.WORK.ALTSY#S'
122.      //UMATRIX.SYSIN DD *
123.      NOON WORKER ONE-WAY TRIPS,ALTERNATIVE SY#S
124.      &PARAM ZONES=117,OUTDPT=2,NAME1='WNWTSY#S',COMBIN1='T101',
125.      NAME2='CNWTSY#S',COMBIN2='T102',NAME3='RNWTSY#S',
126.      COMBIN3='T103',NAME4='PNWTSY#S',COMBIN4='T104',
127.      NAME5='ANWTSY#S',COMBIN5='T105',NAME6='ZNWTSY#S',
128.      COMBIN6='T106',NAME7='TNWTSY#S',COMBIN7='T101 +
129.      T102 + T103 + T104 + T105' &END
130.      //OUT1 EXEC UFMTR,TIME=(,15),
131.      // J1='DSN=CSI.LADPM.TRIPTAB.NOON.WORK.ALTSY#S',
132.      // J2='DSN=CSI.LADPM.LOSTAB.WALK.ALTK#W'
133.      NOON WORKER INTRA-CBD MODE SPLIT, ALTERNATIVE SY#S
134.      &PARAM TABLES=1001,1002,1003,1004,1005,1007,TITLE1='WNWTSY#S',
135.      TITLE2='CNWTSY#S',TITLE3='RNWTSY#S',
136.      TITLE4='PNWTSY#S',TITLE5='ANWTSY#S',TITLE6='TNWTSY#S' &END
137.      &SELECT REPORT=3 &END
138.      &PLOT PAIR=2001,1001,FREQ=T,TITLE='WALK TRIPS/DISTANCE' &END
139.      &PLOT PAIR=2001,1002,FREQ=T,TITLE='CIRC TRIPS/DISTANCE' &END
140.      &PLOT PAIR=2001,1003,FREQ=T,TITLE='RBUS TRIPS/DISTANCE' &END
141.      &PLOT PAIR=2001,1004,FREQ=T,TITLE='PMVR TRIPS/DISTANCE' &END
142.      &PLOT PAIR=2001,1005,FREQ=T,TITLE='AUTO TRIPS/DISTANCE' &END
143.      &PLOT PAIR=2001,1007,FREQ=T,TITLE='TOTAL TRIPS/DISTANCE' &END
144.      //ALERT EXEC WTT

```

144 RECORDS IN MEMBER

6,230 BYTES IN COMPRESSED FORMAT

III-36

```

1. // JOB ( ,HERE), 'CSI/STEP11.2', CLASS=Y,
2. // MSGLEVEL=(1,1)
3. //PROCLIB DD DSN=CSI.DISK.PROCLIB,DISP=SHR,UNIT=SYSDA,VOL=SER=USER04
4. /**
5. /*** STEP11 -- RUN THE NOON HOUR MODELS
6. /*** TASK 2 -- NONWORKER MODEL
7. /***
8. /*** MAKE THE FOLLOWING SUBSTITUTIONS BEFORE RUNNING --
9. /*** #A = AUTO LOS ALTERNATIVE NUMBER
10. /*** #W = WALK LOS ALTERNATIVE NUMBER
11. /*** #C = CIRCULATOR LOS ALTERNATIVE NUMBER
12. /*** #R = REGIONAL BUS LOS ALTERNATIVE NUMBER
13. /*** #P = PEOPLE MOVER LOS ALTERNATIVE NUMBER
14. /*** #Z = ZONAL DATA ALTERNATIVE NUMBER
15. /***
16. /*** #S = SYSTEM LOS ALTERNATIVE NUMBER
17. /***
18. //NONWORK EXEC PGM=LOGAP03,REGION=192K,TIME=(,30)
19. //STEPLIB DD DSN=CSI.LOGAP03.MAY1777,DISP=SHR,UNIT=SYSDA,
20. // VOL=SER=USER04
21. //FT05F001 DD DDNAME=SYSIN
22. //FT06F001 DD SYSOUT=A
23. //FT11F001 DD DSN=CSI.LADPM.LOSTAB.WALK.ALTWK#W,DISP=SHR,
24. // UNIT=SYSDA,VOL=SER=USER04
25. //FT12F001 DD DSN=CSI.LADPM.LOSTAB.RBUSMID.ALTRB#R,DISP=SHR,
26. // UNIT=SYSDA,VOL=SER=USER04
27. //FT13F001 DD DSN=CSI.LADPM.LOSTAB.CIRC.ALTCR#C,DISP=SHR,
28. // UNIT=SYSDA,VOL=SER=USER04
29. //FT14F001 DD DSN=CSI.LADPM.LOSTAB.PMVR.ALTPM#P,DISP=SHR,
30. // UNIT=SYSDA,VOL=SER=USER04
31. //FT15F001 DD DSN=CSI.LADPM.LOSTAB.AUTO.ALTAN#A,DISP=SHR,
32. // UNIT=SYSDA,VOL=SER=USER04
33. //FT19F001 DD DSN=&&TRIPS,DISP=(,PASS),
34. // DCB=(RECFM=VBS,BLKSIZE=1608,LRECL=1604),
35. // UNIT=SYSDA,VOL=SER=USER04,SPACE=(TRK,(20,5),RLSE)
36. //A1 DD DSN=CSI.LADPM.ZONDATA.ALTZD#Z,DISP=SHR,UNIT=3330,
37. // VOL=SER=USER04
38. //FT20F001 DD UNIT=SYSDA,SPACE=(TRK,(5,5)),
39. // DCB=(RECFM=FB,BLKSIZE=800,LRECL=80)
40. //FT21F001 DD DUMMY
41. //SYSIN DD *
42. NOON HOUR NON-WORKER DEST/MODE CHOICE, SYSTEM ALTERNATIVE SY#S
43. &PARAM ZONES=117,NMODE=5,TRIPS=12,B=-.0169,-.54,-.001205,.0218,
44. 1.0,-.02,-.169,-.30,-.42 &END
45. NOTE* ONLY TRIPS ARE OUTPUT
46. &OPTION OUTPUT(2)=F,T,T,OUTPUT(11)=4*T,OUTPUT(21)=4*T,PRINT=14,19 &END
47. *NOTE* MODE 1 = WALK, MODE 2 = CIRCULATOR, MODE 3 = RTD BUS,
48. *NOTE* 4 = PEOPLE MOVER, 5 = AUTO
49. *NOTE* OUTPUT TABLES 1-5:
50. *NOTE* TRIPS BY MODES 1-5
51. &VAR NO=1,NAME='WTIMWK#W',FILE=1003,FORMAT=1 &END
52. &VAR NO=2,NAME='RTIMR#R',FILE=2001,FORMAT=1 &END
53. &VAR NO=3,NAME='CTIMCR#C',FILE=3001,FORMAT=1 &END
54. &VAR NO=4,NAME='PTIMPM#P',FILE=4001,FORMAT=1 &END
55. &VAR NO=5,NAME='WGRDWK#W',FILE=1002,FORMAT=1 &END
56. &VAR NO=6,NAME='ADISAN#A',FILE=5001,FORMAT=1 &END
57. &VAR NO=7,NAME='ATIMAN#A',FILE=5002,FORMAT=1 &END
58. &VAR NO=8,NAME='PRKCZD#Z',TYPE=2,LOC=48,LENGTH=8,FORMAT=2 &END

```

## MEMBER LIST FOR STEP112 (CONTINUED)

```

59.   &VAR NO=9,NAME='TRPDZD#2',TYPE=2,LOC=18,LENGTH=8,FORMAT=2 &END
60.   &VAR NO=10,NAME='LNARZD#2',TYPE=2,LOC=28,LENGTH=8,FORMAT=2 &END
61.   &VAR NO=11,NAME='WDISWK#W',FILE=1001,FORMAT=1 &END
62.   &VAR NO=12,NAME='TRPSZD#2',TYPE=1,LOC=58,LENGTH=8,FORMAT=2 &END
63.   *NOTE*
64.   *NOTE* ALL FARES ASSUME:
65.   *NOTE* 1) 1978 FARES ARE MAINTAINED IN CONSTANT-VALUE DOLLARS
66.   *NOTE* 2) DPM FARE IS 15 CENTS IN 1978 DOLLARS
67.   *NOTE*
68.   *NOTE* CPI = CONSUMER PRICE INDEX
69.   *NOTE* CPI(75) = 161.2
70.   *NOTE* CPI(78) = 191.0
71.   *NOTE*
72.   *NOTE* COEFFICIENT/CONSTANT CHANGES:
73.   *
74.   * B(1)=-.169*(WALK, AUTO TIME UNITS PER MINUTE(0.1))
75.   *      =-.0169
76.   *
77.   * B(3)=-.00964/(AVG HOURS PARKED (8))
78.   *      =-.001205
79.   * BECAUSE PRKC IS DAILY COST
80.   *
81.   * B(6)=-.0145*(OPER COST/MILE (6 CENTS))
82.   *          *(DISTANCE UNITS PER MILE(0.1))
83.   *      -.0113 TRIP LENGTH CORRECTION FACTOR - AUTO
84.   *      =-.02
85.   *
86.   * B(8)=-.30 TRIP LENGTH CORRECTION FACTOR - WALK
87.   *
88.   * B(9)=-.42 TRIP LENGTH CORRECTION FACTOR - RTD BUS
89.   *
90.   * C(2)=-2.001-.0145*(CIRC FARE (15 CENTS))*CPI(75)/CPI(78)
91.   *      =-2.185
92.   *
93.   * C(3)=2.548-.0145*(RBUS FARE (40 CENTS))*CPI(75)/CPI(78)
94.   *      =2.058
95.   *
96.   * C(4)=-.880-.0145*(DPM FARE (15 CENTS))*CPI(75)/CPI(78)
97.   *      =-1.064
98.   *
99.   &EQN MODE=1,C=3.123,FORM=1,5,0,9,10,0,0,11,0 &END
100.  &EQN MODE=2,C=-2.185,FORM=0,0,0,9,10,0,3,0,0 &END
101.  &EQN MODE=3,C=2.058,FORM=0,0,0,9,10,0,2,0,11 &END
102.  &EQN MODE=4,C=-1.064,FORM=0,0,0,9,10,0,4,0,0 &END
103.  &FGN MODE=5,FORM=7,0,8,9,10,6,0,0,0 &END
104.  //UMATRIX EXEC UMATRIX,TIME=(,30),REGION=192K,
105.  // J1='DSN=&TRIPS',
106.  // J9='CSN=CS1.LADPM.TRIPTAB.NOON.OTHR.ALTSY#S'
107.  //UMATRIX.SYSIN DD *
108.  NOON NON-WORKER TOTAL TRIPS, ALTERNATIVE SY#S
109.  &PARAM ZONES=117,OUTBPT=2,NAME1='WNNTSY#S',COMBIN1='T101',
110.  NAME2='CNNTSY#S',COMBIN2='T102',
111.  NAME3='RNNTSY#S',COMBIN3='T103',
112.  NAME4='PNNTSY#S',COMBIN4='T104',
113.  NAME5='ANNTSY#S',COMBIN5='T105',
114.  NAME6='TNNTSY#S',COMBIN6='T101 + T102 +
115.  T103 + T104 + T105'
116.  SEND

```

```

117.      &SELECT PRINT=14,19 &END
118.      /*
119.      //OUT1 EXEC UFMTR,TIME=(,15),
120.      //   J1='DSN=CSI.LADPM.TRIPTAB.NOON.OTHR.ALTSY#S',
121.      //   J2='DSN=CSI.LADPM.LOSTAB.WALK.ALTKW#W'
122.      NOON NON-WORKER INTRA-CDD MODE SPLIT, ALTERNATIVE SY#S
123.      &PARAM TABLES=1001,1002,1003,1004,1005,1006,TITLE1='WNNTSY#S',
124.      TITLE2='CNNTSY#S',TITLE3='RNNTSY#S',
125.      TITLE4='PNNTSY#S',TITLE5='ANNTSY#S',TITLE6='TNNTSY#S' &END
126.      &SELECT REPORT=3 &END
127.      &PLOT PAIR=2001,1001,FREQ=T,TITLE='WALK TRIPS/DISTANCE' &END
128.      &PLOT PAIR=2001,1002,FREQ=T,TITLE='CIRC TRIPS/DISTANCE' &END
129.      &PLOT PAIR=2001,1003,FREQ=T,TITLE='RBUS TRIPS/DISTANCE' &END
130.      &PLOT PAIR=2001,1004,FREQ=T,TITLE='PMVR TRIPS/DISTANCE' &END
131.      &PLOT PAIR=2001,1005,FREQ=T,TITLE='AUTO TRIPS/DISTANCE' &END
132.      &PLOT PAIR=2001,1006,FREQ=T,TITLE='TOTAL TRIPS/DISTANCE' &END
133.      //ALERT EXEC WTT

```

133 RECORDS IN MEMBER

5,680 BYTES IN COMPRESSED FORMAT

```

1. // JOB ( ,HERE), 'CSI/STEP12', CLASS=Y,
2. // MSGLEVEL=(1,1)
3. //PROCLIB DD DSN=CSI.DISK.PROCLIB,DISP=SHR,UNIT=SYSDA,VOL=SER=USER04
4. //*
5. //* STEP12 -- PEAK PERIOD PEOPLE MOVER ASSIGNMENT
6. //*
7. //* MAKE THE FOLLOWING SUBSTITUTIONS BEFORE RUNNING --
8. //* #M = MULTIMODAL NETWORK ALTERNATIVE NUMBER
9. //* #P = PEOPLE MOVER ALTERNATIVE NUMBER
10. //*
11. //* #S = SYSTEM ALTERNATIVE NUMBER
12. //*
13. //MFRGTRPS EXEC UMATRIX,TIME=(,30),
14. // J1='DSN=CSI.LADPM.TRIPTAB.PEAK.RTRN.ALTSY#S',
15. // J2='DSN=CSI.LADPM.TRIPTAB.PEAK.RATO.ALTSY#S',
16. // J3='DSN=CSI.LADPM.TRIPTAB.PEAK.RAFR.ALTSY#S',
17. // J4='DSN=CSI.LADPM.TRIPTAB.NOON.WORK.ALTSY#S',
18. // J5='DSN=CSI.LADPM.TRIPTAB.NOON.OTHR.ALTSY#S',
19. // J9='DSN=CSI.LADPM.TRIPTAB.PEAK.TOTL.ALTSY#S'
20. SUM TOTAL PEAK PERIOD TRIPS, ALTERNATIVE SY#S
21. &PARAM ZONES=117,CUTBPT=2,
22. COMBIN1='T105+TR(T201)+T301+.7*(T401+T501)',
23. COMBIN2='T106+TR(T202)+T302+.7*(T402+T502)',
24. COMBIN3='T107+TR(T203)+T303+.7*(T403+T503)',
25. COMBIN4='T108+TR(T204)+T304+.7*(T404+T504)',
26. COMBIN5='.7*(T405+T505)',
27. NAME1='PKWKSYS#S',
28. NAME2='PKCKRSYS#S',
29. NAME3='PKRBSYS#S',
30. NAME4='PKPMSYS#S',
31. NAME5='PKAUSYS#S',
32. &END
33. &SELECT PRINT=14,19 &END
34. /*
35. //ASSIGN EXEC ULOAD,TIME=(,30),
36. // PATH='DSN=CSI.LADPM.PATHS.PMVR.ALTPM#P',
37. // NET='DSN=CSI.LADPM.NETWORK.MMODEPM.ALTMN#M',
38. // J1='DSN=CSI.LADPM.TRIPTAB.PEAK.TOTL.ALTSY#S',
39. // LEGS='DSN=CSI.LADPM.LEGS.PEAK.PMVR.ALTSY#S,VOL=SER=USER04',
40. // DISPLG='(,KEEP)'
41. PEAK ASSIGNMENT OF PEOPLE MOVER TRIPS, ALTERNATIVE SY#S
42. &PARAM TABLE=1004 &END
43. &OPTION WALK=T,RIDE=T &END
44. &SELECT REPORT=3,-5 &END
45. //ALERT EXEC WTT

```

45 RECORDS IN MEMBER

1,780 BYTES IN COMPRESSED FORMAT

```

1. // JOB ( ,HERE), 'CSI8/STEP13',CLASS=Y,
2. // MSGLEVEL=(1,1)
3. //PROCLIB DD DSN=CSI.DISK.PROCLIB,DISP=SHR,UNIT=SYSDA,VOL=SER=USER04
4. /**
5. /** STEP13 -- NOON PERIOD PEOPLE MOVER ASSIGNMENT
6. /**
7. /** MAKE THE FOLLOWING SUBSTITUTIONS BEFORE RUNNING --
8. /** #M = MULTIMODAL NETWORK ALTERNATIVE NUMBER
9. /** #P = PEOPLE MOVER ALTERNATIVE NUMBER
10. /**
11. /** #S = SYSTEM ALTERNATIVE NUMBER
12. /**
13. //MERGTRPS EXEC UMATRIX,TIME=(,30),
14. // J1='DSN=CSI.LADPM.TRIPTAB.NOON.WORK.ALTSY#S',
15. // J2='DSN=CSI.LADPM.TRIPTAB.NOON.OTHR.ALTSY#S',
16. // J9='DSN=CSI.LADPM.TRIPTAB.NOON.TOTL.ALTSY#S'
17. SUM TOTAL NOON PERIOD TRIPS, ALTERNATIVE SY#S
18. &PARAM ZONFS=117,OUTBPT=4,
19. COMBIN1='T101+T201',
20. COMBIN2='T102+T202',
21. COMBIN3='T103+T203',
22. COMBIN4='T104+T204',
23. COMBIN5='T105+T205',
24. NAME1='NNWKSYS',
25. NAME2='NNCKSYS',
26. NAME3='NNRBSYS',
27. NAME4='NNPMSYS',
28. NAME5='NNAUSYS',
29. &END
30. &SELECT PRINT=14,19 &END
31. /*
32. //ASSIGN EXEC ULOAD,TIME=(,30),
33. // PATH='DSN=CSI.LADPM.PATHS.PMVR.ALTPM#P',
34. // NET='DSN=CSI.LADPM.NETWORK.MMODEMID.ALTM#M',
35. // J1='DSN=CSI.LADPM.TRIPTAB.NOON.TOTL.ALTSY#S',
36. // LEGS='DSN=CSI.LADPM.LEGS.NOON.PMVR.ALTSY#S,VOL=SFR=USER04',
37. // DISPLFG='(,KEEP)'
38. NOON ASSIGNMENT OF PEOPLE MOVER TRIPS, ALTERNATIVE SY#S
39. &PARAM TABLE=1004 &END
40. &OPTION WALK=T,RIDE=T &END
41. &SELECT REPORT=3,-5 &END
42. //ALERT EXEC WTT

```

42 RECORDS IN MEMBER 1,508 BYTES IN COMPRESSED FORMAT

\*\*\*\*\* END OF DATA SET - WYL.CS.CSA.USELIB

PART IV

LADPM ALTERNATIVES

1. LARTS Trip Tables (#L)

Number	Description
01	LARTS alternative RTDP30, from tape T70009. High-level freeway bus, without starter line.
02	LARTS RTD Benchmark #11, from tape T70010. TSM bus improvements.
03	LARTS alternative RTDP31, from tape T70008. High-level freeway bus, with starter line

2. External Trip Tables (#E)

Number	Description	From LARTS Table (#L)
01	LARTS RTD Benchmark #11, TSM bus	02
02	LARTS alternative RTDP30, freeway bus	01
03	LARTS alternative RTDP31, starter line	03

3. Auto Networks (#A)

Number	Description
01	1990 Base Case; based largely on the final data used in Phase II. Differences are mainly due to the correction of connections to interceptor parking facilities.

4. Multimodal Networks (#M)

Number	Description
01	1990 Base Case, CRA DPM Alignment Alternative A. Based largely on the final data used in Phase II (Alternative I).
02	CRA DPM Alignment Alternative B
03	CRA DPM Alignment Alternative C
04	CRA DPM Alignment Alternative D
05	CRA DPM Alignment Alternative AFCE
06	CRA DPM Alignment Alternative D'
07	CRA DPM Alignment Alternative BCE
08	Revised 1990 Base Case, with DPM Alignment AFCE, TSM routes and frequencies for RTD bus, no starter line. CRA Cases 3 and 7. Basis for high level bus/ no starter line runs also -- CRA Case 4.
09	1990 network with DPM Alignment AFCE, TSM routes and frequencies for RTD bus, starter line on east alignment. CRA Case 5b.

5. Walk LOS Data Sets (#W)

Number	Description	From Multimodal Network (#M)
01	1990 Base Case	01
02	1990 Revised Base Case	08
03	1990 Starter Line Alternative	09

6. Circulator LOS Data Sets (#C)

Number	Description	From Multimodal Network (#M)	Walk/LOS (#W)
01	1990 Base Case	01	01
02	1990 Revised Base Case	08	02
03	1990 Starter Line Alternative	09	03

7. Regional Bus LOS Data Sets (#R)

Number	Description	From Multimodal Network (#M)	Walk/LOS (#W)
01	1990 Base Case	01	01
02	1990 Revised Base Case	08	02
03	1990 Starter Line Alternative	09	03

8. People Mover Network and LOS Data Sets (#P)

Number	Description	From Multimodal Network (#M)	Walk/LOS (#W)
01	1990 Base Case, CRA DPM Alignment Alternative A. Based largely on the final data used in Phase II (Alternative I).	01	01
02	CRA DPM Alignment Alternative B	02	01
03	CRA DPM Alignment Alternative C	03	01
04	CRA DPM Alignment Alternative D	04	01
05	CRA DPM Alignment Alternative AFCE	05	01
06	CRA DPM Alignment Alternative D'	06	01
07	CRA DPM Alignment Alternative BCE	07	01
08	1990 Revised Base Case, DPM Alignment AFCE, no starter line	08	02
09	1990 Network, DPM Alignment AFCE, with starter line.	09	03

9. Regional Transit Trips (#T)

Number	Description	From External Trips (#E)
01	Initial 1990 Base Case, final trip table produced in Phase II (Alternative I)	None; from Phase II listing
02	Final 1990 Base Case, LARTS Alternative RTDP30 Freeway bus	02
03	LARTS RTD Benchmark #LL - TSM	01
04	LARTS Alternative RTDP31 - starter line	03

10. Regional Auto Trips (#U)

Number	Description	From External Trips (#E)
01	Initial 1990 Base Case; final trip table produced in Phase II (Alternative I)	None; from Phase II listing
02	Final 1990 Base Case, LARTS Alternative RTD30, TSM buses	02
03	LARTS RTD Benchmark #11, freeway buses	01
04	LARTS Alternative RTDP31, starter line	03

11. Zonal Data Sets (#Z)

Number	Description
01	Initial 1990 Base Case; based largely on the final data used in Phase II. Differences exist only in parking capacities for interceptor and fringe facilities.
02	Initial 1990 Base Case with non-worker trip attractions modified to correspond to adjusted models.
03	Final 1990 Base Case; revised employment, floor area, and parking capacities.

12. Output System Alternatives (#S)

A. Descriptions

Number	Descriptions
01	1990 Base Case, CRA DPM Alignment Alternative A. Based largely on the final data used in Phase II (Alternative I).
02	CRA DPM Alignment Alternative B
03	CRA DPM Alignment Alternative C
04	CRA DPM Alignment Alternative D
05	CRA DPM Alignment Alternative AFCE
06	CRA DPM Alignment Alternative D'
07	CRA DPM Alignment Alternative BCE
08	CRA Final Case 3 - TSM
09	CRA Final Case 4 - freeway bus
10	CRA Final Case 5b - starter line
11	CRA Final Case 7 - 25¢ DPM fare

B. Components

Output System Alternative	LARTS Trips	Extended Trips	Auto Network	Multimodal Network	Walk LOS	Circulator LOS	Regional Bus LOS	DPM LOS	Regional Transit Trips	Regional Auto Trips	Zonal Data
#S	#L	#E	#A	#M	#W	#C	#R	#P	#T	#U	#Z
01	none	none	01	01	01	01	01	01	01	01	01
02	↓	↓	↓	02	↓	↓	↓	02	↓	↓	↓
03	↓	↓	↓	03	↓	↓	↓	03	↓	↓	↓
04	↓	↓	↓	04	↓	↓	↓	04	↓	↓	↓
05	↓	↓	↓	05	↓	↓	↓	05	↓	↓	↓
06	↓	↓	↓	06	↓	↓	↓	06	↓	↓	↓
07	↓	↓	↓	07	↓	↓	↓	07	↓	↓	↓
08	02	01	↓	08	02	02	02	08	03	03	03
09	01	02	↓	08	02	02	02	08	02	02	↓
10	03	03	↓	09	03	03	03	09	04	04	↓
11	02	01	↓	08	02	02	02	08	03	03	↓

PART V

DATA SETS ON THE  
DTPS BACKUP TAPE

FREE SPACE 470 TRACKS IN 39 EXTENTS, INCLUDING 16 FULL CYLINDERS

DATA SET NAME	# EXTENTS	DSORG	RECFM	LRECL/BLKSIZE	TOTAL ALLOC/USED	2ND ALLOC	DIREC. ALLOC/USED	BLKS USED
CSI.DISK.PROCLIB	7	PO	FB	80/400	15/15	10	TRK	* *
CSI.LADPM.BOX1	1	PS	FB	80/3120	3/3	0	BLK	
CSI.LADPM.BOX2	1	PS	FB	80/3120	11/11	0	BLK	
CSI.LADPM.BOX3	1	PS	FB	80/3120	12/12	0	BLK	
CSI.LADPM.BOX5	1	PS	FB	80/3120	13/13	0	BLK	
CSI.LADPM.BOX6	1	PS	FB	80/3120	9/9	0	BLK	
CSI.LADPM.BUSCRDS.CASE3	1	PS	U	3155/3155	3/3	0	BLK	
CSI.LADPM.BUSCRDS.CASE4	1	PS	U	3155/3155	3/3	0	BLK	
CSI.LADPM.BUSCRDS.CASE5	1	PS	U	3155/3155	4/4	0	BLK	
CSI.LADPM.BUSSTOP	1	PO	U	0/13030	9/9	20	TRK	* *
CSI.LADPM.BUSSTOP.SOURCE	1	PS	FB	80/3120	3/3	0	BLK	
CSI.LADPM.CASE3LIB	1	PO	U	0/3155	10/3	0	TRK	* *
CSI.LADPM.LEGS.NOON.AUTO.ALTSY08	1	PS	U	2560/2560	57/1	3	CYL	
CSI.LADPM.LEGS.NOON.PMVR.ALTSY01	1	PS	FB	2000/2000	19/1	3	CYL	
CSI.LADPM.LEGS.NOON.PMVR.ALTSY02	1	PS	FB	2000/2000	19/1	3	CYL	
CSI.LADPM.LEGS.NOON.PMVR.ALTSY03	1	PS	FB	2000/2000	19/1	3	CYL	
CSI.LADPM.LEGS.NOON.PMVR.ALTSY04	1	PS	FB	2000/2000	19/1	3	CYL	
CSI.LADPM.LEGS.NOON.PMVR.ALTSY05	1	PS	FB	2000/2000	19/1	3	CYL	
CSI.LADPM.LEGS.NOON.PMVR.ALTSY06	1	PS	FB	2000/2000	19/1	3	CYL	
CSI.LADPM.LEGS.NOON.PMVR.ALTSY07	1	PS	FB	2000/2000	19/1	3	CYL	
CSI.LADPM.LEGS.NOON.PMVR.ALTSY08	1	PS	FB	2000/2000	19/1	3	CYL	
CSI.LADPM.LEGS.NOON.PMVR.ALTSY10	1	PS	FB	2000/2000	19/1	3	CYL	
CSI.LADPM.LEGS.NOON.PMVR.ALTSY11	1	PS	FB	2000/2000	19/1	3	CYL	
CSI.LADPM.LEGS.PEAK.AUTO.ALTSY08	1	PS	U	2560/2560	57/1	3	CYL	
CSI.LADPM.LEGS.PEAK.PMVR.ALTSY01	1	PS	FB	2000/2000	19/1	3	CYL	
CSI.LADPM.LEGS.PEAK.PMVR.ALTSY02	1	PS	FB	2000/2000	19/1	3	CYL	
CSI.LADPM.LEGS.PEAK.PMVR.ALTSY03	1	PS	FB	2000/2000	19/1	3	CYL	
CSI.LADPM.LEGS.PEAK.PMVR.ALTSY04	1	PS	FB	2000/2000	19/1	3	CYL	
CSI.LADPM.LEGS.PEAK.PMVR.ALTSY05	1	PS	FB	2000/2000	19/1	3	CYL	
CSI.LADPM.LEGS.PEAK.PMVR.ALTSY06	1	PS	FB	2000/2000	19/1	3	CYL	
CSI.LADPM.LEGS.PEAK.PMVR.ALTSY07	1	PS	FB	2000/2000	19/1	3	CYL	
CSI.LADPM.LEGS.PEAK.PMVR.ALTSY08	1	PS	FB	2000/2000	19/1	3	CYL	
CSI.LADPM.LEGS.PEAK.PMVR.ALTSY09	1	PS	FB	2000/2000	19/1	3	CYL	
CSI.LADPM.LEGS.PEAK.PMVR.ALTSY10	1	PS	FB	2000/2000	19/1	3	CYL	
CSI.LADPM.LEGS.PEAK.PMVR.ALTSY11	1	PS	FB	2000/2000	19/1	3	CYL	
CSI.LADPM.LOGAP04.SOURCE	1	PS	FB	80/3120	12/12	0	BLK	
CSI.LADPM.LOSTAB.APRK.ALTA001	1	PS	VS	1604/1608	4/4	5	TRK	
CSI.LADPM.LOSTAB.AUTO.ALTA001	1	PS	VBS	1604/1608	6/6	5	TRK	
CSI.LADPM.LOSTAB.CIRC.ALTCR01	1	PS	VBS	1604/1608	3/3	5	TRK	
CSI.LADPM.LOSTAB.CIRC.ALTCR02	1	PS	VBS	1604/1608	3/3	5	TRK	
CSI.LADPM.LOSTAB.CIRC.ALTCR03	1	PS	VBS	1604/1608	3/3	5	TRK	
CSI.LADPM.LOSTAB.PMVR.ALTPM01	1	PS	VBS	1604/1608	6/6	5	TRK	
CSI.LADPM.LOSTAB.PMVR.ALTPM02	1	PS	VBS	1604/1608	6/6	5	TRK	
CSI.LADPM.LOSTAB.PMVR.ALTPM03	1	PS	VBS	1604/1608	6/6	5	TRK	
CSI.LADPM.LOSTAB.PMVR.ALTPM04	1	PS	VBS	1604/1608	6/6	5	TRK	
CSI.LADPM.LOSTAB.PMVR.ALTPM05	1	PS	VBS	1604/1608	6/6	5	TRK	
CSI.LADPM.LOSTAB.PMVR.ALTPM06	1	PS	VBS	1604/1608	6/6	5	TRK	
CSI.LADPM.LOSTAB.PMVR.ALTPM07	1	PS	VBS	1604/1608	6/6	5	TRK	
CSI.LADPM.LOSTAB.PMVR.ALTPM08	1	PS	VBS	1604/1608	6/6	5	TRK	
CSI.LADPM.LOSTAB.PMVR.ALTPM09	1	PS	VBS	1604/1608	6/6	5	TRK	
CSI.LADPM.LOSTAB.RBUS.ALTR001	1	PS	VBS	1604/1608	3/3	5	TRK	

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DATA SET NAME		#	DSORG	RECFM	LRECL/BLKSIZE	TOTAL	TRACKS	2ND	DIREC	BI
		EXTENTS				ALLOC/USED	ALLOC	ALLOC		ALLO/USI
CSI.LADPM.LOSTAB.RBUSMID.ALTRB02		1	PS	VBS	1604/1608	3	3	5	TRK	
CSI.LADPM.LOSTAB.RBUSMID.ALTRB03		1	PS	VBS	1604/1608	3	3	5	TRK	
CSI.LADPM.LOSTAB.RBUSPM.ALTRB02		1	PS	VBS	1604/1608	3	3	5	TRK	
CSI.LADPM.LOSTAB.RBUSPM.ALTRB03		1	PS	VBS	1604/1608	3	3	5	TRK	
CSI.LADPM.LOSTAB.WALK.ALTK01		1	PS	VBS	1604/1608	8	8	5	TRK	
CSI.LADPM.LOSTAB.WALK.ALTK02		1	PS	VBS	1604/1608	8	8	5	TRK	
CSI.LADPM.LOSTAB.WALK.ALTK03		1	PS	VBS	1604/1608	8	8	5	TRK	
CSI.LADPM.NETCRDS.ATIME.ALTM01		1	PS	FB	80/3120	4	4	0	BLK	
CSI.LADPM.NETCRDS.MMODE.ALTM01		1	PS	FB	80/3120	10	10	0	BLK	
CSI.LADPM.NETCRDS.MMODE.ALTM02		1	PS	FB	80/3120	10	10	0	BLK	
CSI.LADPM.NETCRDS.MMODE.ALTM03		1	PS	FB	80/3120	10	10	0	BLK	
CSI.LADPM.NETCRDS.MMODE.ALTM04		1	PS	FB	80/3120	10	10	0	BLK	
CSI.LADPM.NETCRDS.MMODE.ALTM05		1	PS	FB	80/3120	10	10	0	BLK	
CSI.LADPM.NETCRDS.MMODE.ALTM06		1	PS	FB	80/3120	10	10	0	BLK	
CSI.LADPM.NETCRDS.MMODE.ALTM08		1	PS	U	3155/3155	4	4	0	BLK	
CSI.LADPM.NETCRDS.MMODE.ALTM09		1	PS	U	3155/3155	5	5	0	BLK	
CSI.LADPM.NETWORK.ATIME.ALTM01.NET1		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.ATIME.ALTM01.NET2		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.ATIME.ALTM01.NET3		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.ATIME.ALTM01.NET4		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.ATIME.ALTM01.NET5		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.ATIME.ALTM02.NET1		1	PS	VBS	2004/2008	2	1	2	TRK	
CSI.LADPM.NETWORK.ATIME.ALTM02.NET2		1	PS	VBS	2004/2008	2	1	2	TRK	
CSI.LADPM.NETWORK.ATIME.ALTM02.NET3		1	PS	VBS	2004/2008	2	1	2	TRK	
CSI.LADPM.NETWORK.ATIME.ALTM02.NET4		1	PS	VBS	2004/2008	2	1	2	TRK	
CSI.LADPM.NETWORK.ATIME.ALTM02.NET5		1	PS	VBS	2004/2008	2	1	2	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM01.NET1		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM01.NET2		1	PS	VBS	2004/2008	10	3	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM01.NET3		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM01.NET4		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM01.NET5		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM02.NET1		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM02.NET2		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM02.NET3		1	PS	VBS	2004/2008	10	3	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM02.NET4		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM02.NET5		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM03.NET1		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM03.NET2		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM03.NET3		1	PS	VBS	2004/2008	10	3	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM03.NET4		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM03.NET5		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM04.NET1		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM04.NET2		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM04.NET3		1	PS	VBS	2004/2008	10	3	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM04.NET4		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM04.NET5		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM05.NET1		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM05.NET2		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM05.NET3		1	PS	VBS	2004/2008	10	3	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM05.NET4		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM05.NET5		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM06.NET1		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM06.NET2		1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM06.NET3		1	PS	VBS	2004/2008	10	3	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTM06.NET4		1	PS	VBS	2004/2008	10	1	10	TRK	

DATA SET NAME	# EXTENTS	DSORG	RECFM	LRECL/BLKSIZE	TOTAL ALLOC/USED	TRACKS USED	2ND ALLOC	DIREC. ALLOC/USED	BLKS USED
CSI.LADPM.NETWORK.MMODE.ALTMO6.NET5	1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTMO7.NET1	1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTMO7.NET2	1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTMO7.NET3	1	PS	VBS	2004/2008	10	3	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTMO7.NET4	1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTMO7.NET5	1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTMO8.NET1	1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTMO8.NET2	1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTMO8.NET3	1	PS	VBS	2004/2008	10	3	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTMO8.NET4	1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODE.ALTMO8.NET5	1	PS	VBS	2004/2008	10	1	10	TRK	
CSI.LADPM.NETWORK.MMODEMID.ALTMO8.NET11	1	PS	VBS	2004/2008	2	1	2	TRK	
CSI.LADPM.NETWORK.MMODEMID.ALTMO8.NET12	1	PS	VBS	2004/2008	2	1	2	TRK	
CSI.LADPM.NETWORK.MMODEMID.ALTMO8.NET13	1	PS	VBS	2004/2008	4	3	2	TRK	
CSI.LADPM.NETWORK.MMODEMID.ALTMO8.NET14	1	PS	VBS	2004/2008	2	1	2	TRK	
CSI.LADPM.NETWORK.MMODEMID.ALTMO8.NET15	1	PS	VBS	2004/2008	2	1	2	TRK	
CSI.LADPM.NETWORK.MMODEMID.ALTMO9.NET11	1	PS	VBS	2004/2008	2	1	2	TRK	
CSI.LADPM.NETWORK.MMODEMID.ALTMO9.NET12	1	PS	VBS	2004/2008	2	1	2	TRK	
CSI.LADPM.NETWORK.MMODEMID.ALTMO9.NET13	1	PS	VBS	2004/2008	4	3	2	TRK	
CSI.LADPM.NETWORK.MMODEMID.ALTMO9.NET14	1	PS	VBS	2004/2008	2	1	2	TRK	
CSI.LADPM.NETWORK.MMODEMID.ALTMO9.NET15	1	PS	VBS	2004/2008	2	1	2	TRK	
CSI.LADPM.NETWORK.MMODEPM.ALTMO8.NET1	1	PS	VBS	2004/2008	2	1	2	TRK	
CSI.LADPM.NETWORK.MMODEPM.ALTMO8.NET2	1	PS	VBS	2004/2008	2	1	2	TRK	
CSI.LADPM.NETWORK.MMODEPM.ALTMO8.NET3	1	PS	VBS	2004/2008	4	3	2	TRK	
CSI.LADPM.NETWORK.MMODEPM.ALTMO8.NET4	1	PS	VBS	2004/2008	2	1	2	TRK	
CSI.LADPM.NETWORK.MMODEPM.ALTMO8.NET5	1	PS	VBS	2004/2008	2	1	2	TRK	
CSI.LADPM.NETWORK.MMODEPM.ALTMO9.NET1	1	PS	VBS	2004/2008	2	1	2	TRK	
CSI.LADPM.NETWORK.MMODEPM.ALTMO9.NET2	1	PS	VBS	2004/2008	2	1	2	TRK	
CSI.LADPM.NETWORK.MMODEPM.ALTMO9.NET3	1	PS	VBS	2004/2008	4	3	2	TRK	
CSI.LADPM.NETWORK.MMODEPM.ALTMO9.NET4	1	PS	VBS	2004/2008	2	1	2	TRK	
CSI.LADPM.NETWORK.MMODEPM.ALTMO9.NET5	1	PS	VBS	2004/2008	2	1	2	TRK	
CSI.LADPM.PATHS.AUTO.ALTANO1	1	PS	VBS	2004/2008	20	13	10	TRK	
CSI.LADPM.PATHS.AUTO.ALTANO2	1	PS	VBS	2004/2008	20	15	10	TRK	
CSI.LADPM.PATHS.PMVR.ALTPMO1	1	PS	VBS	2004/2008	20	20	10	TRK	
CSI.LADPM.PATHS.PMVR.ALTPMO2	1	PS	VBS	2004/2008	20	20	10	TRK	
CSI.LADPM.PATHS.PMVR.ALTPMO3	1	PS	VBS	2004/2008	20	20	10	TRK	
CSI.LADPM.PATHS.PMVR.ALTPMO4	1	PS	VBS	2004/2008	20	20	10	TRK	
CSI.LADPM.PATHS.PMVR.ALTPMO5	1	PS	VBS	2004/2008	20	20	10	TRK	
CSI.LADPM.PATHS.PMVR.ALTPMO6	1	PS	VBS	2004/2008	20	20	10	TRK	
CSI.LADPM.PATHS.PMVR.ALTPMO7	1	PS	VBS	2004/2008	20	20	10	TRK	
CSI.LADPM.PATHS.PMVR.ALTPMO8	1	PS	VBS	2004/2008	30	22	10	TRK	
CSI.LADPM.PATHS.PMVR.ALTPMO9	1	PS	VBS	2004/2008	30	22	10	TRK	
CSI.LADPM.PROBTAB.PEAK.RTRN.ALTSY08	1	PS	VBS	1604/1608	26	26	5	TRK	
CSI.LADPM.PROBTAB.PEAK.RTRN.ALTSY09	1	PS	VBS	1604/1608	26	26	5	TRK	
CSI.LADPM.PROBTAB.PEAK.RTRN.ALTSY10	1	PS	VBS	1604/1608	26	26	5	TRK	
CSI.LADPM.PROBTAB.PEAK.RTRN.ALTSY11	1	PS	VBS	1604/1608	26	26	5	TRK	
CSI.LADPM.TRIPTAB.NOON.OTHR.ALTSY01	1	PS	VBS	1604/1608	16	16	5	TRK	
CSI.LADPM.TRIPTAB.NOON.OTHR.ALTSY02	3	PS	VBS	1604/1608	26	26	5	TRK	
CSI.LADPM.TRIPTAB.NOON.OTHR.ALTSY03	3	PS	VBS	1604/1608	26	26	5	TRK	
CSI.LADPM.TRIPTAB.NOON.OTHR.ALTSY04	3	PS	VBS	1604/1608	26	26	5	TRK	
CSI.LADPM.TRIPTAB.NOON.OTHR.ALTSY05	3	PS	VBS	1604/1608	26	26	5	TRK	
CSI.LADPM.TRIPTAB.NOON.OTHR.ALTSY06	3	PS	VBS	1604/1608	26	26	5	TRK	
CSI.LADPM.TRIPTAB.NOON.OTHR.ALTSY07	3	PS	VBS	1604/1608	26	26	5	TRK	
CSI.LADPM.TRIPTAB.NOON.OTHR.ALTSY08	1	PS	VBS	1604/1608	16	16	5	TRK	
CSI.LADPM.TRIPTAB.NOON.OTHR.ALTSY10	1	PS	VBS	1604/1608	16	16	5	TRK	

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DATA SET NAME										#	DSORG	RECFM	LRECL/BLKSIZE	TOTAL TRACKS		2ND	DIREC. B
										EXTENTS				ALLOC/USED	ALLOC	ALOC	ALOC/US
CSI.LADPM.TRIPTAB.NOON.OTHK.ALTSY11	1	PS	VBS	1604/1608	16	16	5	TRK									
CSI.LADPM.TRIPTAB.NOON.TOTL.ALTSY01	3	PS	VBS	1604/1608	26	26	5	TRK									
CSI.LADPM.TRIPTAB.NOON.TOTL.ALTSY02	3	PS	VBS	1604/1608	26	26	5	TRK									
CSI.LADPM.TRIPTAB.NOON.TOTL.ALTSY03	3	PS	VBS	1604/1608	26	26	5	TRK									
CSI.LADPM.TRIPTAB.NOON.TOTL.ALTSY04	3	PS	VBS	1604/1608	26	26	5	TRK									
CSI.LADPM.TRIPTAB.NOON.TOTL.ALTSY05	3	PS	VBS	1604/1608	26	26	5	TRK									
CSI.LADPM.TRIPTAB.NOON.TOTL.ALTSY06	3	PS	VBS	1604/1608	26	26	5	TRK									
CSI.LADPM.TRIPTAB.NOON.TOTL.ALTSY07	3	PS	VBS	1604/1608	26	26	5	TRK									
CSI.LADPM.TRIPTAB.NOON.TOTL.ALTSY08	1	PS	VBS	1604/1608	26	26	5	TRK									
CSI.LADPM.TRIPTAB.NOON.TOTL.ALTSY10	1	PS	VBS	1604/1608	26	26	5	TRK									
CSI.LADPM.TRIPTAB.NOON.TOTL.ALTSY11	1	PS	VBS	1604/1608	26	26	5	TRK									
CSI.LADPM.TRIPTAB.NOON.WORK.ALTSY01	1	PS	VBS	1604/1608	19	19	5	TRK									
CSI.LADPM.TRIPTAB.NOON.WORK.ALTSY02	4	PS	VBS	1604/1608	31	31	5	TRK									
CSI.LADPM.TRIPTAB.NOON.WORK.ALTSY03	4	PS	VBS	1604/1608	31	31	5	TRK									
CSI.LADPM.TRIPTAB.NOON.WORK.ALTSY04	4	PS	VBS	1604/1608	31	31	5	TRK									
CSI.LADPM.TRIPTAB.NOON.WORK.ALTSY05	4	PS	VBS	1604/1608	31	31	5	TRK									
CSI.LADPM.TRIPTAB.NOON.WORK.ALTSY06	4	PS	VBS	1604/1608	31	31	5	TRK									
CSI.LADPM.TRIPTAB.NOON.WORK.ALTSY07	4	PS	VBS	1604/1608	31	31	5	TRK									
CSI.LADPM.TRIPTAB.NOON.WORK.ALTSY08	1	PS	VBS	1604/1608	19	19	5	TRK									
CSI.LADPM.TRIPTAB.NOON.WORK.ALTSY10	1	PS	VBS	1604/1608	19	19	5	TRK									
CSI.LADPM.TRIPTAB.NOON.WORK.ALTSY11	1	PS	VBS	1604/1608	19	19	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.CLOT.ALTSY08	1	PS	VS	1604/1608	4	4	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.LOTC.ALTSY08	1	PS	VS	1604/1608	4	4	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RAFR.ALTSY01	3	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RAFR.ALTSY02	3	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RAFR.ALTSY03	3	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RAFR.ALTSY04	3	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RAFR.ALTSY05	3	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RAFR.ALTSY06	3	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RAFR.ALTSY07	3	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RAFR.ALTSY08	1	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RAFR.ALTSY09	1	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RAFR.ALTSY10	1	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RAFR.ALTSY11	1	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RATO.ALTSY01	3	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RATO.ALTSY02	3	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RATO.ALTSY03	3	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RATO.ALTSY04	3	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RATO.ALTSY05	3	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RATO.ALTSY06	3	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RATO.ALTSY07	3	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RATO.ALTSY08	1	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RATO.ALTSY09	1	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RATO.ALTSY10	1	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RATO.ALTSY11	1	PS	VBS	1604/1608	20	20	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RTRN.ALTSY01	7	PS	VBS	1604/1608	46	46	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RTRN.ALTSY02	7	PS	VBS	1604/1608	46	46	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RTRN.ALTSY03	7	PS	VBS	1604/1608	46	46	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RTRN.ALTSY04	7	PS	VBS	1604/1608	46	46	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RTRN.ALTSY05	7	PS	VBS	1604/1608	46	46	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RTRN.ALTSY06	7	PS	VBS	1604/1608	46	46	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RTRN.ALTSY07	7	PS	VBS	1604/1608	46	46	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RTRN.ALTSY08	1	PS	VBS	1604/1608	41	41	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RTRN.ALTSY09	1	PS	VBS	1604/1608	41	41	5	TRK									
CSI.LADPM.TRIPTAB.PEAK.RTRN.ALTSY10	1	PS	VBS	1604/1608	41	41	5	TRK									

DATA SET NAME	# EXTENTS	DSORG	RECFM	LRECL/BLKSIZE	TOTAL ALLOC	TRACKS USED	2ND ALLOC	DIREC. ALLOC	BLKS USED
CSI.LADPM.TRIPTAB.PEAK.RTRN.ALTSY11	1	PS	VBS	1604/1608	41	41	5	TRK	
CSI.LADPM.TRIPTAB.PEAK.TOTL.ALTSY01	1	PS	VBS	1604/1608	13	13	5	TRK	
CSI.LADPM.TRIPTAB.PEAK.TOTL.ALTSY02	1	PS	VBS	1604/1608	13	13	5	TRK	
CSI.LADPM.TRIPTAB.PEAK.TOTL.ALTSY03	1	PS	VBS	1604/1608	13	13	5	TRK	
CSI.LADPM.TRIPTAB.PEAK.TOTL.ALTSY04	1	PS	VBS	1604/1608	13	13	5	TRK	
CSI.LADPM.TRIPTAB.PEAK.TOTL.ALTSY05	1	PS	VBS	1604/1608	13	13	5	TRK	
CSI.LADPM.TRIPTAB.PEAK.TOTL.ALTSY06	1	PS	VBS	1604/1608	13	13	5	TRK	
CSI.LADPM.TRIPTAB.PEAK.TOTL.ALTSY07	1	PS	VBS	1604/1608	13	13	5	TRK	
CSI.LADPM.TRIPTAB.PEAK.TOTL.ALTSY08	1	PS	VBS	1604/1608	13	13	5	TRK	
CSI.LADPM.TRIPTAB.PEAK.TOTL.ALTSY09	1	PS	VBS	1604/1608	13	13	5	TRK	
CSI.LADPM.TRIPTAB.PEAK.TOTL.ALTSY10	1	PS	VBS	1604/1608	13	13	5	TRK	
CSI.LADPM.TRIPTAB.PEAK.TOTL.ALTSY11	1	PS	VBS	1604/1608	13	13	5	TRK	
CSI.LADPM.TRIPTAB.REGN.AFR.ALTRA01	1	PS	VBS	1604/1608	1	1	5	TRK	
CSI.LADPM.TRIPTAB.REGN.ATO.ALTRA01	1	PS	VBS	1604/1608	1	1	5	TRK	
CSI.LADPM.TRIPTAB.REGN.AUTO.ALTRA02	1	PS	VBS	1604/1608	6	6	5	TRK	
CSI.LADPM.TRIPTAB.REGN.AUTO.ALTRA03	1	PS	VBS	1604/1608	6	6	5	TRK	
CSI.LADPM.TRIPTAB.REGN.AUTO.ALTRA04	1	PS	VBS	1604/1608	6	6	5	TRK	
CSI.LADPM.TRIPTAB.REGN.TRN.ALTRT01	1	PS	VBS	1604/1608	3	3	5	TRK	
CSI.LADPM.TRIPTAB.REGN.TRN.ALTRT02	1	PS	VBS	1604/1608	3	3	5	TRK	
CSI.LADPM.TRIPTAB.REGN.TRN.ALTRT03	1	PS	VBS	1604/1608	3	3	5	TRK	
CSI.LADPM.TRIPTAB.REGN.TRN.ALTRT04	1	PS	VBS	1604/1608	3	3	5	TRK	
CSI.LADPM.TRIPTAB.REGN.TRNOD.ALTT01	1	PS	VS	1604/1608	1	1	5	TRK	
CSI.LADPM.TRIPTAB.REGN.TRNOD.ALTT02	1	PS	VS	1604/1608	1	1	5	TRK	
CSI.LADPM.TRIPTAB.REGN.TRNOD.ALTT03	1	PS	VS	1604/1608	1	1	5	TRK	
CSI.LADPM.TRIPTAB.REGN.Z27A.ALTLT01	1	PS	VS	1604/1608	2	2	5	TRK	
CSI.LADPM.TRIPTAB.REGN.Z27A.ALTLT02	1	PS	VS	1604/1608	2	2	5	TRK	
CSI.LADPM.TRIPTAB.REGN.Z27A.ALTLT03	1	PS	VS	1604/1608	2	2	5	TRK	
CSI.LADPM.TRIPTAB.REGN.Z27B.ALTLT01	1	PS	VS	1604/1608	2	2	5	TRK	
CSI.LADPM.TRIPTAB.REGN.Z27B.ALTLT02	1	PS	VS	1604/1608	2	2	5	TRK	
CSI.LADPM.TRIPTAB.REGN.Z27B.ALTLT03	1	PS	VS	1604/1608	2	2	5	TRK	
CSI.LADPM.TSC.TOTTRIPS.ALTSY08	5	PS	VBS	1604/1608	36	36	5	TRK	
CSI.LADPM.USELIR	1	PO	U	0/3155	10	8	0	TRK	* *
CSI.LADPM.ZONCRDS.ALTZ003	1	PS	FB	80/3120	1	1	0	BLK	
CSI.LADPM.ZONCRDS.BLDA75	1	PS	F	80/80	2	2	1	TRK	
CSI.LADPM.ZONCRDS.EMP230	1	PS	F	80/80	2	2	1	TRK	
CSI.LADPM.ZONCRDS.PKP01	1	PS	F	80/80	2	2	1	TRK	
CSI.LADPM.ZONCRDS.PKP04	1	PS	F	80/80	2	2	1	TRK	
CSI.LADPM.ZONDATA.ALTZ001	1	PS	FB	80/3120	1	1	0	BLK	
CSI.LADPM.ZONDATA.ALTZ002	1	PS	FB	80/3120	1	1	0	BLK	
CSI.LADPM.ZONDATA.ALTZ003	1	PS	FB	80/3120	1	1	0	TRK	
CSI.LADPM75.AUTO.FRMCPD	1	PS	VBS	1604/1608	3	3	3	TRK	
CSI.LADPM75.AUTO.TOCED	1	PS	VBS	1604/1608	3	3	3	TRK	
CSI.LADPM75.LOSTAB.AFRK.ALTK	1	PS	VS	1604/1608	4	4	3	TRK	
CSI.LADPM75.LOSTAB.AUTO.ALTK	1	PS	VBS	1604/1608	6	6	3	TRK	
CSI.LADPM75.LOSTAB.CIRC.ALTK	1	PS	VBS	1604/1608	3	3	3	TRK	
CSI.LADPM75.LOSTAB.RBUS.ALTK	1	PS	VBS	1604/1608	3	3	3	TRK	
CSI.LADPM75.LOSTAB.WALK.ALTK	1	PS	VBS	1604/1608	8	8	3	TRK	
CSI.LADPM75.PEAK.RFGTRP75	5	PS	VBS	1604/1608	36	36	3	TRK	
CSI.LADPM75.PERM.AUTOPHS	1	PS	VBS	1604/1608	6	6	3	TRK	
CSI.LADPM75.PERM.CRCPTHS	1	PS	VBS	1604/1608	3	3	3	TRK	
CSI.LADPM75.PERM.RRUSPHS	1	PS	VBS	1604/1608	3	3	3	TRK	
CSI.LADPM75.PERM.WLKPHS	1	PS	VBS	1604/1608	4	4	3	TRK	
CSI.LADPM75.RFGTRP75	1	PS	VBS	1604/1608	3	3	3	TRK	
CSI.LADPM75.TRIPTAB.NOON.OTHR.ALTK	1	PS	VBS	1604/1608	20	20	5	TRK	
CSI.LADPM75.TRIPTAB.NOON.TOTAL	1	PS	VBS	1604/1608	13	13	5	TRK	

DATA SET NAME	# EXTENTS	DSORG	RECFM	LRECL/BLKSIZE	TOTAL ALLOC	TRACKS USED	2ND ALLOC	DIREC. B ALLOC/US
CSI.LADPM75.TRIPTAB.NOON.WORK	3	PS	VBS	1604/1608	26	26	5	TRK
CSI.LADPM75.TRIPTAB.NOON.WORK.ALTK	1	PS	VBS	1604/1608	13	13	5	TRK
CSI.LADPM75.TRIPTAB.OTHR.TOTAL	1	PS	VBS	1604/1608	3	3	5	TRK
CSI.LADPM75.TRIPTAB.WORK.TOTAL	1	PS	VBS	1604/1608	3	3	5	TRK
CSI.LADPM75.TRNET.NET1	1	PS	VBS	2004/2008	1	1	3	TRK
CSI.LADPM75.TRNET.NET2	1	PS	VBS	2004/2008	1	1	3	TRK
CSI.LADPM75.TRNET.NET3	1	PS	VBS	2004/2008	1	1	3	TRK
CSI.LADPM75.TRNET.NET4	1	PS	VBS	2004/2008	1	1	3	TRK
CSI.LOGAP01.MAY1777	2	PO	U	0/13030	20	11	10	TRK * *
CSI.LOGAP03.MAY1777	2	PO	U	0/13030	21	12	10	TRK * *
CSI.LOGAP04.V1M2	1	PO	U	0/13030	12	12	20	TRK * *
CSI.URD.BTNCAL	1	PS	VBS	1604/1608	3	3	3	TRK
CSI.URD.DATA	1	PO	FB	80/400	80	29	8	TRK * *
CSI.URD.DFIMPS	1	PS	VBS	1604/1608	1	1	3	TRK
CSI.URD.HIMPS	1	PS	VBS	1604/1608	1	1	3	TRK
CSI.URD.HR	1	PS	VB	200/3300	2	2	4	TRK
CSI.URD.LKED	1	PO	FB	80/400	36	13	4	TRK * *
CSI.URD.LOG	1	PS	VBS	84/844	1	1	3	TRK
CSI.URD.NTRTRIPS	1	PS	VBS	1604/1608	1	1	3	TRK
CSI.URD.PROCLIB	1	PO	FB	80/3120	36	19	4	TRK * *
CSI.URD.PROCLIB1	1	PO	FB	80/400	22	22	100	TRK * *
CSI.URD.PROGLIB	1	PO	U	3072/3072	900	483	100	TRK * *
CSI.URD.PROGLIB.V76	1	PO	U	0/3072	133	122	1	CYL * *
CSI.URD.SUBRLIB	1	PO	U	0/7294	160	58	16	TRK * *
CSI.URD.TFARES	1	PS	VBS	1604/1608	1	1	3	TRK
CSI.URD.TIMPS	1	PS	VBS	1604/1608	1	1	3	TRK
CSI.URD.TPATHS	1	PS	VBS	2004/2008	1	1	3	TRK
CSI.URD.TRANS1	1	PS	VBS	2004/2008	1	1	3	TRK
CSI.URD.TRANS2	1	PS	VBS	2004/2008	1	1	3	TRK
CSI.URD.TRANS3	1	PS	VBS	2004/2008	1	1	3	TRK
CSI.URD.TRANS4	1	PS	VBS	2004/2008	1	1	3	TRK
CSI.URD.TRANS5	1	PS	VBS	2004/2008	1	1	3	TRK
CSI.URD.TTIMPS	1	PS	VBS	1604/1608	1	1	3	TRK
CSI.URD.WRITEUPS	1	PO	FB	80/7280	1000	811	100	TRK * *
CSI.URD.ZFTRIPS	1	PS	VBS	1604/1608	1	1	3	TRK
CSI.USER04.PROCLIB	1	PO	FB	80/400	15	12	10	TRK * *
CSI.UTPS	4	PS	FB	80/3120	15	15	3	TRK
SYSCTLG	1			0/0	10	1	10	TRK
SYS78121.T095130.RV000.CSACS290.WLKSCHS	1	PS	VBS	1604/1608	3	3	5	TRK
U8526075.EDS.H15021.SFO.ALTO2	4	PS	VBS	2004/12028	200	194	50	TRK
U8526075.EDS.H15022.SFO.BASE	6	PS	VBS	2004/12028	300	265	50	TRK
U8526075.EDS.H14012.SFO.ALTO2	2	PS	VBS	1604/12836	100	92	50	TRK
U8526075.EDS.H14013.SFO.BASE	2	PS	VBS	1604/12836	100	92	50	TRK
H8526075.UR0ADDAB.APK	1	PO	U	0/13030	50	27	50	TRK * *
U8526075.UR0ADDAB.MOD	1	PO	U	13030/13030	50	27	50	TRK * *
U8526075.UR0ADDAB.MOD.NOVLY	3	PO	U	0/13030	27	27	10	TRK * *
WYL.CS.LPM.SUBRLIB	1	PO		0/0	5	1	10	TRK * *

9-11

318 DATA SETS ON VOLUME CSIB01

END OF UTILITY - DISK PACKS ARE MAPPED

PART VI

USER DOCUMENTATION

FOR LOGAPØ1

## IDENTIFICATION

TITLE: LOGIT MODE CHOICE MODEL APPLICATION PROGRAM (LOGAP01)  
 WRITTEN BY: R.L. ALBRIGHT, CAMBRIDGE SYSTEMATICS, INC.  
 SPONSOR: METROPOLITAN (S.F.) TRANSPORTATION COMMISSION

## SUMMARY

LOGAP01 PERFORMS THE CALCULATIONS OF A LOGIT-FORM MODE CHOICE MODEL. GIVEN

(1) A LOGIT MODE CHOICE MODEL SPECIFICATION AND

(2) DATA USED BY THE MODEL.

## IT OUTPUTS

(1) MODE UTILITIES AND/OR

(2) MODE CHOICE PROBABILITIES <1.1> AND/OR

(3) MODAL VOLUMES (I.E. TRIPS).

THE MODEL IS APPLIED INDEPENDENTLY TO EACH TRIP INTERCHANGE; THAT IS, FROM EACH OF 'NORIG' PRODUCTION ZONES TO EACH OF 'NDEST' ATTRACTION ZONES. FOR EACH INTERCHANGE THE UTILITY/PROBABILITY/VOLUME BY EACH OF 'NMODE' MODES IS COMPUTED. ANY GIVEN ZONE MAY SERVE AS A PRODUCTION ZONE, AN ATTRACTION ZONE OR BOTH.

THE UTILITY OF A PARTICULAR MODE ON A GIVEN INTERCHANGE IS COMPUTED USING A LINEAR FUNCTION SPECIFIED BY THE USER. DIFFERENT FUNCTIONS MAY BE DEFINED FOR DIFFERENT MODES; UP TO 'NMODE' EQUATIONS IN TOTAL MAY BE DEFINED. EACH FUNCTION MAY INCLUDE

(1) PRODUCTION ZONE VARIABLES

(2) ATTRACTION ZONE VARIABLES

(3) MODAL VARIABLES

(4) INTERCHANGE (I.E. MATRIX) VARIABLES

(5) A CONSTANT.

THE CHOICE PROBABILITY OF ANY PARTICULAR MODE IS COMPUTED BY NORMALIZING ITS EXPONENTIATED UTILITY SO THAT THE CHOICE PROBABILITIES FOR THE 'NMODE' MODAL ALTERNATIVES EXISTING FOR ANY INTERCHANGE SUM TO 1.0.

THE TRIP VOLUME FOR ANY MODE IS COMPUTED BY MULTIPLYING ITS

CHOICE PROBABILITY BY AN EXOGENOUSLY-DETERMINED INTERCHANGE TRIP VOLUME.

ALTHOUGH ALL 'MODE' MODES ARE PROCESSED FOR EACH INTERCHANGE, THEY NEED NOT ALL BE AVAILABLE. AN UNAVAILABLE MODE MAY BE REPRESENTED BY ASSIGNING AN EXTREME VALUE TO ONE OR MORE VARIABLES APPEARING IN THAT MODE'S UTILITY FUNCTION SUCH THAT THE RESULTING UTILITY IS VERY SMALL (OR VERY NEGATIVE) IN RELATION TO THE UTILITIES OF AVAILABLE MODES. THE NORMALIZATION PROCESS ENSURES THAT EACH UNAVAILABLE MODE WILL RECEIVE A ZERO CHOICE PROBABILITY, SO LONG AS AT LEAST ONE MODE IS AVAILABLE FOR EACH INTERCHANGE.

DUE TO HARDWARE LIMITATIONS, THE UTILITIES FOR AVAILABLE MODES MUST FALL IN THE RANGE (-160,+160). VALUES LESS THAN -160 RESULT IN ZERO PROBABILITIES; VALUES GREATER THAN +160 ARE CONSTRAINED TO +160. UNDER NORMAL CIRCUMSTANCES, LOGAP01 WILL TERMINATE IF THE UPPER BOUND IS EXCEEDED.

OTHER MAJOR RESTRICTIONS IN THE OPERATION OF LOGAP01 ARE AS FOLLOWS:

MAXIMUM NUMBER OF PRODUCTION ZONES:	2000
MAXIMUM NUMBER OF ATTRACTION ZONES:	2000
MAXIMUM NUMBER OF MODES:	10
MAXIMUM NUMBER OF COEFFICIENTS IN THE MODEL:	100

LOGAP01 IS PROGRAMMED FOR USE ON AN IBM 360/370 MACHINE OPERATING UNDER FULL OS. IT REQUIRES APPROXIMATELY 64K OF STORAGE PLUS A VARIABLE AMOUNT OF DATA STORAGE (SEE THE CORE\_REQUIREMENTS SECTION).

LOGAP01 IS HIGHLY COMPATIBLE WITH THE UMTA URBAN TRANSPORTATION PLANNING SYSTEM (UTPS). ALL INPUT AND OUTPUT MATRIX FILES ARE IN UTPS FORMAT <1.2>. UTPS STANDARDS WERE USED AS GUIDELINES IN THE PROGRAMMING AND DOCUMENTATION OF LOGAP01.

ITS DIRECT INTERFACE WITH UTPS GREATLY ENHANCES THE VALUE OF LOGAP01; IT MAY BE USED AS AN INTEGRAL PART OF A LARGER UTPS-BASED MODELLING SYSTEM. THE USER WHO IS UNFAMILIAR WITH UTPS CONCEPTS, FORMATS, CAPABILITIES AND DOCUMENTATION STYLE IS ENCOURAGED TO CONSULT THE UTPS MANUALS.

#### REPORTS

LOGAP01 PRODUCES NO FORMAL REPORTS. THE USER MAY, HOWEVER, PRINT INPUT AND/OR OUTPUT DATA VALUES FOR SELECTED PRODUCTION ZONES <5.2>. IN ADDITION, THE OUTPUT TRIP MATRICES MAY BE SUMMARIZED AND PRINTED USING THE UTPS PROGRAM UFMTR.

## FILE TABLE

+	+	+	+	+	+	+	+	+	+
]	]	]	]	]	]	]	]	]	]
+	+	+	+	+	+	+	+	+	+
]	]	]	]	]	]	]	]	]	]
J	J	SYSDN	FT05F001	J	PROGRAM CONTROL CARDS <3.1>	J			
J	J	A1	A1	J	OPTIONAL ZONAL/MODAL FILE <3.2,3.3>	J			
J	J	A2	A2	J	" " " " "	J			
J	J	A3	A3	J	" " " " "	J			
J	J	A4	A4	J	" " " " "	J			
J	J	A5	A5	J	" " " " "	J			
J	J	A6	A6	J	" " " " "	J			
J	N	A7	A7	J	" " " " "	J			
J	J	A8	A8	J	" " " " "	J			
J	P	A9	A9	J	" " " " "	J			
J	J	J1	FT11F001	J	OPTIONAL MATRIX DATA FILE <3.2,3.4>	J			
J	U	J2	FT12F001	J	" " " " "	J			
J	J	J3	FT13F001	J	" " " " "	J			
J	T	J4	FT14F001	J	" " " " "	J			
J	J	J5	FT15F001	J	" " " " "	J			
J	J	J6	FT16F001	J	" " " " "	J			
J	J	J7	FT17F001	J	" " " " "	J			
J	J	J8	FT18F001	J	" " " " "	J			
J	J	J9	FT19F001	J	OPTIONAL MATRIX FILE <3.2,3.4,3.5>	J			
+	+	+	+	+	+	+	+	+	+
J	O			J		J			
J	U	SYSDN	FT06F001	J	PROGRAM MESSAGES	J			
J	T	J9	FT19F001	J	OPTIONAL OUTPUT MATRIX FILE <3.6>	J			
J	P	TRIPENDS	FT21F001	J	OPTIONAL OUTPUT TRIP END FILE <3.7>	J			
J	U			J		J			
J	T			J		J			
+	+	+	+	+	+	+	+	+	+
J	O			J		J			
J	T			J		J			
J	H	S1	FT20F001	J	TEMPORARY CONTROL CARD FILE <3.8>	J			
J	E			J		J			
J	R			J		J			
+	+	+	+	+	+	+	+	+	+

KEYWORD\_TABLE

KEYWORD	TYPE	DEFAULT	MAX	VALUE OR PURPOSE
ZONES	I	<4.1>	2000	NUMBER OF ZONES <4.2>
NORIG	I	<4.1>	2000	NUMBER OF PROD. ZONES <4.3>
NDEST	I	ZONES	2000	NUMBER OF ATTR. ZONES <4.4>
NMODE	I	<4.5>	10	NUMBER OF MODES <4.6>
NPAR	I	<4.7>	100	NUMBER OF COEFFICIENTS <4.8>
TRIPS	I	0	<4.9>	TRIP INPUT VARIABLE # <4.10>
PROBS	I	0	<4.11>	1ST PROBABILITY MATRIX VARIABLE NUMBER <4.12>
GTLIM	I	0	NONE	EXEC 007 MESSAGE LIMIT <4.13>
LIM30				EQUIVALENT TO GTLIM
LTLIM	I	-1	NONE	EXEC 008 MESSAGE LIMIT <4.14>
LIM29				EQUIVALENT TO LTLIM
PSCALE	F	1.0	NONE	PROBABILITY SCALE FACTOR <4.15>
B	F(100)	100*0.0	NONE	COEFFICIENTS <4.16>
OUTPUT	L(40)	<5.1>		OUTPUT SWITCHES <5.2>
				T=ON
				F=OFF
PRINT	I(100)	<5.17>		PRODUCTION ZONES SELECTED FOR PRINTING <5.18>
BINSW	L	F		FT22F001 FORMAT CONTROL SWITCH <3.8>
NO	I	<6.1>	<6.2>	VARIABLE NUMBER <6.3>
TYPE	I	<6.4>	4	VARIABLE TYPE CODE <6.5>
FILE	I	1	<6.7>	FILE/TABLE NUMBER <6.8>
TABLE				EQUIVALENT TO FILE
LOC	I	0	1024	1ST COLUMN OF FIELD <6.9>
LENGTH	I	1	<6.10>	FIELD LENGTH <6.11>
L				EQUIVALENT TO LENGTH
FORMAT	I	<6.12>	2	FORMAT CODE <6.13>
CONV				EQUIVALENT TO FORMAT
NAME	A(8)	<6.14>	--	VARIABLE IDENTIFIER
MODE	I(10)	<7.5>		INMODE APPLICABLE MODE RANGE <7.2,7.3,7.8>
FORM	I(100)	100*0	<7.6>	UTILITY FUNCTION STRUCTURE <7.7>
CONST	F	0.0	NONE	UTILITY FUNCTION CONSTANT
C				EQUIVALENT TO CONST

## CORE\_REQUIREMENTS

THE FOLLOWING FORMULA PROVIDES THE MINIMUM VALUE FOR THE JCL REGION PARAMETER:

$$\text{REGION} = (\text{PROGRAM} + \text{BUFFERS} + \text{TABLES}) / 1024, \text{ ROUNDED TO NEXT HIGHEST INTEGER}$$

WHERE:

PROGRAM=66000

BUFFERS=SUM (BUFNO\*BLKSIZE) FOR ALL FILES

$$\text{TABLES} = 36 * \text{NOV} + \text{NDV} * (4 * \text{NDEST} + 32) + \text{NMV} * (4 * \text{NMODE} + 32) + \text{NODV} * (4 * \text{NDEST} + 26) + 4 * \text{NDEST} * \text{NMODE} + 4 * \text{MZVAR} + \text{NORIG}$$

WHERE:

NOV IS THE NUMBER OF PRODUCTION ZONE VARIABLES (TYPE=1)

NDV IS THE NUMBER OF ATTRACTION ZONE VARIABLES (TYPE=2)

NMV IS THE NUMBER OF MODAL VARIABLES (TYPE=3)

NODV IS THE NUMBER OF INTERCHANGE VARIABLES (TYPE=4)

MZVAR IS THE MAXIMUM NUMBER OF VARIABLES ON ANY ZONAL/MODAL FILE

IF PROBS > 0, TABLES=TABLES+NMODE\*(2\*NPAR+4)

IF OUTPUT(4)=T, TABLES=TABLES+16\*NMODE\*MAX(NORIG,NDEST)

IF OUTPUT(5)=T OR OUTPUT(6)=T, TABLES=TABLES+4\*NDEST

IF NDEST < 20, TABLES=TABLES+4\*NODV\*(20-NDEST)

IF NORIG=NDEST, TABLES=TABLES+4\*NOV\*(NDEST-1)

## NOTES

## 1.0 SUMMARY

1.1 OPTIONALLY, PROBABILITIES MAY BE COMPUTED EXOGENOUSLY AND BE INPUT TO LOGAP01.

1.2 OUTPUT UTILITY AND PROBABILITY MATRICES ARE IN AN EXTENDED FLOATING POINT UTPS FORMAT WHICH CANNOT BE PROCESSED BY SOME UTPS PROGRAMS. CONVERSION CAPABILITIES ARE PROVIDED WITHIN LOGAP01, SHOULD CONVERSION BE NECESSARY.

## 3.0 FILE-IABLE

3.1 THE CONTROL DECK CAN CONSIST OF UP TO 5 COMPONENTS:

- (1) COMMENT CARD(S) (OPTIONAL)
- (2) &PARAM NAMEDLIST (REQUIRED)
- (3) &OPTION NAMEDLIST (OPTIONAL)
- (4) &VAR NAMEDLIST(S) (REQUIRED)
- (5) &EQN NAMEDLIST(S) (OPTIONAL)

COMMENT CARDS ARE FREE OF FORMAT RESTRICTIONS WITH THE EXCEPTION THAT THE FIRST NON-BLANK CHARACTER CANNOT BE AN AMPERSAND (&). THE FIRST 72 CHARACTERS OF THE FIRST COMMENT CARD ARE USED AS A HEADER ON ALL LOGAP01 PRINTOUT.

&VAR NAMEDLISTS ARE USED TO DESCRIBE THE LOCATION AND ATTRIBUTES OF EACH MODEL VARIABLE. ONE &VAR NAMEDLIST MUST BE INCLUDED FOR EACH VARIABLE IN THE MODEL IF PROBABILITIES ARE GENERATED (I.E. IF PROBS=0); OTHERWISE ONE &VAR NAMEDLIST MUST BE INCLUDED FOR EACH PROBABILITY MATRIX INPUT. IN ADDITION, IF TRIPS ARE INPUT (I.E. IF TRIPS>0), A &VAR NAMEDLIST DESCRIBING THE TRIP PRODUCTION VARIABLE MUST BE INCLUDED.

&EQN NAMEDLISTS ARE USED TO DEFINE THE MODEL STRUCTURE. AT LEAST ONE &EQN NAMEDLIST MUST BE INCLUDED IF PROBABILITIES ARE GENERATED (I.E. IF PROBS=0); OTHERWISE, THEY MAY BE OMITTED.

NAMEDLISTS AND COMMENT CARDS MAY APPEAR IN ANY ORDER. IF MORE THAN ONE NAMEDLIST OF A GIVEN TYPE ARE PRESENT, THEY NEED NOT BE CONTIGUOUS.

IT IS RECOMMENDED THAT ONLY ONE &PARAM AND ONE &OPTION NAMEDLIST BE INPUT, BUT IF MORE THAN ONE ARE INCLUDED IN THE CONTROL DECK, ALL WILL BE PROCESSED. IF DUPLICATE KEYWORDS EXIST, THE VALUE INPUT LAST WILL BE USED.

3.2 AT LEAST ONE DATA INPUT FILE MUST BE USED.

3.3 EACH ZONAL DATA FILE MUST CONSIST OF ONE RECORD FOR EACH OF 'NORIG' ZONES IF IT CONTAINS PRODUCTION ZONE DATA AND ONE RECORD FOR EACH OF 'NDEST' ZONES IF IT CONTAINS ATTRACTION ZONE DATA. THE RECORDS IN EITHER CASE MUST BE SORTED BY ASCENDING ZONE NUMBER. PRODUCTION ZONE VARIABLES AND ATTRACTION ZONE VARIABLES MAY

APPEAR IN THE SAME FILE IF AND ONLY IF 'NORIG'='NDEST'.

EACH MODAL DATA FILE MUST CONSIST OF ONE RECORD FOR EACH OF 'NMODE' MODES. THE RECORDS MUST BE SORTED BY ASCENDING MODE NUMBER.

EACH ZONAL/MODAL FILE MUST CONSIST OF FIXED-LENGTH, FIXED-FORMAT RECORDS; THAT IS, RECFM=F OR FB, DSORG=PS. THE LOGICAL RECORD LENGTH CANNOT EXCEED 1024 BYTES; THAT IS, LRECL<=1024. ANY NUMBER OF VARIABLES MAY BE CONTAINED ON A SINGLE FILE, SUBJECT TO THE RECORD LENGTH RESTRICTION.

EACH VARIABLE MAY BE FORMATTED IN ANY OF THE FOLLOWING REPRESENTATIONS:

- (1) FORTRAN I-FORMAT (10 COLUMN MAXIMUM)
- (2) FORTRAN F-FORMAT (8 COLUMN MAXIMUM)
- (3) 4-BYTE BINARY FLOATING POINT REPRESENTATION.

3.4 EACH INPUT MATRIX FILE MAY CONTAIN UP TO 255 TABLES DIMENSIONED 'NORIG' ROWS BY 'NDEST' COLUMNS OR LARGER. NO ROWS MAY BE MISSING IN THE RANGE 1 TO 'NORIG'. EACH TABLE MUST BE IN ONE OF THE FOLLOWING FORMATS:

- (1) ANY OF THE STANDARD UTPS FORMATS (1-BYTE, 2-BYTE, 4-BYTE OR COMPRESSED), OR
- (2) NON-STANDARD 4-BYTE FLOATING POINT BINARY FORMAT.

THIS LATTER FORMAT IS IDENTICAL TO THE 4-BYTE UTPS FORMAT EXCEPT BINARY FLOATING POINT REPRESENTATION IS USED INSTEAD OF BINARY FIXED-POINT REPRESENTATION.

EACH INPUT MATRIX FILE MUST BE DEFINED WITH DSORG=PS AND RECFM=VB OR VBS.

3.5 FT19F001 MAY BE USED AS AN INPUT FILE ONLY IF NO MATRIX OUTPUT IS SPECIFIED (I.E. 'OUTPUT' SWITCHES 1,2,3,5 AND 6 ALL =F).

3.6 THE FT19F001 FILE IS GENERATED IF ONE OR MORE OF 'OUTPUT' SWITCHES 1,2,3,5 AND 6 ARE ON. IT IS A 4-BYTE UTPS MATRIX FILE CONTAINING

- (1) 'NMODE' UTILITY TABLES IF OUTPUT(1)=T
- (2) 'NMODE' PROBABILITY TABLES IF OUTPUT(2)=T
- (3) 'NMODE' TRIP TABLES IF OUTPUT(3)=T
- (4) 1 DENOMINATOR TABLE IF OUTPUT(5)=T
- (5) 1 LN(DENOMINATOR) TABLE IF OUTPUT(6)=T

THE TABLES ARE ARRANGED IN THIS ORDER AND ARE NUMBERED SEQUENTIALLY BEGINNING AT 1.

THE TRIP TABLES ARE OUTPUT IN FIXED-POINT BINARY REPRESENTATION (I.E. STANDARD 4-BYTE UTPS FORMAT); ALL OTHERS ARE OUTPUT IN FLOATING-POINT BINARY REPRESENTATION.

FT19F001 MUST BE GIVEN THE FOLLOWING ATTRIBUTES: DSORG=PS,  
RECFM=VB OR VBS.

3.7 THE FT21F001 FILE IS GENERATED IF OUTPUT(4)=T. IT CONSISTS OF ONE RECORD FOR EACH COMBINATION OF 'NZONE' ZONES AND 'NMODE' MODES WHERE 'NZONE' ::= MAX(NORIG,NDEST). EACH RECORD CONTAINS 6 FIELDS:

- (1) ZONE NUMBER, I
- (2) MODE NUMBER, M
- (3) TRIP PRODUCTIONS FROM I BY M
- (4) TRIP ATTRACTIONS TO I BY M
- (5) 100000\*(SUM OF PROBABILITIES FROM I BY M)\*'NMODE'/'NDEST'
- (6) 100000\*(SUM OF PROBABILITIES TO I BY M)\*'NMODE'/'NDEST'

IF NO TRIPS ARE PROCESSED, FIELDS 3 AND 4 ARE SET TO ZERO.

FIELDS 5 AND 6 MAY BE VIEWED AS NORMALIZED, UNWEIGHTED MEASURES OF LIKELIHOOD OF PRODUCTION AND ATTRACTION, RESPECTIVELY, FOR THE (I,M) COMBINATION. IF ALL COMBINATIONS ARE EQUALLY LIKELY, ALL LIKELIHOODS WILL BE EQUAL TO 100000\*'NMODE'.

THE FORTRAN RECORD FORMAT IS (2I5,4I10).

IF 'NORIG'≠'NDEST', THE FIELDS FOR WHICH NO CORRESPONDING ZONES EXIST ARE SET TO ZERO.

3.8 THE FT20F001 FILE IS A REQUIRED TEMPORARY FILE. IT MUST HAVE THE FOLLOWING ATTRIBUTES: DSORG=PS, RECFM=F OR FB, LRECL=>72. IT IS, UNDER NORMAL CIRCUMSTANCES, A SMALL FILE REQUIRING ONLY A FEW TRACKS OF A 2314 DISK OR EQUIVALENT.

#### 4.0 &PARAM\_KEYWORDS

4.1 BOTH ZONES AND NORIG ARE ORIGINALLY SET TO ZERO, BUT AFTER &PARAM IS READ ARE MODIFIED AS FOLLOWS:

IF NORIG=0, NORIG ::= ZONES

IF ZONES=0, ZONES ::= NORIG

IN EFFECT, IF EITHER THE NORIG OR ZONES DEFAULT IS OVERRIDDEN, THE OTHER DEFAULTS TO THE OVERRIDE VALUE. IF NEITHER DEFAULT IS OVERRIDDEN, A FATAL ERROR RESULTS.

4.2 ZONES IS PROVIDED MERELY AS A CONVENIENCE FOR SPECIFYING THE NUMBER OF ZONES WHEN NORIG=NDEST. IN THIS IMPORTANT SPECIAL CASE ONLY ZONES NEED BE SPECIFIED; NORIG AND NDEST BOTH DEFAULT TO ZONES.

4.3 NORIG MUST BE GREATER THAN ZERO. SINCE NORIG IS A PRIMARY DETERMINANT OF RUN TIME AND CORE REQUIREMENTS, IT SHOULD BE SPECIFIED WITH CARE.

4.4 NDEST MUST BE GREATER THAN ZERO. SINCE NDEST IS A PRIMARY

DETERMINANT OF RUN TIME AND CORE REQUIREMENTS, IT SHOULD BE SPECIFIED WITH CARE.

4.5 IF PROBS>0, NMODE DEFAULTS TO THE COUNT OF &EQN NAMELISTS IN THE CONTROL DECK; IF PROBS=0, NMODE DEFAULTS TO THE NUMBER OF &VAR NAMELISTS IN THE CONTROL DECK, MINUS ONE IF TRIPS>0.

4.6 NMODE MUST BE GREATER THAN ZERO.

4.7 NPAR DEFAULTS TO THE SEQUENTIAL DISPLACEMENT OF THE LAST NON-ZERO VALUE IN B. FOR EXAMPLE, IF B(15)>0 AND B(16) THRU B(100) ARE ALL ZERO, THEN NPAR DEFAULTS TO 15.

4.8 NPAR IS USED ONLY IF PROBS=0 AND NEED BE SPECIFIED THEN ONLY IF A ZERO COEFFICIENT IS SPECIFIED FOR B(NPAR) OR IF MORE COEFFICIENTS ARE SPECIFIED THAN ARE USED. IF PROBS=0, THEN NPAR MUST BE GREATER THAN ZERO.

4.9 THE MAXIMUM VALUE FOR A VALID IBIPS PARAMETER IS THE COUNT OF &VAR NAMELISTS IN THE CONTROL DECK.

4.10 IF IBIPS<=0, THEN NO TRIP MATRIX IS INPUT. IF TRIPS<0, A CONSTANT TRIP VALUE OF 1 IS PROVIDED FOR USE WITHIN LOGAP01. IF TRIPS>0, THEN VARIABLE #(TRIPS) DEFINES THE INPUT TRIP MATRIX. THIS VARIABLE CANNOT APPEAR IN ANY UTILITY FUNCTION. IF PROBS>0, TRIPS MUST EITHER BE LESS THAN 2 OR EQUAL TO 'VARCNT', THE COUNT OF &VAR NAMELISTS.

4.11 IF TRIPS<=0, THE MAXIMUM VALID VALUE FOR PROBS IS 1. IF TRIPS>0, THEN THE MAXIMUM VALID VALUE IS 2.

4.12 PROBS MUST BE GREATER THAN OR EQUAL TO ZERO. IF PROBS=0, THEN PROBABILITIES ARE GENERATED WITHIN LOGAP01. IF PROBS>0, THEN MATRICES OF PROBABILITIES, GENERATED EXOGENOUSLY, ARE READ BY LOGAP01 AND THE ENTIRE UTILITY AND PROBABILITY GENERATION PROCESS IS BYPASSED. IN THIS CASE PROBS GIVES THE VARIABLE NUMBER OF THE FIRST OF 'NMODE' SEQUENTIAL VARIABLES WHICH ARE THE PROBABILITY MATRICES FOR THE 'NMODE' MODES.

4.13 GILIM IS USED ONLY IF PROBS=0. IF GREATER THAN OR EQUAL TO ZERO, IT CONTAINS THE NUMBER OF CALCULATED UTILITIES WHICH MAY BE GREATER THAN +160; THE PROGRAM WILL TERMINATE WHEN THE (GTLIM+1)TH SUCH UTILITY IS ENCOUNTERED. IF GTLIM<0, THEN ANY NUMBER OF SUCH UTILITIES WILL BE TOLERATED.

4.14 LILIM IS USED ONLY IF PROBS=0. IF GREATER THAN OR EQUAL TO ZERO, IT CONTAINS THE NUMBER OF CALCULATED UTILITIES WHICH MAY BE LESS THAN -160; THE PROGRAM WILL TERMINATE PROCESSING WHEN THE (LTLIM+1)TH SUCH UTILITY IS ENCOUNTERED. IF LTLIM<0, THEN ANY NUMBER OF SUCH UTILITIES WILL BE TOLERATED.

4.15 BSCALE IS USED ONLY IF PROBS>0. IT CONTAINS THE FACTOR BY WHICH ALL INPUT PROBABILITY MATRICES ARE TO BE SCALED. IT MUST BE GREATER THAN ZERO IF PROBS>0.



5.9 UTILITIES MAY BE PRINTED IF PROBS=0, EVEN IF OUTPUT(1)=F.

5.10 PROBABILITIES MAY BE PRINTED IF PROBS=0, EVEN IF OUTPUT(2)=F.

5.11 TRIPS MAY BE PRINTED IF TRIPS≠0, EVEN IF OUTPUT(3)=F.

5.12 DENOMINATORS MAY BE PRINTED IF PROBS=0, EVEN IF OUTPUT(5)=F.

5.13 LN(DENOMINATOR)S MAY BE PRINTED IF PROBS=0, EVEN IF OUTPUT(6)=F.

5.14 AN UNAVAILABLE MODE MAY BE INDICATED BY GIVING IT A VERY LOW UTILITY. FOR SOME MODELS, THEN, UTILITY VALUES LESS THAN -160 WILL BE NORMAL. OUTPUT(29) MUST BE TURNED OFF WHEN APPLYING SUCH MODELS TO AVOID SPURIOUS ERROR DETECTION.

5.15 UTILITIES OF GREATER THAN 160 RESULT IN IMPROPER PROBABILITY CALCULATIONS; CONSEQUENTLY, THE EXISTENCE OF ANY UTILITIES IN EXCESS OF +160 MUST ALWAYS BE REGARDED AS AN ERROR CONDITION. OUTPUT(30) SHOULD ALWAYS BE TURNED ON SO THAT ANY OCCURRENCE OF THIS ERROR WILL BE NOTED.

5.16 THESE SWITCHES ARE OF NO VALUE TO THE USER.

5.17 THE RBINI DEFAULT IS PRINT(1)=0; THAT IS, NO ZONES ARE PRINTED.

5.18 RBINI IS A VECTOR USED TO SELECT PRODUCTION ZONES FOR PRINTING. THE OUTPUT CONTROLLED BY 'OUTPUT' SWITCHES 14,21, 22,23,25 AND 26 IS PRODUCED ONLY FOR THOSE PRODUCTION ZONES AND PRODUCTION ZONE RANGES LISTED IN THE PRINT VECTOR. A RANGE OF ZONES MAY BE SPECIFIED BY GIVING THE NUMBER OF THE FIRST ZONE IN THE RANGE, FOLLOWED BY THE NUMBER OF THE LAST ZONE IN THE RANGE, NEGATED. ZONES MUST BE SELECTED IN ASCENDING ORDER.

## 6.0 &VAR\_KEYWORDS

6.1 THE DEFAULT FOR NO IS THE RELATIVE POSITION OF THE NAMED LIST IN THE CONTROL DECK. FOR EXAMPLE, THE DEFAULT FOR THE 3RD &VAR NAMED LIST IS NO=3.

6.2 THE MAXIMUM VALUE FOR NO IS 'VARCNT', THE COUNT OF &VAR NAMED LISTS IN THE CONTROL DECK.

6.3 EACH VARIABLE MUST HAVE A UNIQUE NUMBER. THIS REQUIREMENT, TOGETHER WITH THE REQUIREMENT DISCUSSED IN <6.2>, NECESSITATES THE USE OF A UNIQUE SEQUENTIAL NUMBERING SYSTEM, 1 TO 'VARCNT'. NOTE THAT SUCH A SYSTEM IS PROVIDED BY THE DEFAULTS.

6.4 THE DEFAULT FOR IYPE VARIES WITH 'FILE'. IF 'FILE'<100, THE DEFAULT IS 1; IF 'FILE'>100, THE DEFAULT IS 4.

## 6.5 TYPE IS A CODE DESCRIBING THE VARIABLE TYPE:

- (1) PRODUCTION ZONE VARIABLE
- (2) ATTRACTION ZONE VARIABLE
- (3) MODAL VARIABLE
- (4) INTERCHANGE VARIABLE

TYPE MUST BE IN THE RANGE 1 TO 4.

IF TRIPS ARE INPUT (I.E. IF TRIPS>0), THE TRIP VARIABLE MUST BE OF TYPE 4.

IF PROBABILITIES ARE INPUT (I.E. IF PROBS>0), EACH PROBABILITY MATRIX MUST BE OF TYPE 4.

6.7 THE MAXIMUM VALUE FOR EILE VARIES WITH TYPE. IF TYPE<4, THE MAXIMUM VALUE IS 9; IF TYPE=4 AND FT19F001 IS OUTPUT, THE MAXIMUM VALUE IS 8255; IF TYPE=4 AND FT19F001 IS NOT OUTPUT, THE MAXIMUM VALUE IS 9255.

6.8 FOR ZONAL AND MODAL DATA FILES (TYPE<4), EILE SPECIFIES THE A<FILE> FILE ON WHICH THE VARIABLE RESIDES. FOR EXAMPLE, FILE=4 REFERS TO THE FILE HAVING DDNAME A4. FOR MATRIX VARIABLES (TYPE=4), 'FILE' IS A UTPS TABLE NUMBER (3 OR 4 DIGITS), THE FIRST DIGIT PLUS 10 INDICATING THE FT FILE ON WHICH IT RESIDES AND THE REMAINING DIGITS GIVING THE TABLE NUMBER ON THAT FILE. FOR EXAMPLE, FILE=103 REFERS TO TABLE NUMBER 3 ON THE FILE HAVING DDNAME FT11F001. LIKewise, FILE=2001 INDICATES TABLE 1 ON FT12F001.

THE VALID RANGE FOR ZONAL/MODAL DATA 'FILE' PARAMETERS IS 1 TO 9; THE VALID RANGE FOR MATRIX DATA 'FILE' PARAMETERS IS 101 TO THE MAXIMUM DEFINED IN <6.7>.

6.9 LOC IS USED ONLY IF TYPE<4. IT INDICATES THE STARTING LOCATION OF THE VARIABLE ON THE INPUT RECORD. LOC MUST BE IN THE RANGE 1 TO 1024. SINCE THE DEFAULT IS OUTSIDE THIS RANGE, LOC MUST BE SPECIFIED FOR EACH ZONAL/MODAL VARIABLE.

6.10 THE MAXIMUM VALUE FOR LENGTH VARIES WITH 'FORMAT'. IF FORMAT=1, THE MAXIMUM IS 10; IF FORMAT=2, THE MAXIMUM IS 8.

6.11 LENGTH IS USED ONLY IF TYPE<4 AND FORMAT>0. IT SPECIFIES THE LENGTH OF THE VARIABLE FIELD ON THE INPUT RECORD. IT, TOGETHER WITH 'LOC', DEFINES THE VARIABLE FIELD. A VARIABLE FIELD CAN APPEAR ANYWHERE ON AN INPUT RECORD, BUT FIELDS ON THE SAME INPUT RECORD CANNOT OVERLAP. IF USED, LENGTH MUST BE GREATER THAN ZERO AND NOT MORE THAN THE MAXIMUM DESCRIBED IN <6.10>.

IF TYPE<4 AND FORMAT=0, LENGTH IS FIXED AT 4.

6.12 THE DEFAULT FOR EQBMAI VARIES WITH 'TYPE'. IF TYPE<4, THE DEFAULT IS 1; IF TYPE=4, THE DEFAULT IS 2.

6.13 EQBMAI IS A CODE DESCRIBING THE FORMAT OF THE INPUT VARIABLE. ITS VALID RANGE AND INTERPRETATION VARY WITH TYPE, AS SHOWN IN THE TABLE BELOW:

+-----+-----+-----+-----+	
JFORMATJ	TYPE < 4 J TYPE = 4 J
+-----+-----+-----+-----+	
J 0 J	J BINARY FLOATING POINT J INVALID J
J 1 J	J EBCDIC FIXED POINT J BINARY FIXED POINT J
J 2 J	J EBCDIC FLOATING POINT J BINARY FLOATING POINT J
+-----+-----+-----+-----+	

6.14 THE DEFAULT FOR NAME VARIES WITH 'NO'; THE DEFAULT IS 'VAR<NO>', PADDED TO 6 CHARACTERS. FOR EXAMPLE, IF NO=6, THE DEFAULT IS 'VAR006'.

#### 7.0 &EQN\_KEYWORDS

7.2 MODE IS A LIST OF MODE NUMBERS AND MODE NUMBER RANGES TO WHICH THE UTILITY FUNCTION DEFINED BY THIS &EQN CARD APPLIES. THE MODE NUMBERS MUST BE IN ASCENDING ORDER.

7.3 A RANGE MAY BE SPECIFIED BY GIVING THE FIRST NUMBER IN THE RANGE FOLLOWED BY THE LAST NUMBER IN THE RANGE, NEGATED. FOR EXAMPLE, (2,-4) DEFINES THE RANGE 2 THRU 4. THE END OF THE RANGE MUST BE AT LEAST AS GREAT AS THE START OF THE RANGE: (2,-2), FOR EXAMPLE, DEFINES THE 'RANGE' CONSISTING OF THE SOLITARY NUMBER 2, BUT (2,-1) IS AN INVALID RANGE DEFINITION.

7.5 THE DEFAULT FOR MODE IS (1,-NMODE); THAT IS, ALL MODES.

7.6 THE MAXIMUM VALUE FOR ANY ELEMENT OF EQBM IS 'VARCNT', THE COUNT OF &VAR NAMELISTS IN THE CONTROL DECK.

7.7 EQBM IS A LIST OF VARIABLE NUMBERS WHICH DEFINES THE STRUCTURE OF A UTILITY FUNCTION. ONLY THE FIRST 'NPAR' ELEMENTS OF FORM ARE USED; EACH OF THESE MUST BE GREATER THAN OR EQUAL TO ZERO. IF FORM(I)>0, THEN THE PRODUCT OF THAT VARIABLE AND B(I) IS TO BE INCLUDED IN THE UTILITY VALUE. IF FORM(I)=0, THEN B(I) DOES NOT ENTER INTO THIS UTILITY CALCULATION.

FOR EXAMPLE, IF NPAR=4, THEN AN &EQN CARD WITH FORM=1,5,0,3 DEFINES THE FOLLOWING UTILITY FUNCTION:

$$U=C+B(1)*VAR001+B(2)*VAR005+B(4)*VAR003$$

WHERE VAR001,VAR002 AND VAR005 ARE VARIABLE NUMBERS 1,3 AND 5, RESPECTIVELY.

DEPENDING ON THE 'TYPE' KEYWORDS IN THEIR &VAR NAMELISTS, THESE VARIABLES MAY VARY BY PRODUCTION ZONE, BY ATTRACTION ZONE, BY MODE OR BY TRIP INTERCHANGE. SUPPOSING THAT VAR001 IS A PRODUCTION ZONE VARIABLE, VAR003 IS AN ATTRACTION ZONE VARIABLE AND VAR005 IS AN INTERCHANGE VARIABLE, THEN THE UTILITY WOULD TAKE THE MORE SPECIFIC FORM

$$U(I,J,M)=C(M)+B(1)*VAR001(I)+B(2)*VAR005(I,J)+B(4)*VAR003(J)$$

WHERE:

I ::= PRODUCTION ZONE INDEX  
J ::= ATTRACTION ZONE INDEX  
M ::= MODE INDEX

7.8 THE SET OF &EQN CARDS MUST COVER THE UNIVERSE OF 'NMODE'  
MODES EXHAUSTIVELY AND WITH NO OVERLAP; THAT IS, EACH MODE MUST  
BE IN THE RANGE OF ONE AND ONLY ONE &EQN NAMELIST.

PART VII

USER DOCUMENTATION FOR

LOGAP03

## IDENTIFICATION

TITLE: LOGIT JOINT DESTINATION/MODE CHOICE MODEL  
APPLICATION PROGRAM (LOGAP03)

WRITTEN BY: R.L. ALBRIGHT, CAMBRIDGE SYSTEMATICS, INC.

SPONSOR: METROPOLITAN (S.F.) TRANSPORTATION COMMISSION

## SUMMARY

LOGAP03 PERFORMS THE CALCULATIONS OF A LOGIT-FORM JOINT DESTINATION/MODE CHOICE MODEL. GIVEN

- (1) A LOGIT DESTINATION/MODE CHOICE MODEL SPECIFICATION AND
- (2) DATA USED BY THE MODEL.

## IT OUTPUTS

- (1) DESTINATION/MODE UTILITIES AND/OR
- (2) DESTINATION/MODE CHOICE PROBABILITIES <1.1> AND/OR
- (3) DESTINATION/MODE VOLUMES (I.E. TRIPS).

THE MODEL IS APPLIED INDEPENDENTLY FOR EACH OF 'NORIG' PRODUCTION ZONES. FOR EACH PRODUCTION ZONE THE UTILITY/PROBABILITY/VOLUME TO EACH OF 'NDEST' ATTRACTION ZONES BY EACH OF 'NMODE' MODES IS COMPUTED. ANY GIVEN ZONE MAY SERVE AS A PRODUCTION ZONE, AN ATTRACTION ZONE OR BOTH.

THE UTILITY OF A PARTICULAR DESTINATION/MODE COMBINATION IS COMPUTED USING A LINEAR FUNCTION SPECIFIED BY THE USER. DIFFERENT FUNCTIONS MAY BE DEFINED FOR DIFFERENT DESTINATION/MODE COMBINATIONS; UP TO 'NDEST'\*'NMODE' EQUATIONS IN TOTAL MAY BE DEFINED. EACH FUNCTION MAY INCLUDE

- (1) PRODUCTION ZONE VARIABLES
- (2) ATTRACTION ZONE VARIABLES
- (3) MODAL VARIABLES
- (4) INTERCHANGE (I.E. MATRIX) VARIABLES
- (5) A CONSTANT.

THE CHOICE PROBABILITY OF ANY DESTINATION/MODE COMBINATION IS COMPUTED BY NORMALIZING ITS EXPONENTIATED UTILITY SO THAT THE CHOICE PROBABILITIES FOR THE 'NDEST'\*'NMODE' DESTINATION/MODE ALTERNATIVES EXISTING FOR ANY PRODUCTION ZONE SUM TO 1.0.

THE TRIP VOLUME FOR ANY DESTINATION/MODE COMBINATION IS COM-

PUTED BY MULTIPLYING ITS CHOICE PROBABILITY BY AN EXOGENOUSLY-DETERMINED ZONAL TRIP PRODUCTION (I.E. TRIP END) VOLUME.

ALTHOUGH ALL \*NDEST\* \*MODE\* COMBINATIONS ARE PROCESSED FOR EACH PRODUCTION ZONE, THEY NEED NOT ALL BE AVAILABLE. AN UNAVAILABLE ALTERNATIVE (E.G. A DESTINATION ZONE NOT SERVED BY ONE OF THE MODES) MAY BE REPRESENTED BY ASSIGNING AN EXTREME VALUE TO ONE OR MORE VARIABLES APPEARING IN THAT DESTINATION/MODE'S UTILITY FUNCTION SUCH THAT THE RESULTING UTILITY IS VERY SMALL (OR VERY NEGATIVE) IN RELATION TO THE UTILITIES OF AVAILABLE DESTINATION/MODE COMBINATIONS. THE NORMALIZATION PROCESS WILL AUTOMATICALLY PRODUCE ZERO PROBABILITIES FOR UNAVAILABLE COMBINATIONS.

DUE TO HARDWARE LIMITATIONS, THE UTILITIES FOR AVAILABLE DESTINATION/MODE COMBINATIONS MUST FALL IN THE RANGE (-160,+160). VALUES LESS THAN -160 RESULT IN ZERO PROBABILITIES; VALUES GREATER THAN +160 ARE CONSTRAINED TO +160. UNDER NORMAL CIRCUMSTANCES, LOGAP03 WILL TERMINATE IF THE UPPER BOUND IS EXCEEDED.

OTHER MAJOR RESTRICTIONS IN THE OPERATION OF LOGAP03 ARE AS FOLLOWS:

MAXIMUM NUMBER OF ATTRACTION ZONES: 1000

MAXIMUM NUMBER OF MODES: 10

MAXIMUM NUMBER OF COEFFICIENTS IN THE MODEL: 100

LOGAP03 IS PROGRAMMED FOR USE ON AN IBM 360/370 MACHINE OPERATING UNDER FULL OS. IT REQUIRES APPROXIMATELY 64K OF STORAGE PLUS A VARIABLE AMOUNT OF DATA STORAGE (SEE THE CORE\_REQUIREMENTS SECTION).

LOGAP03 IS HIGHLY COMPATIBLE WITH THE UMTA URBAN TRANSPORTATION PLANNING SYSTEM (UTPS). ALL INPUT AND OUTPUT MATRIX FILES ARE IN UTPS FORMAT <1.2>. UTPS STANDARDS WERE USED AS GUIDELINES IN THE PROGRAMMING AND DOCUMENTATION OF LOGAP03.

ITS DIRECT INTERFACE WITH UTPS GREATLY ENHANCES THE VALUE OF LOGAP03; IT MAY BE USED AS AN INTEGRAL PART OF A LARGER UTPS-BASED MODELLING SYSTEM. THE USER WHO IS UNFAMILIAR WITH UTPS CONCEPTS, FORMATS, CAPABILITIES AND DOCUMENTATION STYLE IS ENCOURAGED TO CONSULT THE UTPS MANUALS.

#### REPORTS

LOGAP03 PRODUCES NO FORMAL REPORTS. THE USER MAY, HOWEVER, PRINT INPUT AND/OR OUTPUT DATA VALUES FOR SELECTED PRODUCTION ZONES <5.2>. IN ADDITION, THE OUTPUT TRIP MATRICES MAY BE SUMMARIZED AND PRINTED USING THE UTPS PROGRAM UFMTR.

## FILE TABLE

+-----+				
]	FILE NAME	DDNAME	CONTENTS OR FUNCTION	]
+-----+				
]	SYSIN	FT05F001	PROGRAM CONTROL CARDS <3.1>	]
]	A1	A1	OPTIONAL ZONAL/MODAL FILE <3.2,3.3>	]
]	A2	A2	" " " " " "	]
]	A3	A3	" " " " " "	]
]	A4	A4	" " " " " "	]
]	A5	A5	" " " " " "	]
]	A6	A6	" " " " " "	]
]	A7	A7	" " " " " "	]
]	A8	A8	" " " " " "	]
]	A9	A9	" " " " " "	]
]	J1	FT11F001	OPTIONAL MATRIX DATA FILE <3.2,3.4>	]
]	J2	FT12F001	" " " " " "	]
]	J3	FT13F001	" " " " " "	]
]	J4	FT14F001	" " " " " "	]
]	J5	FT15F001	" " " " " "	]
]	J6	FT16F001	" " " " " "	]
]	J7	FT17F001	" " " " " "	]
]	J8	FT18F001	" " " " " "	]
]	J9	FT19F001	OPTIONAL MATRIX FILE <3.2,3.4,3.5>	]
+-----+				
]				]
]	SYSOUT	FT06F001	PROGRAM MESSAGES	]
]	J9	FT19F001	OPTIONAL OUTPUT MATRIX FILE <3.6>	]
]	TRIPENDS	FT21F001	OPTIONAL OUTPUT TRIP END FILE <3.7>	]
]	DNOMFILE	FT22F001	OPTIONAL DENOMINATOR FILE <3.8>	]
]				]
+-----+				
]				]
]				]
]	S1	FT20F001	TEMPORARY CONTROL CARD FILE <3.9>	]
]				]
]				]
+-----+				

KEYWORD\_TABLE

KEYWORD	TYPE	DEFAULT	MAX	VALUE OR PURPOSE
ZONES	I	<4.1>	NONE	NUMBER OF ZONES <4.2>
NORIG	I	<4.1>	NONE	NUMBER OF PROD. ZONES <4.3>
NDEST	I	ZONES	1000	NUMBER OF ATTR. ZONES <4.4>
NMODE	I	<4.5>	10	NUMBER OF MODES <4.6>
NPAR	I	<4.7>	100	NUMBER OF COEFFICIENTS <4.8>
TRIPS	I	0	<4.9>	TRIP INPUT VARIABLE # <4.10>
PROBS	I	0	<4.11>	1ST PROBABILITY MATRIX VARIABLE NUMBER <4.12>
GTLIM	I	0	NONE	EXEC 007 MESSAGE LIMIT <4.13>
LIM30				EQUIVALENT TO GTLIM
LTLIM	I	-1	NONE	EXEC 008 MESSAGE LIMIT <4.14>
LIM29				EQUIVALENT TO LTLIM
PSCALE	F	1.0	NONE	PROBABILITY SCALE FACTOR <4.15>
B	F(100)	100*0.0	NONE	COEFFICIENTS <4.16>
OUTPUT	L(40)	<5.1>		OUTPUT SWITCHES <5.2>
				T=ON
				F=OFF
PRINT	I(100)	<5.17>		PRODUCTION ZONES SELECTED FOR PRINTING <5.18>
BINSW	L	F		FT22F001 FORMAT CONTROL SWITCH <3.8>
NO	I	<6.1>	<6.2>	VARIABLE NUMBER <6.3>
TYPE	I	<6.4>	4	VARIABLE TYPE CODE <6.5>
FILE	I	1	<6.7>	FILE/TABLE NUMBER <6.8>
TABLE				EQUIVALENT TO FILE
LOC	I	0	1024	1ST COLUMN OF FIELD <6.9>
LENGTH	I	1	<6.10>	FIELD LENGTH <6.11>
L				EQUIVALENT TO LENGTH
FORMAT	I	<6.12>	2	FORMAT CODE <6.13>
CONV				EQUIVALENT TO FORMAT
NAME	A(8)	<6.14>	--	VARIABLE IDENTIFIER
DEST	I(100)	<7.4>		INDEST APPLICABLE ZONE RANGE <7.1,7.3,7.8>
MODE	I(10)	<7.5>		INMODE APPLICABLE MODE RANGE <7.2,7.3,7.8>
FORM	I(100)	100*0	<7.6>	UTILITY FUNCTION STRUCTURE <7.7>
CONST	F	0.0	NONE	UTILITY FUNCTION CONSTANT
C				EQUIVALENT TO CONST

## CORE\_REQUIREMENTS

THE FOLLOWING FORMULA PROVIDES THE MINIMUM VALUE FOR THE JCL REGION PARAMETER:

REGION=(PROGRAM+BUFFERS+TABLES)/1024, ROUNDED TO NEXT HIGHEST INTEGER

WHERE:

PROGRAM=66000

BUFFERS=SUM (BUFNO\*BLKSIZE) FOR ALL FILES

TABLES=36\*NOV + NDV\*(4\*NDEST+32) + NMV\*(4\*NMODE+32)  
+ NODV\*(4\*NDEST+26) + 4\*NDEST\*NMODE + 4\*MZVAR + NORIG

WHERE:

NOV IS THE NUMBER OF PRODUCTION ZONE VARIABLES (TYPE=1)

NDV IS THE NUMBER OF ATTRACTION ZONE VARIABLES (TYPE=2)

NMV IS THE NUMBER OF MODAL VARIABLES (TYPE=3)

NODV IS THE NUMBER OF INTERCHANGE VARIABLES (TYPE=4)

MZVAR IS THE MAXIMUM NUMBER OF VARIABLES ON ANY ZONAL/MODAL FILE

IF PROBS > 0, TABLES=TABLES+NMODE\*NDEST\*(2\*NPAR+4)

IF OUTPUT(4)=T, TABLES=TABLES+16\*NMODE\*MAX(NORIG,NDEST)

IF NDEST < 20, TABLES=TABLES+4\*NODV\*(20-NDEST)

IF NORIG=NDEST, TABLES=TABLES+4\*NOV\*(NDEST-1)

## NOTES

## 1.0 SUMMARY

1.1 OPTIONALLY, PROBABILITIES MAY BE COMPUTED EXOGENOUSLY AND BE INPUT TO LOGAP03.

1.2 OUTPUT UTILITY AND PROBABILITY MATRICES ARE IN AN EXTENDED FLOATING POINT UTPS FORMAT WHICH CANNOT BE PROCESSED BY SOME UTPS PROGRAMS. CONVERSION CAPABILITIES ARE PROVIDED WITHIN LOGAP03, SHOULD CONVERSION BE NECESSARY.

## 3.0 FILE-IABLE

3.1 THE CONTROL DECK CAN CONSIST OF UP TO 5 COMPONENTS:

- (1) COMMENT CARD(S) (OPTIONAL)
- (2) &PARAM NAMELIST (REQUIRED)
- (3) &OPTION NAMELIST (OPTIONAL)
- (4) &VAR NAMELIST(S) (REQUIRED)
- (5) &EQN NAMELIST(S) (OPTIONAL)

COMMENT CARDS ARE FREE OF FORMAT RESTRICTIONS WITH THE EXCEPTION THAT THE FIRST NON-BLANK CHARACTER CANNOT BE AN AMPERSAND (&). THE FIRST 72 CHARACTERS OF THE FIRST COMMENT CARD ARE USED AS A HEADER ON ALL LOGAP03 PRINTOUT.

&VAR NAMELISTS ARE USED TO DESCRIBE THE LOCATION AND ATTRIBUTES OF EACH MODEL VARIABLE. ONE &VAR NAMELIST MUST BE INCLUDED FOR EACH VARIABLE IN THE MODEL IF PROBABILITIES ARE GENERATED (I.E. IF PROBS=0); OTHERWISE ONE &VAR NAMELIST MUST BE INCLUDED FOR EACH PROBABILITY MATRIX INPUT. IN ADDITION, IF TRIPS ARE INPUT (I.E. IF TRIPS>0), A &VAR NAMELIST DESCRIBING THE TRIP PRODUCTION VARIABLE MUST BE INCLUDED.

&EQN NAMELISTS ARE USED TO DEFINE THE MODEL STRUCTURE. AT LEAST ONE &EQN NAMELIST MUST BE INCLUDED IF PROBABILITIES ARE GENERATED (I.E. IF PROBS=0); OTHERWISE, THEY MAY BE OMITTED.

NAMELISTS AND COMMENT CARDS MAY APPEAR IN ANY ORDER. IF MORE THAN ONE NAMELIST OF A GIVEN TYPE ARE PRESENT, THEY NEED NOT BE CONTIGUOUS.

IT IS RECOMMENDED THAT ONLY ONE &PARAM AND ONE &OPTION NAMELIST BE INPUT, BUT IF MORE THAN ONE ARE INCLUDED IN THE CONTROL DECK, ALL WILL BE PROCESSED. IF DUPLICATE KEYWORDS EXIST, THE VALUE INPUT LAST WILL BE USED.

3.2 AT LEAST ONE DATA INPUT FILE MUST BE USED.

3.3 EACH ZONAL DATA FILE MUST CONSIST OF ONE RECORD FOR EACH OF 'NORIG' ZONES IF IT CONTAINS PRODUCTION ZONE DATA AND ONE RECORD FOR EACH OF 'NDEST' ZONES IF IT CONTAINS ATTRACTION ZONE DATA. THE RECORDS IN EITHER CASE MUST BE SORTED BY ASCENDING ZONE NUMBER. PRODUCTION ZONE VARIABLES AND ATTRACTION ZONE VARIABLES MAY

APPEAR IN THE SAME FILE IF AND ONLY IF 'NORIG'='NDEST'.

EACH MODAL DATA FILE MUST CONSIST OF ONE RECORD FOR EACH OF 'NMODE' MODES. THE RECORDS MUST BE SORTED BY ASCENDING MODE NUMBER.

EACH ZONAL/MODAL FILE MUST CONSIST OF FIXED-LENGTH, FIXED-FORMAT RECORDS; THAT IS, RECFM=F OR FB, DSORG=PS. THE LOGICAL RECORD LENGTH CANNOT EXCEED 1024 BYTES; THAT IS, LRECL<=1024. ANY NUMBER OF VARIABLES MAY BE CONTAINED ON A SINGLE FILE, SUBJECT TO THE RECORD LENGTH RESTRICTION.

EACH VARIABLE MAY BE FORMATTED IN ANY OF THE FOLLOWING REPRESENTATIONS:

- (1) FORTRAN I-FORMAT (10 COLUMN MAXIMUM)
- (2) FORTRAN F-FORMAT (8 COLUMN MAXIMUM)
- (3) 4-BYTE BINARY FLOATING POINT REPRESENTATION.

3.4 EACH INPUT MATRIX FILE MAY CONTAIN UP TO 255 TABLES DIMENSIONED 'NORIG' ROWS BY 'NDEST' COLUMNS OR LARGER. NO ROWS MAY BE MISSING IN THE RANGE 1 TO 'NORIG'. EACH TABLE MUST BE IN ONE OF THE FOLLOWING FORMATS:

- (1) ANY OF THE STANDARD UTPS FORMATS (1-BYTE, 2-BYTE, 4-BYTE OR COMPRESSED), OR
- (2) NON-STANDARD 4-BYTE FLOATING POINT BINARY FORMAT.

THIS LATTER FORMAT IS IDENTICAL TO THE 4-BYTE UTPS FORMAT EXCEPT BINARY FLOATING POINT REPRESENTATION IS USED INSTEAD OF BINARY FIXED-POINT REPRESENTATION.

EACH INPUT MATRIX FILE MUST BE DEFINED WITH DSORG=PS AND RECFM=VB OR VBS.

3.5 FT19F001 MAY BE USED AS AN INPUT FILE ONLY IF NO MATRIX OUTPUT IS SPECIFIED (I.E. 'OUTPUT' SWITCHES 1,2 AND 3 ALL =F).

3.6 THE FT19F001 FILE IS GENERATED IF ONE OR MORE OF 'OUTPUT' SWITCHES 1,2 AND 3 ARE ON. IT IS A 4-BYTE UTPS MATRIX FILE CONTAINING

- (1) 'NMODE' UTILITY TABLES IF OUTPUT(1)=T
- (2) 'NMODE' PROBABILITY TABLES IF OUTPUT(2)=T
- (3) 'NMODE' TRIP TABLES IF OUTPUT(3)=T

THE TABLES ARE ARRANGED IN THIS ORDER AND ARE NUMBERED SEQUENTIALLY BEGINNING AT 1.

THE TRIP TABLES ARE OUTPUT IN FIXED-POINT BINARY REPRESENTATION (I.E. STANDARD 4-BYTE UTPS FORMAT); ALL OTHERS ARE OUTPUT IN FLOATING-POINT BINARY REPRESENTATION.

FT19F001 MUST BE GIVEN THE FOLLOWING ATTRIBUTES: DSORG=PS, RECFM=VB OR VBS.

3.7 THE FT21F001 FILE IS GENERATED IF OUTPUT(4)=T. IT CONSISTS OF ONE RECORD FOR EACH COMBINATION OF 'NZONE' ZONES AND 'NMODE' MODES WHERE 'NZONE' ::= MAX(NORIG,NDEST). EACH RECORD CONTAINS 6 FIELDS:

- (1) ZONE NUMBER, I
- (2) MODE NUMBER, M
- (3) TRIP PRODUCTIONS FROM I BY M
- (4) TRIP ATTRACTIONS TO I BY M
- (5) 100000\*(SUM OF PROBABILITIES FROM I BY M)\*'NMODE'
- (6) 100000\*(SUM OF PROBABILITIES TO I BY M)\*'NMODE'\*'NDEST'  
'NORIG'

IF NO TRIPS ARE PROCESSED, FIELDS 3 AND 4 ARE SET TO ZERO.

FIELDS 5 AND 6 MAY BE VIEWED AS NORMALIZED, UNWEIGHTED MEASURES OF LIKELIHOOD OF PRODUCTION AND ATTRACTION, RESPECTIVELY, FOR THE (I,M) COMBINATION. IF ALL COMBINATIONS ARE EQUALLY LIKELY, ALL PRODUCTION LIKELIHOODS WILL BE EQUAL TO 100000\*'NMODE' AND ALL ATTRACTION LIKELIHOODS WILL BE EQUAL TO 100000\*'NMODE'\*'NDEST'  
'NORIG'

THE FORTRAN RECORD FORMAT IS (2I5,4I10).

IF 'NORIG'≠'NDEST', THE FIELDS FOR WHICH NO CORRESPONDING ZONES EXIST ARE SET TO ZERO.

3.8 THE FT22F001 FILE IS GENERATED IF OUTPUT(5)=T. IT CONSISTS OF ONE RECORD FOR EACH OF 'NORIG' PRODUCTION ZONES. EACH RECORD CONTAINS 4 FIELDS:

- (1) ZONE NUMBER
- (2) FORMAT CODE (1 OR 2)
- (3) DENOMINATOR
- (4) LN(DENOMINATOR)

THE USER MAY CHOOSE ONE OF THE FOLLOWING RECORD FORMATS:

- (1) (2I5,2E15.6) ('BINSW'=F)
- (2) (2I5,2A8) ('BINSW'=T)

IN FORMAT 2, THE DENOMINATOR AND LN(DENOMINATOR) ARE OUTPUT IN BINARY DOUBLE PRECISION FLOATING POINT REPRESENTATION.

3.9 THE FT20F001 FILE IS A REQUIRED TEMPORARY FILE. IT MUST HAVE THE FOLLOWING ATTRIBUTES: DSORG=PS, RECFM=F OR FB, LRECL=>72. IT IS, UNDER NORMAL CIRCUMSTANCES, A SMALL FILE REQUIRING ONLY A FEW TRACKS OF A 2314 DISK OR EQUIVALENT.

#### 4.0 &PARAM\_KEYWORDS

4.1 BOTH ZONES AND NORIG ARE ORIGINALLY SET TO ZERO, BUT AFTER &PARAM IS READ ARE MODIFIED AS FOLLOWS:

IF NORIG=0, NORIG ::= ZONES

IF ZONES=0, ZONES ::= NORIG

IN EFFECT, IF EITHER THE NORIG OR ZONES DEFAULT IS OVERRIDDEN, THE OTHER DEFAULTS TO THE OVERRIDE VALUE. IF NEITHER DEFAULT IS OVERRIDDEN, A FATAL ERROR RESULTS.

4.2 ZONES IS PROVIDED MERELY AS A CONVENIENCE FOR SPECIFYING THE NUMBER OF ZONES WHEN NORIG=NDEST. IN THIS IMPORTANT SPECIAL CASE ONLY ZONES NEED BE SPECIFIED; NORIG AND NDEST BOTH DEFAULT TO ZONES.

4.3 NOBIG MUST BE GREATER THAN ZERO. SINCE NORIG IS A PRIMARY DETERMINANT OF RUN TIME AND CORE REQUIREMENTS, IT SHOULD BE SPECIFIED WITH CARE.

4.4 NDESI MUST BE GREATER THAN ZERO. SINCE NDEST IS A PRIMARY DETERMINANT OF RUN TIME AND CORE REQUIREMENTS, IT SHOULD BE SPECIFIED WITH CARE.

4.5 IF PROBS>0, NMODE DEFAULTS TO THE COUNT OF &EQN NAMELISTS IN THE CONTROL DECK; IF PROBS=0, NMODE DEFAULTS TO THE NUMBER OF &VAR NAMELISTS IN THE CONTROL DECK, MINUS ONE IF TRIPS>0.

4.6 NMODE MUST BE GREATER THAN ZERO.

4.7 NPAR DEFAULTS TO THE SEQUENTIAL DISPLACEMENT OF THE LAST NON-ZERO VALUE IN B. FOR EXAMPLE, IF B(15)>0 AND B(16) THRU B(100) ARE ALL ZERO, THEN NPAR DEFAULTS TO 15.

4.8 NPAR IS USED ONLY IF PROBS=0 AND NEED BE SPECIFIED THEN ONLY IF A ZERO COEFFICIENT IS SPECIFIED FOR B(NPAR) OR IF MORE COEFFICIENTS ARE SPECIFIED THAN ARE USED. IF PROBS=0, THEN NPAR MUST BE GREATER THAN ZERO.

4.9 THE MAXIMUM VALUE FOR A VALID IRIIS PARAMETER IS THE COUNT OF &VAR NAMELISTS IN THE CONTROL DECK.

4.10 IF IRIIS<=0, THEN NO TRIP VECTOR IS INPUT. IF TRIPS<0, A CONSTANT TRIP VALUE OF 1 IS PROVIDED FOR USE WITHIN LOGAP03. IF TRIPS>0, THEN VARIABLE #(TRIPS) DEFINES THE INPUT TRIP VECTOR. THIS VARIABLE CANNOT APPEAR IN ANY UTILITY FUNCTION. IF PROBS>0, TRIPS MUST EITHER BE LESS THAN 2 OR EQUAL TO 'VARCNT', THE COUNT OF &VAR NAMELISTS.

4.11 IF TRIPS<=0, THE MAXIMUM VALID VALUE FOR PROBS IS 1. IF TRIPS>0, THEN THE MAXIMUM VALID VALUE IS 2.

4.12 PROBS MUST BE GREATER THAN OR EQUAL TO ZERO. IF PROBS=0, THEN PROBABILITIES ARE GENERATED WITHIN LOGAP03. IF PROBS>0, THEN MATRICES OF PROBABILITIES, GENERATED EXOGENOUSLY, ARE READ BY LOGAP03 AND THE ENTIRE UTILITY AND PROBABILITY GENERATION PROCESS IS BYPASSED. IN THIS CASE PROBS GIVES THE VARIABLE NUMBER OF THE FIRST OF 'NMODE' SEQUENTIAL VARIABLES WHICH ARE THE PROBABILITY MATRICES FOR THE 'NMODE' MODES.



5.5 TRIP TABLES MAY BE OUTPUT ONLY IF A VECTOR OF TOTAL TRIP PRODUCTIONS IS AVAILABLE (I.E. IF TRIPS $\neq$ 0).

5.6 THE TRIP END FILE WILL CONTAIN ONLY LIKELIHOOD INDICES (FIELDS 5 AND 6) IF NO TRIPS ARE AVAILABLE (I.E. IF TRIPS=0); THE TRIP END FIELDS (FIELDS 3 AND 4) WILL BE SET TO ZERO.

5.7 THE DENOMINATOR FILE CANNOT BE OUTPUT IF PROBABILITIES ARE INPUT (I.E. IF PROBS $>$ 0).

5.9 UTILITIES MAY BE PRINTED IF PROBS=0, EVEN IF OUTPUT(1)=F.

5.10 PROBABILITIES MAY BE PRINTED IF PROBS=0, EVEN IF OUTPUT(2)=F.

5.11 TRIPS MAY BE PRINTED IF TRIPS $\neq$ 0, EVEN IF OUTPUT(3)=F.

5.14 AN UNAVAILABLE DESTINATION OR MODE MAY BE INDICATED BY GIVING IT A VERY LOW UTILITY. FOR SOME MODELS, THEN, UTILITY VALUES LESS THAN -160 WILL BE NORMAL. OUTPUT(29) MUST BE TURNED OFF WHEN APPLYING SUCH MODELS TO AVOID SPURIOUS ERROR DETECTION.

5.15 UTILITIES OF GREATER THAN 160 RESULT IN IMPROPER PROBABILITY CALCULATIONS; CONSEQUENTLY, THE EXISTENCE OF ANY UTILITIES IN EXCESS OF +160 MUST ALWAYS BE REGARDED AS AN ERROR CONDITION. OUTPUT(30) SHOULD ALWAYS BE TURNED ON SO THAT ANY OCCURRENCE OF THIS ERROR WILL BE NOTED.

5.16 THESE SWITCHES ARE OF NO VALUE TO THE USER.

5.17 THE BBINI DEFAULT IS PRINT(1)=0; THAT IS, NO ZONES ARE PRINTED.

5.18 BBINI IS A VECTOR USED TO SELECT PRODUCTION ZONES FOR PRINTING. THE OUTPUT CONTROLLED BY 'OUTPUT' SWITCHES 14,21,22 AND 23 IS PRODUCED ONLY FOR THOSE ZONES SELECTED BY THE PRINT VECTOR. A RANGE OF ZONES MAY BE SPECIFIED BY GIVING THE NUMBER OF THE FIRST ZONE IN THE RANGE, FOLLOWED BY THE NUMBER OF THE LAST ZONE IN THE RANGE, NEGATED. ZONES MUST BE SELECTED IN ASCENDING ORDER.

6.0 &VAR\_KEYWORDS

6.1 THE DEFAULT FOR NQ IS THE RELATIVE POSITION OF THE NAMELIST IN THE CONTROL DECK. FOR EXAMPLE, THE DEFAULT FOR THE 3RD &VAR NAMELIST IS NQ=3.

6.2 THE MAXIMUM VALUE FOR NQ IS 'VARCNT', THE COUNT OF &VAR NAMELISTS IN THE CONTROL DECK.

6.3 EACH VARIABLE MUST HAVE A UNIQUE NUMBER. THIS REQUIREMENT, TOGETHER WITH THE REQUIREMENT DISCUSSED IN <6.2>, NECESSITATES THE USE OF A UNIQUE SEQUENTIAL NUMBERING SYSTEM, 1 TO 'VARCNT'. NOTE THAT SUCH A SYSTEM IS PROVIDED BY THE DEFAULTS.

6.4 THE DEFAULT FOR IYPE VARIES WITH 'FILE'. IF 'FILE' $<$ 100.

THE DEFAULT IS 1; IF 'FILE' > 100, THE DEFAULT IS 4.

6.5 IYBE IS A CODE DESCRIBING THE VARIABLE TYPE:

- (1) PRODUCTION ZONE VARIABLE
- (2) ATTRACTION ZONE VARIABLE
- (3) MODAL VARIABLE
- (4) INTERCHANGE VARIABLE

TYPE MUST BE IN THE RANGE 1 TO 4.

IF TRIP PRODUCTIONS ARE INPUT, THE TRIP VARIABLE MUST BE OF TYPE 1.

IF PROBABILITIES ARE INPUT (I.E. IF PROBS > 0), EACH PROBABILITY MATRIX MUST BE OF TYPE 4.

6.7 THE MAXIMUM VALUE FOR EILE VARIES WITH TYPE. IF TYPE < 4, THE MAXIMUM VALUE IS 9; IF TYPE = 4 AND FT19F001 IS OUTPUT, THE MAXIMUM VALUE IS 8255; IF TYPE = 4 AND FT19F001 IS NOT OUTPUT, THE MAXIMUM VALUE IS 9255.

6.8 FOR ZONAL AND MODAL DATA FILES (TYPE < 4), EILE SPECIFIES THE A<FILE> FILE ON WHICH THE VARIABLE RESIDES. FOR EXAMPLE, FILE=4 REFERS TO THE FILE HAVING DDNAME A4. FOR MATRIX VARIABLES (TYPE = 4), 'FILE' IS A UTPS TABLE NUMBER (3 OR 4 DIGITS), THE FIRST DIGIT PLUS 10 INDICATING THE FT FILE ON WHICH IT RESIDES AND THE REMAINING DIGITS GIVING THE TABLE NUMBER ON THAT FILE. FOR EXAMPLE, FILE=103 REFERS TO TABLE NUMBER 3 ON THE FILE HAVING DDNAME FT11F001. LIKewise, FILE=2001 INDICATES TABLE 1 ON FT12F001.

THE VALID RANGE FOR ZONAL/MODAL DATA 'FILE' PARAMETERS IS 1 TO 9; THE VALID RANGE FOR MATRIX DATA 'FILE' PARAMETERS IS 101 TO THE MAXIMUM DEFINED IN <6.7>.

6.9 LOC IS USED ONLY IF TYPE < 4. IT INDICATES THE STARTING LOCATION OF THE VARIABLE ON THE INPUT RECORD. LOC MUST BE IN THE RANGE 1 TO 1024. SINCE THE DEFAULT IS OUTSIDE THIS RANGE, LOC MUST BE SPECIFIED FOR EACH ZONAL/MODAL VARIABLE.

6.10 THE MAXIMUM VALUE FOR LENGTH VARIES WITH 'FORMAT'. IF FORMAT=1, THE MAXIMUM IS 10; IF FORMAT=2, THE MAXIMUM IS 8.

6.11 LENGTH IS USED ONLY IF TYPE < 4 AND FORMAT > 0. IT SPECIFIES THE LENGTH OF THE VARIABLE FIELD ON THE INPUT RECORD. IT, TOGETHER WITH 'LOC', DEFINES THE VARIABLE FIELD. A VARIABLE FIELD CAN APPEAR ANYWHERE ON AN INPUT RECORD, BUT FIELDS ON THE SAME INPUT RECORD CANNOT OVERLAP. IF USED, LENGTH MUST BE GREATER THAN ZERO AND NOT MORE THAN THE MAXIMUM DESCRIBED IN <6.10>.

IF TYPE < 4 AND FORMAT = 0, LENGTH IS FIXED AT 4.

6.12 THE DEFAULT FOR EQBMAI VARIES WITH 'TYPE'. IF TYPE < 4,

THE DEFAULT IS 1; IF TYPE=4, THE DEFAULT IS 2.

6.13 EQBMAI IS A CODE DESCRIBING THE FORMAT OF THE INPUT VARIABLE. ITS VALID RANGE AND INTERPRETATION VARY WITH TYPE, AS SHOWN IN THE TABLE BELOW:

FORMAT	TYPE < 4	TYPE = 4
0	BINARY FLOATING POINT	INVALID
1	EBCDIC FIXED POINT	BINARY FIXED POINT
2	EBCDIC FLOATING POINT	BINARY FLOATING POINT

6.14 THE DEFAULT FOR NAME VARIES WITH 'NO'; THE DEFAULT IS 'VAR<NO>', PADDED TO 6 CHARACTERS. FOR EXAMPLE, IF NO=6, THE DEFAULT IS 'VAR006'.

## 7.0 &EQN\_KEYWORDS

7.1 DESI IS A LIST OF ATTRACTION ZONES AND ATTRACTION ZONE RANGES TO WHICH THE UTILITY FUNCTION DEFINED BY THIS &EQN CARD APPLIES. THE ZONES MUST BE IN ASCENDING ORDER.

7.2 MODE IS A LIST OF MODE NUMBERS AND MODE NUMBER RANGES TO WHICH THE UTILITY FUNCTION DEFINED BY THIS &EQN CARD APPLIES. THE MODE NUMBERS MUST BE IN ASCENDING ORDER.

7.3 A RANGE MAY BE SPECIFIED BY GIVING THE FIRST NUMBER IN THE RANGE FOLLOWED BY THE LAST NUMBER IN THE RANGE, NEGATED. FOR EXAMPLE, (2,-4) DEFINES THE RANGE 2 THRU 4. THE END OF THE RANGE MUST BE AT LEAST AS GREAT AS THE START OF THE RANGE; (2,-2), FOR EXAMPLE, DEFINES THE 'RANGE' CONSISTING OF THE SOLITARY NUMBER 2, BUT (2,-1) IS AN INVALID RANGE DEFINITION.

7.4 THE DEFAULT FOR DESI IS (1,-NDEST); THAT IS, ALL ZONES.

7.5 THE DEFAULT FOR MODE IS (1,-NMODE); THAT IS, ALL MODES.

7.6 THE MAXIMUM VALUE FOR ANY ELEMENT OF EQBM IS 'VARCNT', THE COUNT OF &VAR NAMELISTS IN THE CONTROL DECK.

7.7 EQBM IS A LIST OF VARIABLE NUMBERS WHICH DEFINES THE STRUCTURE OF A UTILITY FUNCTION. ONLY THE FIRST 'NPAR' ELEMENTS OF FORM ARE USED; EACH OF THESE MUST BE GREATER THAN OR EQUAL TO ZERO. IF FORM(I)>0, THEN THE PRODUCT OF THAT VARIABLE AND B(I) IS TO BE INCLUDED IN THE UTILITY VALUE. IF FORM(I)=0, THEN B(I) DOES NOT ENTER INTO THIS UTILITY CALCULATION.

FOR EXAMPLE, IF NPAR=4, THEN AN &EQN CARD WITH FORM=1,5,0,3 DEFINES THE FOLLOWING UTILITY FUNCTION:

$$U=C+B(1)*VAR001+B(2)*VAR005+B(4)*VAR003$$

WHERE VAR001,VAR002 AND VAR005 ARE VARIABLE NUMBERS 1,3 AND 5,

RESPECTIVELY.

DEPENDING ON THE 'TYPE' KEYWORDS IN THEIR &VAR NAMELISTS, THESE VARIABLES MAY VARY BY PRODUCTION ZONE, BY ATTRACTION ZONE, BY MODE OR BY TRIP INTERCHANGE. SUPPOSING THAT VAR001 IS A PRODUCTION ZONE VARIABLE, VAR003 IS AN ATTRACTION ZONE VARIABLE AND VAR005 IS AN INTERCHANGE VARIABLE, THEN THE UTILITY WOULD TAKE THE MORE SPECIFIC FORM

$$U(I,J,M)=C(J,M)+B(1)*VAR001(I)+B(2)*VAR005(I,J)+B(4)*VAR003(J)$$

WHERE:

I ::= PRODUCTION ZONE INDEX

J ::= ATTRACTION ZONE INDEX

M ::= MODE INDEX

7.8 THE SET OF &EQN CARDS MUST COVER THE UNIVERSE OF 'NDEST'\*'NMODE' ALTERNATIVES EXHAUSTIVELY AND WITH NO OVERLAP; THAT IS, EACH DESTINATION/MODE COMBINATION MUST BE IN THE RANGE OF ONE AND ONLY ONE &EQN CARD.

