National Cooperative Transit Research & Development Program

RESEARCH RESULTS DIGEST

These Digests are issued in the interest of providing an early awareness of the research results emanating from projects in the NCTRP. By making these results known as they are developed, it is hoped that the potential users of the research findings will be encouraged toward their early implementation in operating practices. Persons wanting to pursue the project subject matter in greater depth may do so through contact with the Cooperative Research Programs Staff, Transportation Research Board, 2101 Constitution Ave., N.W., Washington, D.C. 20418.

DIGEST 4—June 1985

Responsible Staff Engineer: Mr. R. Ian Kingham

National Transit Computer Software Directory

An NCTRP staff digest of the essential findings from NCTRP Project 38-1, "National Transit Computer Software Directory," conducted by COMSIS Corporation, Wheaton, Maryland.

THE PROBLEM AND THE SOLUTION TO IT

Over the past decade, transit agencies have come to recognize and utilize computer systems as important management and operating tools. It is estimated that the public transit industry spends several million dollars each year on the design of software. Because of the similarities in the structure and operation of the country's transit systems, it is believed that software developed at one system could, in many cases, be transferred and adapted for use by other agencies at a total cost lower than that had each system created its own product.

A lack of information about existing software products has resulted in the industry spending significant amounts of time, energy, and money to develop new systems. The outcome has been a duplication of effort and in some cases a replication of errors. As a consequence, the transit industry has recognized the need for a comprehensive and up-to-date transit software directory that would function as a central clearinghouse making information available to transit agencies contemplating software development or acquisition.

The objective of the now completed Phase I of NCTRP Project 38-1 was to develop and pilot test a methodology for the establishment and continuous updating of an automated Directory containing descriptions of computer software useful to the transit industry. The outcome of this phase of the project is a National Transit Software Directory containing almost 300 transit application programs submitted by over 80 organizations.

The objective of the Phase II continuation research is to supplement the Directory and disseminate its information among interested parties in the

transit industry. Individuals and organizations seeking information about transit software should find this summary of interest and should complete the Directory's Inquiry Form included at the back of this Digest.

FINDINGS

The design of the Directory's structure and its capabilities are based on initial research into the transit industry's need for software information, together with an investigation of existing information systems. A summary of the Directory's features is presented in three parts: (1) Directory content, (2) methodology, and (3) operating procedures.

DIRECTORY CONTENT

The Directory contains contributions from organizations or individuals who develop, distribute, use, or sponsor the development of application software. Organization types include transit agencies; local, MPO, state, and federal government agencies; consultants, transit management companies; software vendors; and universities. Types of software eligible for entry into the Directory include software that can operate on any type or size of computer; software written in any language; software applications that address specific transit functions or standard business functions with demonstrated application in transit; software that is under development, is in testing, or is operational; and software that is either proprietary or in the public domain. The Directory excludes utility tools and general business applications without demonstrated application in the transit industry. It also excludes software products that are not documented.

Software characteristics described in Directory listings include: (1) program purpose and features; (2) descriptions of the hardware and operating system environment; (3) transit agency characteristics; and (4) how to find out more about the software.

COMPUTER METHODOLOGY

The methodology for operating and maintaining the Directory addresses three aspects of data processing: data collection, data storage and retrieval, and delivery of information. Information for entry into the Directory is collected through the distribution and retrieval of a three-part survey form. Because the success of the Directory in large part is dependent on its ability to ensure that existing listings are accurate and that new products are entered, data collection is a continuous process.

The methodology for storing and retrieving data is the microcomputer-based data base management system dBASE II by Ashton-Tate. Key features of the Directory's data base management system are that data entry and other operating functions do not require skilled personnel; similar procedures are followed for initial data entry and for updates/revisions; and the Directory's programs are to a large extent self-instructional. These features serve to expedite data entry and processing tasks.

Information is currently available to interested parties in one of two ways. A six-volume Directory containing page-long descriptions of close to 300 transit-related computer programs is available on request to the Directory

Operator as described under "Management Procedures." Volumes are organized by the hardware equipment on which the software operates as follows:

Volume 1: IBM 360/370, IBM 30xx Series, and Amdahl
Volume 2: Burroughs 1855 and 1955
Volume 3: IBM 43xx Series
Volume 4: IBM Systems 3x Series
Volume 5: Non-IBM or Burroughs Mainframes and Minicomputers (CDC, DEC, VAX, HP, UNIVAC, etc.)

Within each volume, program listings are organized by the application function they perform. Major classification groupings are as follows:

100 - Accounting
200 - Financial Management
300 - Administration
400 - Operations Planning, Scheduling and Management
500 - Passenger and Service Analysis
600 - Transit System Planning
700 - Maintenance and Material Management
800 - Engineering and Construction Management

A sample program listing is shown in Figure 1.

```
SOFTWARE ID NO:    080274  LISTING DATE:  05/10/84
                   --------
PROGRAM TITLE       MINUTP
                   --------
CONTACT PERSON:    MR. LARRY SEIDERS
DEPARTMENT:        MT. VIEW OFFICE
PHONE:             415 964-5911 @
ORGANIZATION:      COMSIS CORPORATION
                   WHEATON MD  20902
ORGAN. TYPE:       CONSULTANT/VENDOR
ORGAN. ROLE:       DEVELOPER DISTRIBUT
OWNERSHIP:         PROPRIETARY
DISTRIBUTOR:       COMSIS CORPORATION

OPERATING ENVIRONMENT
   HARDWARE MANUFACTURERS:      MOLECULAR
        MODEL(S):
        OPERATING SYSTEM:  CP/M-80  PC/MS-DOS
   HARDWARE MANUFACTURER:    IBM
        MODEL(S):  PC   XT
        OPERATING SYSTEM:  CP/M-80  PC/MS-DOS
   HARDWARE MANUFACTURER:  IBM
        MODEL(S):  SYSTEM 34
        OPERATING SYSTEM:
   MEMORY REQR:  64K TO 128K          AVAIL. FORM:  SOURCE CODE   OBJECT CODE
   LANGUAGE(S):  FORTRAN 66
   PERIPHERAL REQUIRED:               LINES OF CODE:  12000
        CRT TERMINAL                    1 MEG HARD DISK


PROGRAM PURPOSE:

   MINUTP is a microcomputer system for transportation planning
   a  It is similar in nature to more complicated systems such as UTPS,
   PLANPAC AND TRANSPLAN, however, it is easier to set up and operate.

FUNCTION CODES      SPECIAL FEATURES/
  AND KEYWORDS        LIMITATIONS
-------------------------------------------------------------------------------
601 Demand
    Estimation

APPLICATION MODE(S):  NOT MODE SPECIFIC
PROGRAM STATUS:  OPERATIONAL
AVAILABLE DOCUMENTATION:      USERS MANUAL       TUTORIAL

OTHER USERS:

    1.  COUNTY OF FRESNO COUNCIL OF GOVERNMENTS          FRESNO, CA.

    2.  REGIONAL TRANSPORTATION COMMISSION - RENO        RENO, NV.

    3.  BASMACIYAN-DARNELL, INC.                         NEWPORT BEACH, CA
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Figure 1. Sample Program Listing

The second means of obtaining information is by requesting a search of the Directory's listing for programs that satisfy a particular set of criteria. Criteria include: (1) function of interest, (2) transit mode of interest, (3) transit system size, (4) equipment type and manufacturer, (5) operating system, and (6) language. Full descriptions of those programs satisfying the user's specifications are returned to the user. An Inquiry Form, included in this Digest, facilitates this procedure.

MANAGEMENT PROCEDURES

The smooth operation of the Directory is dependent on the adoption of effective management procedures. Duties associated with operating and maintaining the Directory are the responsibility of a single Directory Operator who is responsible for data collection, maintaining the data base and associated dBASE II software programs, delivering information to the public, and marketing Directory services. All requests for publications and user specified searches, as well as for forms to enter listings into the Directory are handled by the Directory Operator and should be addressed to:

National Transit Software Directory
c/o COMSIS Corporation
11501 Georgia Avenue
Wheaton, MD 20902

APPLICATION

The first National Transit Software Directory is now available for use by the transit industry. The attached Inquiry Form should be used to request a Directory volume of interest and/or to request a search of the Directory's listings for programs satisfying user specified criteria. It is emphasized that the task of collecting information is by no means complete. Over the next 6 months, additional efforts will be underway to update and expand the number of program listings. To submit new entries, complete the Inquiry Form and indicate the number of programs to be entered.

INQUIRY FORM
NATIONAL TRANSIT SOFTWARE DIRECTORY

Instructions: Complete this form to obtain information about programs listed in the National Transit Software Directory and mail to: National Transit Software Directory
c/o COMSIS Corporation
11501 Georgia Avenue
Wheaton, MD 20902

Name: Ms__ Mr__ |__|__|__|__|__|__|__|__|__|__| |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|
First Name Last Name

Organization Name: |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|

|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|

Address: |__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|
Number Street

|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__|__| |__|__| |__|__|__|__|__|
City/Town State Zip Code

Telephone: |__|__|__| |__|__|__| - |__|__|__|__| |__|__|__|__|
Area Code Extension

(Check all that apply)

|__| Send me the necessary forms to enter my organization's programs into the National Transit Software Directory.
Number of programs to be entered: ________

|__| Send me the following volumes of the National Transit Software Directory Catalog.

|__| Volume 1: IBM 360/370, IBM 30xx Series, Amdahl

|__| Volume 2: Burroughs 1855 and 1955

|__| Volume 3: IBM 43xx Series

|__| Volume 4: IBM System 3x Series

|__| Volume 5: Non-IBM or Burroughs Mainframes or Minicomputers (CDC, DEC, VAAX, HP UNIVAC, etc.)

|__| Volume 6: Microcomputers

|__| Conduct a search of the Directory's entries and send me a full description of all programs which simultaneously satisfy the criteria listed below.

Criteria				Default Values*
1. Function(s) of interest: (Refer to Attachment 1 and list from 0 to 5 function code(s) or keyword(s))	_____; _____; _____; _____; _____			All functions
2. Transit mode(s) of interest: (Check all that apply)	__ Bus and Trolleybus	__ Rail (light, heavy & commuter)	__ Demand Response	__ Other	All modes
3. Transit system size of interest: (Check all that apply)	__ Small (less than 150 vehicles)	__ Medium (between 150 & 500 vehicles)	__ Large (greater than 500 vehicles)		All sizes
4. Equipment type(s) of interest: (Check all that apply)	__ Mainframes	__ Minicomputers	__ Microcomputers (personal computers)		All equipment types
5. Equipment manufactuer(s) of interest: (Refer to Attachment 1 and list from 0 to 3 equipment manufacturer(s) or code(s)	_____; _____; _____				All manufacturers
6. Operating system(s) of interest: (List from 0 to 3 operating systems)	_____; _____; _____				All operating systems
7. Language of interest: (List from 0 to 3 languages)	_____; _____; _____				All languages

*Circle default values if you do not want to specify a particular value(s) for a criterion.

ATTACHMENT 1 - FUNCTION CODES

SUMMARY LISTING

These function codes are for use in completing the Inquiry Form, page 2, Criterion 1.

ATTACHMENT 1 - FUNCTION CODES

SUMMARY LISTING

ATTACHMENT 2 - MANUFACTURER CODES

These manufacturer codes are for use in completing the Inquiry Form, Page 2, Criterion 5.

Code	Manufacturer
1	AMDAHL
2	APPLE
3	BURROUGHS
4	CDC
5	DATA GENERAL
6	DEC
7	HEWLETT PACKARD
8	HONEYWELL
9	IBM
10	PRIME
11	RADIO SHACK
12	TEXAS INSTRUMENTS
13	SPERRY UNIVAC
20	OTHER, IBM EQUIVALENT
21	OTHER*
99	NON-MANUFACTURER SPECIFIC: Programs can operate on equipment having specified operating system(s) and memory requirements. Skip Questions 4 and 5, and complete Question 6.

*If the manufacturer of your microcomputer is not listed, select the manufacturer with which your equipment is compatible. (If it is IBM compatible, select Code 20.) If your equipment does not have an equivalent, select Code 21 - **Other**, and specify manufacturer on **Form** B, Question 3.