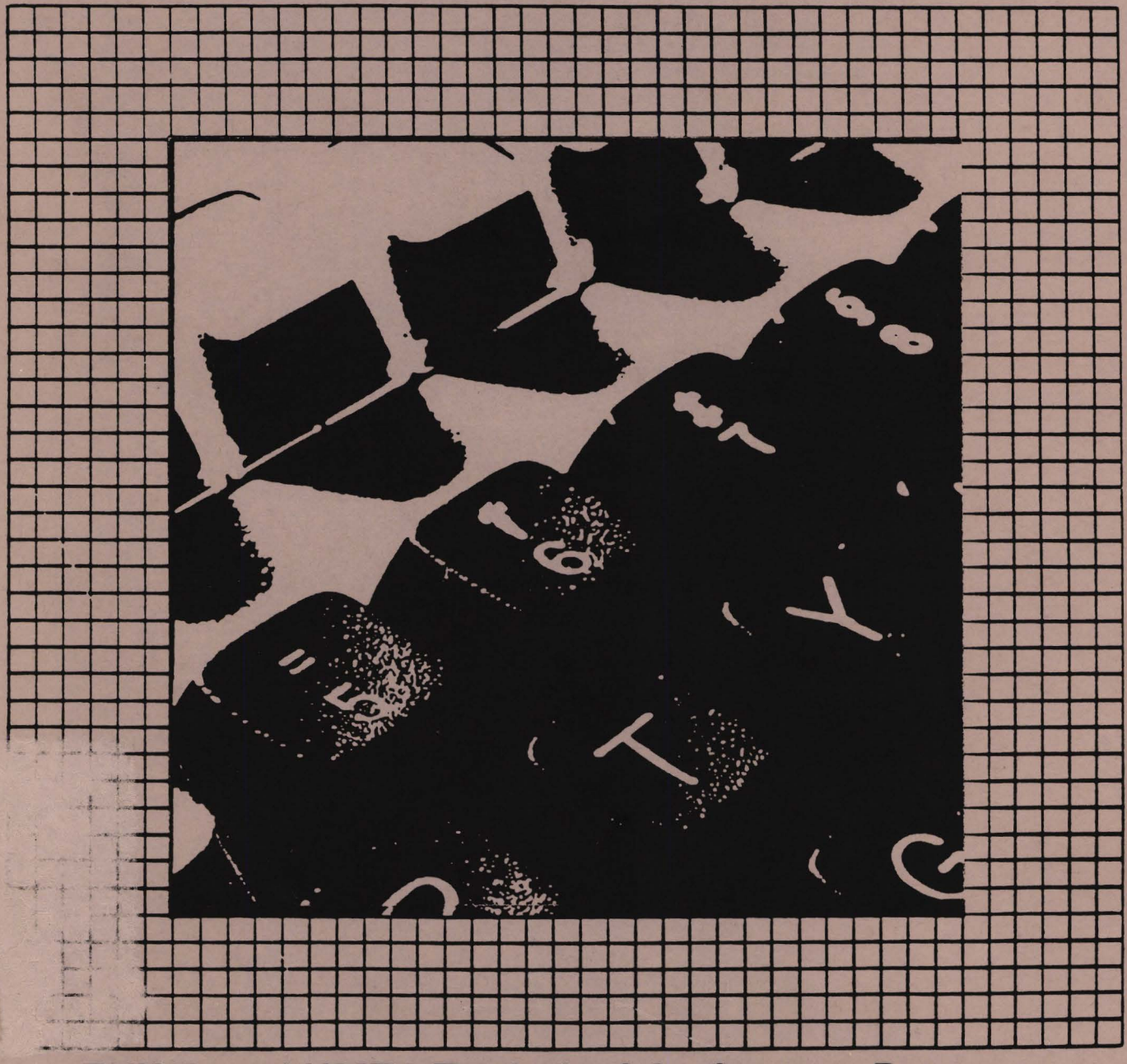
U.S. Department of Transportation

μtps Microcomputers in transportation

Software and Source Book

Revised February 1986



FHWA and UMTA Technical Assistance Program

Technical Report Documentation Page

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
UMTA-URT-41-86-1		

4. Title and Subtitle	5. Report Date
Microcomputers in Transportation Software and Source Book, February 1985	February 1986
	6. Performing Organization Code
7. Author(s)	8. Performing Organization Report No.
9. Performing Organization Name and Address U.S. Department of Transportation Urban Mass Transportation Administration Methods Division, URT-41 Washington, D.C. 20590	10. Work Unit No. (TRAIS) URT-41
	11. Contract or Grant No.
12. Sponsoring Agency Name and Address **U.S. Department of Transportation** **Urban Mass Transportation Administration** **400 Seventh Street, S.W.** **Washington, D. C. 20590**	13. Type of Report and Period Covered Software and Source Book
	14. Sponsoring Agency Code URT-41

15. Supplementary Notes

16. Abstract

The Urban Mass Transportation Administration (UMTA) and the Federal Highway Administration (FHWA) of the U.S. Department of Transportation provide training and technical assistance in the new and rapidly changing area of transportation application of microcomputers. These two agencies maintain up-to-date microcomputer references for transit and paratransit operators, transportation planners, and traffic engineers.

This document contains information pertaining to: 1) Microcomputer references and training and; 2) descriptions of software in the areas of transit operations, transportation planning, traffic engineering, and paratransit planning and operations.

17. Key Words	18. Distribution Statement
Microcomputers; Software; Transportation Applications; Equipment; Information Sources	**Available to the Public through the National Technical Information Service, Springfield, Virginia 22161.**

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	**Unclassified**		A05

Form DOT F 1700.7 (8-72) **Reproduction of completed page authorized**

PREFACE

This annual publication contains microcomputer software descriptions and sources of information of interest to transit and paratransit operators, transportation planners, and traffic engineers. Information from previous issues of this publication has been updated and expanded in this document.

Section 1 of this document contains general information on national transportation user groups and software commonly referred to as "freeware." The next five sections contain descriptions of software in five major functional areas. Software developed by both private contractors and public agencies is listed. At the end is an index of software descriptions by organization and by title of the software.

The information provided here is the best available to UMTA and FHWA at the time of publication. Should you have updates, corrections, or additions to what is contained here, please contact Ron Jensen-Fisher, the editor, at the following address:

Urban Mass Transportation Administration
Methods Division (URT-41)
Washington, DC 20590
(202) 426-9271

Descriptions of new transportation software are particularly welcome.

Additional copies of this report can be obtained by sending a self-addressed gummed label to:

Technology Sharing Program (I-30SS)
Office of the Assistant Secretary for
Governmental Affairs
U.S. Department of Transportation
Washington, DC 20590

We want to thank all those who contributed software descriptions and other entries for this publication. We are particularly grateful to Kendrick & Company for the word processing and final organization of this document.

CONTENTS

MICROCOMPUTER INFORMATION AND TRAINING

Transportation Microcomputer User Groups

Federally sponsored user groups exist for professionals interested in transit operations, transportation planning, highway safety, and traffic engineering. Each of these user groups has a working center which publishes periodic newsletters, provides telephone assistance, and distributes software and documents developed by users and the Federal Government.

If you want to become a member of the user group for transit operations, contact:

TIME Support Center
Rensselaer Polytechnic Institute
Civil Engineering Department
Troy, NY 12180-3590
(518) 266-6227

If you want to become a member of the user group for transportation planning, highway safety, and traffic engineering, contact:

Planning Support Branch
Federal Highway Administration
HPN-22
Washington, DC 20590
(202) 426-0182

"FREEWARE" GENERAL PURPOSE SOFTWARE

There are a growing number of useful, general purpose programs that may be freely copied and exchanged among users. These include file managers, word processors, graphics, communications, statistical programs and many miscellaneous but useful utility programs. While a lot of free software is poorly designed and documented, there are a growing number that are of the quality of the better commercial packages.

The most useful of these programs go under the heading of "Freeware," "Shareware," or "User Supported Software." These are copyrighted, but the terms of the copyright allow users to copy and exchange the programs with few limitations. Often a voluntary donation of $25 to $75 is requested by the author if you find the program useful and continue to use it. In return, you become a "Registered User" with certain rights to technical assistance, software updates, and other benefits.

All of the programs discussed below operate on IBM-PC series computers and fully compatibles. Also, they all have their documentation included on the disk or have excellent "help" screens.

The usual way to get this software is to copy it from other users or from a user group. This is perfectly legal in the case of these packages. Many user groups maintain large libraries of software available for a nominal copying charge. Often, these can be downloaded from club bulletin boards. Also, for each package below, the original source is given, from whom you can usually get a copy also for a low price. It is best to call or write the source first in case the terms we quote here have changed.

A national mail-order source of most of the below freeware is:

The Public (Software) Library
C/O Nelson Ford
P. O. Box 61565
Houston, TX 77208

Disks from this source are $5 each plus $3 per order for shipping and handling. Write for the current catalog of offerings before ordering.

These programs may be all you need for some functions. Even if you find that you need to buy a fuller-featured program later, the experience of having used the equivalent freeware will make you a considerably smarter shopper.

PC-WRITE

This is a full-featured and well-documented word processing package. It is as good or better than most commercial packages on the market today. Has mail merge and soon will have a spelling checker. The producer, Quicksoft, allows you to copy their program from someone else or they will send it to you for $10. You can also pay $75 to register the program. Registration entitles you to new versions of the program as they become available, telephone support from Quicksoft, and a printed copy of the documentation (otherwise you must print the documentation from the diskette). Also, registered owners receive $25 from Quicksoft when someone registers one of their copies. To obtain PC-Write from the author, contact Quicksoft, 219 First N., #224, Seattle, WA 98109, (206) 282-0452.

PC-FILE III

PC-FILE III is a file manager that is quite comparable in features to the simpler commercial file managers. It handles single files only so it is not comparable to multi-file database managers like dBASE or Rbase. (A new product by the same author, called PC-FILE III/R, is said to have "relational" multi-file capabilities as well as some word processing functions and mail-merge. This is not a freeware program. The price is advertised as $149.) To get PC-FILE III, see your local user group for a free copy or become a registered user by sending $45 to ButtonWare, Box 5786, Bellevue, WA 98006, (206) 746-4296.

FILE EXPRESS

A file manager with many of the same features as PC FILE III, plus a few more. One obvious difference is that this one has greater search and replace capability and computed fields within the database. The source is Expressware, P.O. Box 6275, Rancho palos Verdes, CA 90734.

PC-TALK IV

PC-TALK IV is a microcomputer communications package that allows your micro to act like what is called an "asynchronous" terminal (also called a "TTY" terminal). With it you can communicate with electronic bulletin boards, transmit and receive files of data or software, and operate as a terminal to mini- or mainframe machines that accommodate "asynchronous," dial-up, connections. PC-TALK

IV can be obtained for $35 from The Headlands Press, Inc., Box 862, Tiburon, CA 94920, (415) 435-9775, or can be freely copied from someone who has it.

QMODEM

An asynchronous communications program that uses "pull-down" menus and is generally reputed to be easier to use than PC-TALK IV. Source unknown.

PC-CALC

A pretty respectable spreadsheet program but limited to 26 columns and 255 rows. No graphics or data management features. Also a ButtonWare product (see address and phone above for PC-FILE III). Get it free from another user or register with a $45 registration fee.

PCPG

A "presentation graphics" program, mostly used to produce report covers, posters, transparencies, slides, etc. It will drive your dot matrix printer for fair quality output or a pen-plotter for fine professional graphics. Requires a graphics screen to work. Has numerous font types, line work, and lots of "canned" symbols for serious as well as fun graphics. (Kids and other human beings have great fun with the animals, cars, houses, etc.) Works in color on a color screen and you can make low-budget color slides with a 35mm camera on a tripod in a darkened room by taking pictures of the screen. Get the older freeware version from your user group or get a slightly better version from the IBM collection of employee-developed software for about $35. (If you get the older freeware version, the print option doesn't seem to work, so use the PC-DOS 2.0+ utility "Graphics" or the freeware program "Graftrax" to print graphs from the screen.)

SLIDE

Another presentation graphics program. No colors, symbols, or fancy fonts, but just super quality output on your dot matrix printer. Doesn't require a graphics screen to run. Easy to use and good editing. The source is Mr. John Lehmann, 1403 Rolling House Road, Rockville, MD 20852. He will send you a copy for $7 and will register you as a user for $25. Otherwise, see your user group.

PC-DESKMATES

A good "pop-up" utilities program similar to "Sidekick"(TM). Has a calculator, calendar, typewriter, alarm clock, memory phone dialer (if you have a modem), note pad, etc. Turn your $5,000 computer into a series of $25 appliances! Runs in background so it is always available. Has a problem similar to other programs that run in background: it doesn't work with all software. Source is Alternative Decision Software Inc., P.O. Box 307, Lancaster, NY 14086, (716) 684-2423. You can get it from them for $10 or become a registered user for $25.

3 X 5

This is a text file manager that is fast and easy to use for entering, indexing, and retrieving text. It is like keeping and searching research notes on 3 X 5 index cards. Since all the text on a "card" is indexed, it is not necessary to

come up with key words to find information as long as the words being searched for are anywhere on the card. A product of Softshell Corp., P.O. Box 18522, Baltimore, MD 21237.

F (PC-DOS FILER)

A great program to use when backing up or "cleaning up" various files on your disks. Allows you to view directories of two disks at once and delete, copy, and otherwise manipulate groups of files on either disk. Is much more convenient than trying to do these functions with DOS alone, and much less subject to errors, like deleting the wrong file. Also, it supports PC-DOS paths, so you can easily move among sub-directories. F was developed by Bill Neidert, 1225 Via Balboa, Mesquite, TX 75150. You can become a registered user for $30.

PC-HELP

A fine help program for the neophyte PC-DOS (or MS-DOS) operating system user. Also good for more experienced but forgetful users. Menu-driven to give fast, on-screen information on all the usual DOS commands, with lots of helpful examples of each. Of greatest usefulness when always available, as on a hard disk or LAN. A shareware product of Kendrick & Company, 800 18th St. NW., Suite 500, Washington, DC 20006. Copy it freely and try it out but permanent users are requested to register for $15 and site licenses are available for $200 plus $.50 per user.

P (PRINTSET)

It can be a real nuisance to send those obscure printer setup commands to your printer to change the print width, or vertical spacing or font type, etc. This little program provides a menu-driven selection procedure to set your printer that anyone can use. The source of this one is unknown; get it from another user.

AUTOMENU

Allows the user to set up menu-driven DOS command files. Good for setting up hard disk systems so that unfamiliar users can easily access programs on the disk. Source is Magee Enterprises, 6577 Peachtree Industrial Blvd., Norcross, GA 30092. Happy users are asked to send a $20 donation.

NEWKEY

A "keyboard macro" program like "PRO-KEY"(TM). Lets you store away a complicated sequence of key strokes that you use often and play them back with a single stroke. Source is Frank A. Bell, 20950 Smallwood, Birmingham, MI 48010. Get it from other users or send $30 to become a registered user.

ULTRA UTILITIES

You never need these until you really need them! Like the popular "Norton Utilities"(TM), you can un-erase that file you just deleted by accident. Works mainly on floppies, not hard disks. Has lots of other esoteric disk-peeking functions. Source is Freesoft Company, P.O. Box 27608, St. Louis, MO 63146 and you can get registered for $30.

PROLOG

Curious what the fuss is over "Artificial Intelligence"? (Still waiting for promising developments in the realm of Natural Intelligence?) This program will give you an introduction and the price is right. Build complicated logic sequences with the Prolog language. Source is Robert Morein and Automata Design Assoc., 1570 Arran Way, Dresher, PA 19025, (215) 646-4894. In addition to the freeware version, other more elaborate versions are available for various prices.

TRANSIT OPERATIONS SOFTWARE

microcomputers in transportation

Transit Operations Software

Scheduling and Runcutting

APPLICATION HASTUS Scheduling System

DEVELOPER GIRO, Inc.

SUMMARY HASTUS is an interactive system for vehicle scheduling, runcutting, and rostering. The system differs from virtually all automated scheduling systems in a number of ways. First, the run construction component of the system utilizes advanced mathematical programming techniques to assist the scheduler in the development of near optimum schedules. A unique feature of the system is its extensive set of on-line commands available to the scheduler to adjust and refine the initial computer generated solution; as such, while the system retains the powerful optimization routines necessary to generate a cost-efficient solution, the scheduler quickly learns how to avoid the "black box" syndrome and carefully uses the computer to produce schedules and runs which are not only less costly but are operationally desirable. Being highly parameter driven, the system can handle a wide variety of work rule scenarios without any reprogramming effort. The system has no apparent limitations to the size of the problem that can be handled. With HASTUS savings as high as 3.1% of transportation costs in Montreal and 3.7% in Calgary (under a controlled test of various runcutting software packages) have been obtained.

ENVIRONMENT The system can run on a wide range of computers. It is currently running on an IBM 370, Prime and VAX minicomputers, a MicroVAX II, a Plexus (Unix) supermicrocomputer in a multi-user mode and the IBM PC-AT in a single-user configuration.

STATUS HASTUS is currently in production use at transit systems in Montreal, South Montreal, Quebec City, Sherbrooke and Hull, Quebec, and in Singapore. It is currently being installed at the New York City Transit Authority, Boston MBTA, Seattle METRO, Pierce Transit (Tacoma, WA), and Santa Cruz (CA) Transit District.

AVAILABILITY HASTUS is distributed in the United States by Multisystems, Inc., and is available elsewhere from GIRO, Inc.

CONTACTS

In the USA
Mr. John Attanucci
Multisystems, Inc.
1050 Massachusetts Ave.
Cambridge, MA 02138
(617) 864-5810

Outside the USA
Mr. Jean-Yves Blais
GIRO, Inc.
5450 Cotes-Des Neiges, Off. 502
Montreal, Quebec H3T 1Y6
(514) 731-3651

microcomputers in transportation

Transit Operations Software
Scheduling and Runcutting

APPLICATION SAGEPAC

DEVELOPERS SAGE Management Systems Corp.

SUMMARY SAGEPAC has converted its successful scheduling, runcutting, and rostering software to operate in an MS/DOS environment.

Runcutting: DKSRUNS, a comprehensive, interactive runcutting system, has simple, easy-to-learn commands. Basic default values (which can be reset or overridden) are initialized for each runcutting step. The command structure permits the creation, modification, or "undoing" of individual runs or a set of runs. Runs can be cut with one set of parameters and then the parameters can be relaxed to reflect hard/soft work rules. After all runs are cut, the software utilizes exhaustive switching and shifting techniques which are more efficient than RUCUS-related software. Straights can be maximized and key runs not altered during the process.

Scheduling: QUIKSKED, a comprehensive, interactive headway building, vehicle assignment, general schedule building, and schedule data base management tool. It provides extensive error checking that ensures schedules will be consistent with established criteria for run-times, deadhead times, layover times, and other operating policies. In-built data base handling techniques the generated schedule data are made readily accessible to other applications.

Rostering: Weekday, Saturday, and Sunday runcut data are input to this module for the generation of weekly rosters to be posted and bid by operators. The program will maximize the number of bids for regular operators and usually reduces extra-board staff and the time for daily extraboard bid preparation. The program is customized to local union requirements and checks that each bid does not violate any State or local rules.

ENVIRONMENT IBM PC-DOS (and compatible) microcomputers.

STATUS Operational in Central Contra Costa Transit Authority, Walnut Creek, CA, and Long Beach Transit, Long Beach, CA.

CONTACT
Jeff Proudfoot
Marketing Representative
SAGE Management Systems Corp.
156 Front Street West, Suite 500
Toronto, Ontario M5J 2L6
(416) 596-1710

microcomputers in transportation

Transit Operations Software
Scheduling and Runcutting

PROJECT DTS: Desk Top Scheduler

DEVELOPER ATE Management and Service Co. and Wilson-Hill Associates

SUMMARY DTS allows a scheduler to interactively build and edit trips (automated blocking and runcutting is not performed). Schedules can be built by inputting a headway, a single start time per trip, or by having DTS generate headways based upon load check counts and load standards. Capability to add, change, or delete trips is supported via a full-screen editing and windowing capability.

ENVIRONMENT The software is written in UCSD Pascal and runs under the UCSD operating system (Version IV) on the IBM PC with 128K RAM, and a hard disk or two floppy disk drives.

STATUS The system is operational in Dallas.

AVAILABILITY Available from contact below.

CONTACTS Ron Hirschhorn
Wilson-Hill Associates
1220 L Street N.W.
Washington, DC 20005
(800) 638-8747

microcomputers in transportation

Transit Operations Software
Scheduling and Runcutting

APPLICATION Chapel Hill Scheduler: Interactive Bus Scheduler

DEVELOPER Chapel Hill Transit

SPONSOR UMTA, Office of Methods and Support

SUMMARY This microcomputer program operates on user-specified, uniform running times between timepoints within each of several periods of the day. For route variations, such as branch lines or short turns, "patterns" define a subset of timepoints. With standard layovers also specified, the computer takes over much of the "number crunching" aspect of scheduling, allowing the schedule writer to try alternative schedules quickly and accurately. With the final schedule in computer-printable form, the production of timetables, driver "paddles," day cards, supervisor sheets, etc., is accurate and easy.

The "Chapel Hill Scheduler" (CHS), developed under an UMTA grant by Chapel Hill Transit in North Carolina, is an easy-to-learn, well-documented scheduling aid for the small, fixed-route operator. It is most efficient in scheduling long blocks of repetitive trips at headways that are uniform within major segments of the day. Odd headways and "trippers" are also accommodated, but must be treated individually.

The program facilitates manual blocking but no runcutting is included.

ENVIRONMENT

IBM PC (and compatibles)	Apple II
UCSD Pascal (requires UCSD to run)	UCSD Pascal
Microsoft Pascal (runs as is with MS DOS)	

STATUS Operational.

AVAILABILITY Public domain.

CONTACTS

Disk	Modem
TIME Support Center Department of Civil Engineering Rensselaer Polytechnic Institute Troy, NY 12180-3590 (518) 266-6227, between 9:00 AM and 4:00 PM (EST)	INFOTAP Bulletin Board, Berkeley, CA (can download software but not documentation). Have your modem call (415) 642-7088.

microcomputers in transportation

Transit Operations Software
Scheduling and Runcutting

APPLICATION School Bus Routing System (SBRS)

DEVELOPER Roger Creighton Associates, Inc. (RCAI)

SUMMARY SBRS can be used by school districts, private bus contractors, social service agencies, and public transit agencies providing school bus services. It consists of two sets of programs.

(1) The SBRS Version 2 main program provides for automatic or manual "loading" of buses, automatic or manual routing of buses, and automatic printing of schedules and driver directions with passengers' names/addresses.

(2) Mix-and-match specialized task programs, including:

Grade Advancement Program (GAP) advances students from grade to grade in preparation for next year's school bus routing.
Rider File Module (RFM) lets you enter, edit, and print out records for students.
Address Guide System (AGS) Version 2.0 lets you use the microcomputer to look up (a) school to be attended, (b) bus stop, and (c) eligibility for busing in response to telephone or other inquiries. Version 2.1 automatically finds and enters school building code, eligibility for busing, and node (bus stop) number into a student's record.
Rider File Options (RFO) lets you select any desired sub-group of riders, and print their names in sorted order.
Route Audit and Driver Directions (RA/DD) lets you record new and updated travel directions for drivers. Summarizes bus miles, deadhead miles, bus hours, and riders.
Fleet Scheduling Module (FSM) stores bus and route data. Routes are interactively assigned/reassigned to buses. FSM prints a graphic schedule showing all routes assigned to all buses. Bus-miles, bus-hours, riders, and other data are summarized for reports.

ENVIRONMENT IBM PC/XT, IBM PC/AT, and compatible microcomputers and a 132-column, "parallel," matrix printer.

STATUS Operational at Clay County Public Schools, Brazil, IN, Virginia, Pennsylvania, New York, and Manitoba.

CONTACT Roger Creighton Associates, Inc.
274 Delaware Avenue
Delmar, NY 12054
(518) 439-4991

microcomputers in transportation

Transit Operations Software

Scheduling and Runcutting

APPLICATION School Routing System/Routes Analysis

DEVELOPER BISPAC Systems

SUMMARY BISPAC's Routing System was developed to give both public and private transportation operations the tools to better develop and implement routing schedules, and to allow more efficient handling of changes and modifications to existing routes.

The system allows for student database information recall and main road/service area recall and inquiry. Each route with directions and pertinent data will print for all drivers and for office use.

Multiple districts and schools within districts are allowed as well as Bar Chart efficiency analysis of route, vehicle usage, and driver usage.

The BISPAC Routing System also includes a full dispatching module that allows tracking of driver log in and out times and prioritizing of drivers for added trips.

Optional integration available with BISPAC's "TIMS" Vehicle Maintenance and Special Trip/Reservation Systems.

ENVIRONMENT Program is written in BASIC for IBM Business Computers: PC/XT, AT, System/23, and IBM System/36.

STATUS In use at Lodi Unified Schools, Stockton Unified, Antioch School District, and other districts.

AVAILABLE Available as a proprietary system from the contact below. Six-month guarantee, on-site user training, and telephone support available.

CONTACT Gary Coverdale
BISPAC Systems
4095 Bridge Street, Suite A
Fair Oaks, CA 95628
(916) 967-5555

microcomputers in transportation

Transit Operations Software

Maintenance

APPLICATION Vehicle Management System (VMS) and School Bus Management System (SBMS)

DEVELOPERS Roger Creighton Associates, Inc. (RCAI)

SUMMARY Vehicle Management System (VMS): VMS is an integrated system consisting of (a) a microcomputer program, (b) work-flow procedures, and (c) forms for recording data, designed to improve maintenance management and provide accurate cost accounting. VMS is intended for use by public works departments and transit operators where engine-hour data as well as mileage data are used to control maintenance schedules.

School Bus Management System (SBMS): SBMS is intended for school bus, small transit systems, social service agencies, and private bus contractors that maintain their own vehicles. SBMS differs from VMS only in not having an engine-hour recording system.

Both VMS and SBMS provide: (1) vehicle data, including historical usage and fuel consumption, year-to-date maintenance costs by vehicle component, tire mileage, key performance indicators, and warnings on due dates for inspection and preventive maintenance; (2) fleet analysis on usage, fuel, and maintenance costs, and warnings with performance indicators and inspection/PM due dates; and (3) tire inventory report (in stock, on vehicles, and junked) sorted in decreasing order of miles accumulated.

ENVIRONMENT VMS and SBMS are available for the IBM PC and PC/XT; IBM-compatibles; and TRS 80 Models 12 and 16. In all cases 128K RAM is required, plus a 132-column, "parallel," matrix printer. No external operating system is required.

STATUS Fully operational at Ravenna Cleymans Central School District, Ravenna, NY.

AVAILABILITY For sale at $950; Extended Warranty Contract ($150) provides enhancements for one year.

CONTACT

Douglas M. Hamlin
Roger Creighton Associates, Inc.
274 Delaware Avenue
Delmar, NY 12054
(518) 439-4991

microcomputers in transportation

Transit Operations Software

Maintenance

APPLICATION FLEET*MATE: Vehicle Maintenance and Parts Inventory Control

DEVELOPER Multisystems, Inc.

SUMMARY FLEET*MATE is a vehicle maintenance management and parts inventory control package for use by transit systems operating from four to more than 100 buses. FLEET*MATE was designed for use on a transit property with no data processing staff.

Vehicle maintenance management functions include user-specified coding level of detail and codes for work order processing; tracking of daily mileages, fueling, inspections, repairs, and road calls for vehicle histories; tracking of mechanic performance; user-specified maintenance intervals for inspections for each fleet; and component tracking. Parts inventory control functions include reorder prompting, inclusion of part issues in vehicle histories, FIFO or average costing, usage analysis of parts, physical inventory support, processing of purchase orders, and posting of cost and quantity adjustments.

Sample maintenance reports include a summary vehicle and fleet performance report, vehicle cost analysis, PM scheduling report, parts usage reports by vehicle and part, vehicle history reports for user-specified periods and activities, a maintenance labor performance report, and a fuel report. Users can also develop their own on-line queries and ad hoc maintenance reports by using the INFORMIX™ DBMS that is included with the FLEET*MATE package. Sample inventory reports include a stock status report, a reorder prompting report, an inventory valuation report, inventory usage analysis report, and a physical inventory form.

ENVIRONMENT Single user version runs under PC-DOS (e.g., IBM PC or compatible; hard disk required). The multi-user, single-facility version runs under XENIX 3.0 (e.g., Altos 586). The multi-user, multiple-facility version runs under UNIX SYS 3 (e.g., Plexus P-35).

STATUS Twenty properties currently use FLEET*MATE. There are installations of all three versions in WI, PA, IL, KS, and CA.

CONTACT

J. William Rodman
Multisystems, Inc.
1050 Massachusetts Avenue
Cambridge, MA 02138
(617) 864-5810

microcomputers in transportation

Transit Operations Software

Maintenance

APPLICATION TIMS: Transportation Information Management System

DEVELOPER Bispac Systems, Fair Oaks, CA

SUMMARY This package provides a vehicle maintenance reporting system which is work order driven. The system maintains inventory levels and costs, and computes costs per operating mile for each vehicle, broken down by parts, labor, and fuel loads. Preventative maintenance alerts can be established using calendar or miles parameters. The system also allows you to bill outside agencies at any percent mark-up over actual work order cost, and provides inter-department budget costing.

The work order and fuel loads histories provide maintenance managers with a variety of operational reports. These include: work order history, vehicle history with CPM analysis, fuel loads analysis, stock status by suppliers or group code, items used between dates, and a mechanic's hours analysis. The system has complete audit trails and built-in automatic backup processes.

Work order history can be purged between selected dates so more than one year can be retained, depending on the size of an operation.

ENVIRONMENT The program is written in BASIC for the IBM Business Computers; PC/AT, XT, System 23, and the System 36.

STATUS In use at El Dorado, Antioch Unified, Lodi Unified, Stockton Unified, and Oxnard School Districts in California.

AVAILABILITY Available as a proprietary system from the contact below. Six-month guarantee, user training, and telephone support available.

CONTACT Gary Coverdale
Bispac Systems
4095 Bridge Street, Suite A
Fair Oaks, CA 95628
(916) 967-5555

microcomputers in transportation

Transit Operations Software

Maintenance

APPLICATION — LANTA Parts Inventory Package

DEVELOPER — Chase Rosen & Wallace under UMTA sponsorship for LANTA, Allentown, PA

SUMMARY — Implemented in dBASE II™ for the IBM PC and compatibles, this application is strictly for parts inventory and analysis. LANTA Parts Inventory allows a maintenance manager to track parts quantities and locations. (Note: dBASE II™ is not distributed by TIME, and must be obtained separately.) This software supports one user at a time, and it is most appropriate for small and medium sized transit agencies. Although a hard disk is highly preferred, the system can be implemented on a floppy disk system. In that the source code and file definitions are provided, the package could be economically adapted to other agencies' requirements. Ad hoc queries are possible through the dBASE II™ package itself.

ENVIRONMENT — IBM PC or compatible, dBASE II™ version 2.4, MS-DOS, 2 disk drives or one hard disk and one floppy disk, 256K RAM.

STATUS — Operational at LANTA, Allentown, PA.

CONTACT — TIME Support Center
Department of Civil Engineering
Rensselaer Polytechnic Institute
Troy, NY 12180-3590
(518) 266-6227 between 9:00 AM and 4:00 PM (EST)

microcomputers in transportation

Transit Operations Software

Maintenance

APPLICATION Vehicle Cost Analyzer

DEVELOPER Ernst & Whinney

SUMMARY The Vehicle Cost Analyzer is a life cycle costing-based management tool designed to assist fleet managers in purchasing, maintaining, and replacing vehicles in the most economical manner possible. Decisions regarding what type of vehicle to purchase, how to maintain it, and when to replace it all affect the cost of owning a vehicle over its lifetime. The Cost Analyzer automates the process of computing the annualized equivalent of this cost, thereby facilitating comparisons of vehicle cost under alternative purchase decisions (e.g., Is vehicle life cycle cost lower if I lease or buy?); maintenance policies (e.g., How much preventive maintenance is cost effective?); and replacement decisions (e.g., When does it become cheaper to replace this vehicle than to continue repairing it?)

The Cost Analyzer can be used by someone with no previous experience in financial analysis or computers. Clerical personnel can input data and generate reports. The Cost Analyzer allows evaluation of many more purchase, maintenance, and replacement options than could be performed manually. The program facilitates sensitivity analysis of critical assumptions regarding inflation, the cost of capital, and so forth. Most important, the Cost Analyzer provides a rational economic, systematic, and consistent process for making decisions regarding purchase, maintenance, and replacement that will minimize vehicle cost.

ENVIRONMENT IBM PC or PC-compatible with 128K RAM and one disk drive and PC-DOS or MS-DOS 2.0 or higher. Mainframe installation is also available.

STATUS Currently installed in several major utility fleets ranging in size from 200 to 6000 vehicles.

AVAILABILITY The Vehicle Cost Analyzer requires on-site installation and user training. It is not an off-the-shelf program.

CONTACT Mr. Paul T. Lauria
Ernst & Whinney
1225 Connecticut Avenue, N.W.
Washington, DC 20036
(202) 862-6013

microcomputers in transportation

Transit Operations Software

Maintenance

APPLICATION Fleet/Equipment Management

DEVELOPER The Byrd, Tallamy, MacDonald and Lewis Division of Wilbur Smith and Associates

SUMMARY The BTML/EMS is an equipment management tool that provides the manager with information needed to improve productivity and reduce the cost of owning, operating, and maintaining an equipment fleet. The system was developed by engineers with experience in design and implementation of management systems and many years of practical experience in managing maintenance activities of local and State governments.

The system establishes a complete inventory of the fleet and tracks true costs of owning and operating both individual units and the fleet as a whole. Usage costs (or rental rates) are compiled for ownership costs in a rate per month and for operating and maintenance cost in a rate per mile or hour.

The system determines when the cost to maintain individual units exceeds the cost to replace them. Use, condition, age, and cost are considered when comparing a unit with other units in the class. Disposal thresholds are established by the manager and can be changed easily.

Maintenance and repair activities are tracked and a complete history is built for each unit. The system tracks and schedules preventive maintenance. Shop labor productivity is also analyzed.

The system makes extensive use of exception reports based on criteria established by the manager. The system operates on simple, commonly collected input data.

ENVIRONMENT Operates on IBM PC and compatible computers and on the TIPC and other machines. Requires 10MB hard disk.

STATUS Operational at the City of Maryville, Tennessee.

AVAILABILITY Price of $4,950 includes training and support.

CONTACT
Byrd, Tallamy, MacDonald and Lewis
Consulting Engineers
2921 Telestar Court
Falls Church, VA 22042
(703) 698-9780

microcomputers in transportation

Transit Operations Software

Maintenance

APPLICATION FLEET-TRAK

DEVELOPER Institute of Police Technology and Management, University of North Florida

SUMMARY FLEET-TRAK is a microcomputer-based fleet management system designed for police and other government agencies. The program is entirely menu-driven and was designed to be extremely "user friendly." The operator simply indicates his choice from the menu and FLEET-TRAK does the rest.

This software program offers extensive reporting capabilities for each vehicle as well as the entire fleet. Computed items include total gas consumption, gas cost, oil consumption, repair cost, miles per gallon, cost per mile, and total down days.

In addition, FLEET-TRAK comes with a Preventive Maintenance module that will print out a preventive maintenance checklist when a vehicle is due for service. The maintenance schedules are programmed in accordance with IACP recommendations, but IPTM will be happy to change the intervals to your specifications at a nominal charge.

ENVIRONMENT MS-DOS or CP/M-86-based microcomputer as well as the Condor 3™ Database Management System

STATUS Operational at the Fernandina Beach Police Department, Fernandina Beach, Florida.

CONTACT
Raymond Nash
Institute of Police Technology and Management
Microcomputer Specialist
University of North Florida
4567 St. Johns Bluff Road, South
Jacksonville, FL 32216
(904) 646-2722

microcomputers in transportation

Transit Operations Software Maintenance

APPLICATION DB Master™ Parts Inventory

DEVELOPER Transportation Systems Center, U.S. Department of Transportation, Cambridge, MA

SPONSOR UMTA, Office of Methods and Support

SUMMARY In order to demonstrate a typical use of a representative database file manager for a microcomputer, TSC used DB Master™ to create a very simple parts inventory system. Although it was not directly intended for inventory application, this system can be used to manage a small parts inventory or to become familiar with some features of parts inventory systems, with database file managers, or with DB Master™ itself. The system does not have sophisticated features such as the ability to track part usage over time or maintain vendor information, but it can be used to track stock quantities and store parts order information.

ENVIRONMENT Apple II or Apple III computer (DOS 3.3 operating system), two disk drives, printer, DB Master™ software required.

STATUS Operational at Municipality of Anchorage, AK.

AVAILABILITY Available from contact below.

CONTACTS TIME Support Center
Rensselaer Polytechnic Institute
Department of Civil Engineering
Troy, NY 12180-3590
(518) 266-6227, between 9:00 AM and 4:00 PM (EST)

Transit Operations Software Maintenance

APPLICATION The Fleet Controller™

DEVELOPER Paul Setne

SUMMARY An existing database management package (MDBS III™) provides the basis for an interactive system to record and accumulate vehicle-specific histories, work assignments, and reports. The repair history procedure is geared to the American Trucking Association's coding system for vehicle repairs. The package tracks detailed history by systems, schedules preventive maintenance, tracks fluid usage (diesel fuel, engine oil, automatic transmission fluid), provides vehicle inventories, provides mechanic seniority lists, etc. Interfaces with popular spreadsheets. The exceptional versatility of this package is limited only by the creativity of the operator. A parts room inventory and an interface with selected automated fluid dispensing systems are now offered.

ENVIRONMENT IBM PC (XT and AT). A hard disk is required.

STATUS Mendocino Transit Authority, Utah Transit Authority, Sonoma County Transit, Cambria County Transit, Kitsap Transit, and others are currently using the system.

AVAILABILITY The software is distributed as a proprietary package by the firm listed below. Available for immediate installation, and includes high-quality documentation.

CONTACT
Paul M. Setne
Fleet Computing International, Inc.
P.O. Box 1070
Minnetonka, MN 55345
(612) 938-8861

microcomputers in transportation

Transit Operations Software

Maintenance

APPLICATION Fleet Management/Equipment Management

DEVELOPER The MCS Group, Inc.

SUMMARY The Fleet Management/Equipment Inventory Package is a series of comprehensive software modules designed for equipment managers. It operates as a stand-alone system or integrates into a larger system developed for county highway administrators (see description for C.H.R.I.S elsewhere in this document).

The primary function of the software is to track equipment usage and costs. For each item of equipment, the system maintains records which contain information (i.e., make, model, serial number, etc.), as well as specific information on maintenance scheduling, depreciation, MTD, YTD and accumulated direct cost breakdowns, and repair and fuel costs per mile/hour. Equipment is tracked by categories with budgeted expenses, income, and mileage/hours compared with actual rates by hour, month, or year.

The program automatically calculates depreciation and distributes overhead costs to each piece of equipment, based on percentage of total expenses.

Transaction logs are printed to provide audit trails, and concise management reports are produced that reveal which items are cost-effective. Reports include:

* Category Listings
* Master Listings
* Cost Analysis
* Cost Distribution
* Rental Variance
* Expense Variance
* Rental/Expense Variance
* Maintenance Alert

ENVIRONMENT Operates on IBM PC and compatible computers that use the MS-DOS operating system. Requires at least 256K RAM and a dual-diskette system.

STATUS Operational at the Pennington County Highway Department, Rapid City, South Dakota.

AVAILABILITY Available from contact for $6,000.

CONTACT The MCS Group, Inc.
2465 West Chicago
Rapid City, SD 57702
(605) 341-6755

microcomputers in transportation

Transit Operations Software

Maintenance

APPLICATION VehicleCTRL: Vehicle Maintenance Reporting System

DEVELOPER Display Data Corp.

SUMMARY VehicleCTRL allows the fleet manager to control expenses by tracking fleet operation and maintenance costs. VehicleCTRL can schedule vehicles for maintenance up to a year in advance, and produce a report which lists not only the units due for PM, but also the exact operations which need to be done. VehicleCTRL will also track individual fuel and oil ticket purchases, as well as all repair orders. This menu-driven system includes 42 different analysis reports, divided among four categories: Repair Order Analysis, Component Repair Cost Analysis, Fuel/Oil Analysis, and a Total Cost Analysis. These reports allow the manager to detect troublesome vehicles and take the proper corrective action.

VehicleCTRL will benefit the fleet manager by increasing the lifespan of equipment while reducing unexpected downtime through effective maintenance. The system will also keep more accurate maintenance histories on vehicles, thereby increasing the value of the vehicle at resale time.

The computer capacity is 600 vehicles for the IBM PC, and up to 3500 vehicles for the IBM PC/XT.

ENVIRONMENT IBM PC, 128K, 2 disk drives
IBM PC/XT, 128K, 10MB hard disk

STATUS Operational in a variety of agencies.

AVAILABILITY Available for purchase: $599 for software for the IBM PC; $799 for software for the IBM PC/XT.

CONTACT Susan Bates
Display Data Corp.
Executive Plaza IV
Hunt Valley, MD 21031
(301) 667-9211

microcomputers in transportation

Transit Operations Software

Maintenance

APPLICATION EZFLEET1: Fleet Maintenance Information System

DEVELOPER ATE Data, Inc.

SUMMARY EZFLEET1 is designed to supply daily information on vehicle performance statistics, servicing information, preventive maintenance schedules, early detection of major problems, defects reporting, a vehicle history file, and more. EZFLEET1 focuses on the key issues of cost reduction, service dependability, and productivity improvement.

The basis of EZFLEET1 is the mating of hand-held, portable data collectors with a microcomputer and a specially developed software package. Each collector can record information on vehicle number, mileage, and fluid consumption (fuel, oil, coolant, transmission fluid, and other data) for up to 350 vehicles per shift per unit. The data is then relayed into a computer. Daily reports are produced in just minutes, for use by management in finding and avoiding problems.

ENVIRONMENT IBM PC or XT, 80-column printer.

STATUS Operational at WMATA, Washington, DC; and New Jersey Transit in several cities in New Jersey.

CONTACT
Erwin J. Hein
ATE Management & Service Co., Inc.
617 Vine Street, Suite 800
Cincinnati, OH 45202
(800) 543-1944
(513) 381-7424

microcomputers in transportation

Transit Operations Software

Maintenance

APPLICATION — EZFLEET2: Maintenance Shop Productivity, Tracking and Reporting System

DEVELOPER — Ron Turley and Associates

SUMMARY — Repair shop software system with a parts inventory management system module and parts failure module. Tracks repair histories and costs by division, vehicle type, or all vehicles. Analyzes mechanic productivity. Includes preventive maintenance (PM) scheduling. Identifies fuel exceptions. Provides a multi-state fuel tax monitoring and a tires management module. Inventory control includes the ability to set maximum levels for parts needs based on historical usage and to reorder parts automatically based on user-established criteria. Automatically updates and recalculates the average price when new stock is received. Produces purchase orders for requisitions and provides information on primary and "will fit" (alternative) parts. Produces bin labels and parts tags and provides a comprehensive parts listing. Generates a parts vs. vehicle cross-reference listing for parts needs identification and parts obsolescence control. Can be integrated with EZFLEET1.

ENVIRONMENT — IBM PC or compatibles under MS-DOS; CP/M or MP/M-based systems available at additional cost.

STATUS — Operational at Monroe Transit System in Monroe, Louisiana; and Rock Island Mass Transit in Rock Island, Illinois.

CONTACT — Erwin J. Hein
ATE Management & Service Co., Inc.
617 Vine Street, Suite 800
Cincinnati, OH 45202
(800) 543-1944
(513) 381-7424

microcomputers in transportation

Transit Operations Software

Maintenance

APPLICATION Vehicle Maintenance Information System

SUMMARY The Vehicle Maintenance Information System is one of three modules of a turnkey package which includes hardware, software, user training, documentation, supplies, customization, and maintenance. The other system modules (parts inventory, driver records) are described elsewhere in this document. The Vehicle Maintenance Information System enables a fleet operator to track the maintenance of each vehicle in its fleet. Maintenance costs can be aggregated by vehicle, vehicle subsystem, vehicle type, or fleet. Preventive maintenance, scheduled inspections, and fuel and oil consumption are also recorded by the system. Vehicle histories are maintained for on-line reporting or for printed batch reports.

The system offers fleet operators comprehensive records of the characteristics of each vehicle in a fleet, and provides the flexibility to answer questions such as:

1) How does 8-cylinder engine reliability and fuel consumption compare with 6-cylinder vehicles?
2) How do 1983 vehicles compare with 1980 vehicles from a maintenance cost standpoint?
3) Which vehicles are costing the most to maintain and operate?

Among the types of reports provided by the system are: Individual Bus History, Vehicle Component History, Fuel and Oil Consumption, Inspection Schedule, Component Maintenance Summary, Employee Performance, Vehicle Cost Summary, and Daily Shop Log.

ENVIRONMENT Burroughs B-25 and XE520 series business microcomputer systems, 512K RAM, 10MB Winchester disk, COBOL. IBM PC version in dBASE II™ also available.

STATUS Operational at several bus fleet operators, including Richmond (VA) Public Schools and Detroit Public Schools.

CONTACT

George N. Dorshimer, P.E.
LTK Management Services, Inc.
Pennsylvania Building, Suite 1500
1500 Chestnut Street
Philadelphia, PA 19102
(215) 563-2579

Transit Operations Software

Maintenance

APPLICATION Parts Inventory Control

SUMMARY The Parts Inventory System is one of three modules of an integrated fleet management system. The other two modules (vehicle maintenance, driver records) are described elsewhere in this publication.

The Parts Inventory System is available for single or multiple parts distribution locations within a single company. Reorder levels are user-definable, and are used to trigger reorder notices during system operation. The system can accommodate up to 10,000 vendors and 100,000 part numbers, each with a 25 character text description. Parts costs are interfaced with the vehicle maintenance system using the average cost method of pricing. Users requiring use of FIFO and LIFO inventory costing systems can also be accommodated.

The system records all parts issue transactions, including the vehicle and mechanic to which the part was issued. Parts receipts are recorded, and include the cost and the vendor from which the part was purchased.

Reports provided by the inventory system include:

- Inventory Status of a Selected Part
- Parts Usage by Vehicle
- Vehicle Maintenance Costs
- Vendor Analysis
- Inventory Valuation
- Reorder

ENVIRONMENT Burroughs B-25 and XE520 series business microcomputer systems, 512K RAM, 10MB Winchester disk, COBOL. IBM PC version in dBASE II™ also available.

STATUS Operational at several bus fleet operators, including Richmond (VA) Public Schools and Detroit Public Schools.

CONTACT

George N. Dorshimer, P.E.
LTK Management Services, Inc.
Pennsylvania Building, Suite 1300
1500 Chestnut Street
Philadelphia, PA 19102
(215) 563-2579

microcomputers in transportation

Transit Operations Software

Maintenance

APPLICATION — Track Rehabilitation and Maintenance Management Information Systems (TRAMMIS)

DEVELOPER — Bechtel Civil & Minerals, Inc./R.L. Banks & Associates, Inc. under contract to Michigan Department of Transportation

SUMMARY — TRAMMIS is a system designed to aid operators in the identification and evaluation of track rehabilitation and maintenance requirements. The heart of the system is a database of track conditions containing over 100 measurements taken at specific sampled mileposts over an entire railroad.

TRAMMIS identifies rehabilitation requirements by comparing these measurements against any of several sets of design standards engineered to achieve a certain level of track modulus. Yearly maintenance requirements are estimated on the basis of traffic density and line speed. TRAMMIS also has a facility which aids management in the selection of rehabilitation projects and allows the user to monitor ongoing rehabilitation projects.

ENVIRONMENT — IBM compatible microcomputer, 256K RAM, hard disk drive, dBASE III™.

STATUS — System installed and operating with the Michigan Department of Transportation.

CONTACTS

Steven Grandits
R.L. Banks & Associates, Inc.
Suite 724
900 17th Street, N.W.
Washington, DC 20006

Chris Ronald
Bechtel Civil & Minerals, Inc.
777 East Eisenhower Pkwy.
Ann Arbor, MI 48106

microcomputers in transportation

Transit Operations Software

Maintenance

APPLICATION Space Requirements for a Bus Garage (BBARN - Version 4)

DEVELOPER Rick Kuner, New Alternatives Software, a Division of New Alternatives, Inc., Chicago, IL

SUMMARY The BBARN program generates a detailed architectural space program for any bus fleet from 5 to 350 buses. The space program includes an itemized breakdown for more than 60 elements in the General Offices, Operations, Repair, Vehicle Storage (indoors or outdoors), and Outside Areas. It can handle any mix of standard 30-, 35-, and 40-foot buses as well as articulated buses and paratransit vans. BBARN is useful for:

1) Analyzing the surplus (or deficiency) of space in an existing bus garage;

2) Determining the site size required for a new garage;

3) Estimating the staging required to meet future needs;

4) Preparing a space program.

ENVIRONMENT Tested on the IBM PC, XT, AT, and Portable, Apple IIe, Compaq, AT&T 6300, Zenith, Corona, ITT Xtra, and Commodore 64. The program is written in BASIC (either BASICA or GW BASIC) and requires PC-DOS or MS-DOS and one disk drive.

STATUS The program is fully operational and has been used by New Jersey Transit and by New Alternatives, Inc. for the Rockford (Illinois) Mass Transit District, Loves Park (Illinois) Transit System, and nine other transit garages.

AVAILABILITY The software on a 5-1/4-inch floppy disk and User's Manual is distributed as a proprietary package for $295. Add $10 for orders from outside the U.S.

CONTACT

Rick Kuner
President
New Alternatives, Inc.
8 South Michigan Avenue, Suite 610
Chicago, IL 60603
(312) 263-2808

microcomputers in transportation

Transit Operations Software

Financial Management

APPLICATION — BUDGET, LABOR ANALYSIS, and MULTI-BUDGET analysis templates, using Lotus 1-2-3™.

DEVELOPER — ATE Management & Service Company, Inc.

SUMMARY — All three are pre-formatted templates designed to be used in conjunction with the spreadsheet program Lotus 1-2-3™. Each template is designed to be operated as is, or can be customized to the user's specific needs if they are familiar with Lotus 1-2-3™.

BUDGET produces a detailed, month-to-month operating budget for a transit system. The user is prompted to insert the operating calendar, key services variables, workforce description, etc., and the program calculates the budget for each of the twelve months in UMTA Section 15 format.

LABOR ANALYSIS aids in development of labor agreement costs during the labor negotiation process. The template accepts the many variable inputs of a labor agreement: wage rates, fringe benefit costs, vacations, holidays, etc., and produces an immediate estimate of the cost of the proposed contract. The program facilitates the rapid testing of the costs of a wide variety of proposed settlements, offers, and counter-offers.

MULTI-BUDGETS facilitates the construction of a multivariable model to estimate the cost of varying levels of transit operations over a five-year period. The full effect of both fare and service elasticity are considered when estimating the costs and revenues of varying service and fare levels. The program allows the user to test a wide variety of options, to do "what if" simulations, and can be used to estimate the amount of service that can be operated with a known amount of fares and subsidy support.

ENVIRONMENT — IBM PC or compatible equipment with Lotus 1-2-3™.

STATUS — Operational and used by ATE finance consultants, on behalf of many transit systems, including those in these cities: Birmingham, Alabama; Lansing, Michigan; Lexington, Kentucky; Minneapolis, Minnesota; Nashville, Tennessee.

CONTACT — Arthur W. Mergner, Jr.
ATE Management & Service Co., Inc.
617 Vine Street, Suite 800
Cincinnati, OH 45202
(800) 543-1944 or (513) 381-7424

Transit Operations Software

Financial Management

APPLICATION Operating Budget Preparation System

DEVELOPER Southeastern Pennsylvania Transportation Authority

SUMMARY The operating budget preparation system consists of a group of programs designed to prepare a detailed budget for individual management centers as well as summaries by groups of management centers. The system, which has been in use for five years, was used to prepare over $200 million of SEPTA's $492 million Fiscal 1986 budget. It is used by field personnel who do not normally use microcomputers.

The budget includes two primary areas: headcounts with associated labor costs, and material (non-labor) costs. Material costs are entered by expense category. The programs automatically spread the annual cost over the budget months based on the length (in days) of each month. The material costs may be weighted (at the user's option) by high/low percentages for each month (which are normalized by the programs) or by entering the actual dollars for each month. Labor costs (which include detailed fringe benefit costs and charges to special projects) are calculated automatically from the job, vacation, and overtime information which are entered. Headcount reports include such details as the number of heads by position by month, effective heads charged to special projects by month, and yearly weighted averages of heads by position and project and payroll type.

Developed by the Rail Equipment Maintenance Department, the system has been successfully used by other departments also, and can be used for different budget years.

ENVIRONMENT The system currently runs on the TRS80 model III/IV computers with a minimum of two disk drives. It is expected that the programs will be converted for use with IBM PC's late in calendar year 1986.

STATUS Operational at several SEPTA departments.

AVAILABILITY Because this system has been customized specifically for SEPTA, it is not transferable to other systems.

CONTACT Bob Sellman
SEPTA
200 W. Wyoming Ave.
Philadelphia, PA 19140
(215) 456-4513

microcomputers in transportation

Transit Operations Software

Financial Management

APPLICATIONS DEB: Driver Extraboard Cost Model

DEVELOPER Tri-Met (Portland, OR), Booz-Allen and Wilson Hill Associates.

SPONSOR UMTA, Office of Methods and Support

SUMMARY UBUCKS/DEB estimates monthly driver wage and benefits expense over a five-year time horizon. Expenses are determined by comparing driver requirements to driver availability. The model has four distinguishing features:

- o Derives driver requirements from a daily profile of service hours supplied by the user; up to 30 service changes can be identified by date;
- o Adjusts manpower levels, through hiring and layoffs, relative to service levels, attrition, and absenteeism;
- o Estimates unscheduled pay hours from a simulation of extraboard activity;
- o Derives monthly top wage rates from user-supplied inflation rates and COLA clause parameters.

ENVIRONMENT Software is operational on an IBM PC, with two disk drives and at least 128K memory, running under the NCI p-System.

STATUS Has been used at Tri-Met.

AVAILABILITY Public domain. Available from the TIME Support Center.

CONTACTS

TIME Support Center
Dept. of Civil Engineering
Rensselaer Polytechnic Inst.
Troy, NY 12180-3590
(518) 266-6227

Mr. Ron Hirschhorn
Wilson Hill Associates
1220 L St. N.W.
Washington, DC 20005
(202) 842-7799

Mr. Ron Jensen-Fisher (UMTA Contact)
UMTA/URT-41
400 7th Street, S.W.
Washington, DC 20590
(202) 426-9271

microcomputers in transportation

Transit Operations Software

Financial Management

APPLICATION Rail Transit Capital Cash Flow Analysis

DEVELOPER Peat, Marwick, Mitchell & Co.

SUMMARY This Peat Marwick Rail Transit Capital Cash Flow Analysis program is used to evaluate alternative construction schedules and financing strategies in performing financing feasibility studies for major transit investments. The inputs to the model include:

- o Capital Cost Projections: annual costs for each segment, corridor, or other component of the transit system.
- o Revenue Projections: annual revenue for sales tax; passenger fares; and local, State, and Federal grants. The model can generate projections of sales tax revenue, using as a basis parameters defining population and employment growth and current tax yields.

The user has the ability to select a range of short- and long-term capital investment instruments to finance the difference between revenues and costs. Using measures of coverage (i.e., the ratio of tax revenue to debt service), alternative financing strategies can be quickly investigated.

ENVIRONMENT IBM PC, XT, AT or compatible and Lotus 1-2-3 Version 1A™. At least 512K and two DSDD disk drives are required for program execution.

STATUS Operational at Los Angeles County Transportation Commission.

AVAILABILITY Available from contact.

CONTACT
Dr. Robert L. Peskin
Peat, Marwick, Mitchell & Co.
1990 K Street, N.W.
Washington, DC 20006
(202) 223-9525

microcomputers in transportation

Transit Operations Software

Financial Management

APPLICATION Budget Calculator

DEVELOPER Transportation Systems Center, Cambridge, MA

SUMMARY The BUDGET CALCULATOR is a tool to estimate future revenues and expenses. Its first function helps the user allocate current expenses, as reported on the Section 15 form 301, for each of four functional categories to three level of service variables: weekday vehicles, revenue vehicle miles, and revenue vehicle hours. After calculating system level unit costs for the current year (using service supplied data from form 406), the program estimates future year unit and total costs based on the user's estimate of price changes for labor, services, and materials and the expected level of service parameters. The second function is used to estimate future revenues and bring expenses and revenues into balance. The user enters current revenue data from Section 15 forms 201 and 203 and an estimate of future year changes. Changes in service levels and average fares are used together with system-wide service and fare elasticities to estimate future year passenger fare revenue.

ENVIRONMENT Apple II, II+ and III with 64K RAM and one disk drive; program uses VisiCalc™.

STATUS Operational at Fort Wayne PTC, Ft. Wayne, IN.

AVAILABILITY Available from contact below.

CONTACT TIME Support Center
Rensselaer Polytechnic Institute
Department of Civil Engineering
Troy, NY 12180-3590
(518) 266-6227, between 9:00 AM and 4:00 PM (EST)

microcomputers in transportation

Transit Operations Software
Ridership Reporting

PROJECT CHECK*MATE and TIM (Transit Information Manager)

DEVELOPER Multisystems, Inc.

SUMMARY CHECK*MATE is used on a hand-held computer to collect passenger boarding and alighting data by stop (ride checks), as well as load and time data at selected stops (load or point checks). The program is menu-driven with prompts for all inputs; all time measurements are done automatically.

TIM uses load check, ride check, and driver count data to produce service reports at a variety of levels of detail, e.g., by route, date, time of day, or day of week. Flexibility of reporting is enhanced by the use of MDBS™, a commercial database manager.

ENVIRONMENT CHECK*MATE runs on an Epson HX-20 (with integral micro-cassette drive) or an HX 40 (with microcassette drive or RAM cartridges). Data entered into CHECK*MATE can easily be uploaded for analysis through the RS-232C port into TIM to produce reports without any coding or keypunching.

The single-user version of TIM runs under PC-DOS (5MB hard disk storage). The multi-user version runs on a DEC Micro-VAX II.

STATUS CHECK*MATE is in use in Baltimore and Boston. The single-user version of TIM is in use in Baltimore, Boston, and Phoenix. The multi-user version of TIM is in use in San Antonio and is soon to be implemented in Boston and Dallas.

AVAILABILITY CHECK*MATE is proprietary software available from Multisystems. The single-user (PC DOS) version of TIM is public domain software developed by Multisystems under the sponsorship of UMTA's Office of Methods and Support. The multi-user (VAX) version of TIM is proprietary software available from Multisystems.

CONTACT
Mr. Gary Ruprecht
Multisystems, Inc.
1050 Massachusetts Avenue
Cambridge, MA 02138
(617) 864-5810

microcomputers in transportation

Transit Operations Software

Ridership Reporting

APPLICATION EZDATAmicro: Ridership Data Analysis System

DEVELOPER ATE Management & Service Company, Inc.

SUMMARY EZDATAmicro collects, compiles, and summarizes raw ridership and operating data into usable, understandable report formats. It streamlines your current ridership data collection efforts--for Section 15 reports, service analysis, ridership surveys, and onboard reports. EZDATAmicro frees up more time for your staff to use your ridership data for service alteration, market segmentation, resource allocation, and pricing strategy decisions.

Specifically, EZDATAmicro tells you which routes are good performers, which trips are under-utilized, where bus stops should be placed, if buses are running on schedule, and where service should be changed.

ENVIRONMENT IBM PC with hard-disk, 512K, color monitor, EPSON FX100 printer, MS-DOS version 2.1 or higher; hand-held data collectors.

STATUS Operational at transit systems in:

Charleston, West Virginia
Dayton, Ohio
Detroit, Michigan
Hampton, Virginia
Memphis, Tennessee
Monroe, Louisiana
New Haven, Connecticut

CONTACT

Andrew J. Mundew
ATE Management & Service Co., Inc.
617 Vine Street, Suite 800
Cincinnati, OH 45202
(800) 543-1944
(513) 381-7424

microcomputers in transportation

Transit Operations Software

Ridership Reporting

APPLICATION Ridership Reporting

DEVELOPER Old Colony Planning Council, Brockton, MA

SUMMARY Programs have been developed to facilitate the entry and use of driver-recorded passenger count data. Revenue and ridership are entered by date, run start time, and route. Outputs are available in the form of ridership summaries by day and operating division, by route, and by time of day, in the form of total riders, passengers per bus-mile, and passengers per bus-round trip. Total revenues and ridership by operating division are also provided by day, by month, and as a monthly average in monthly summaries.

ENVIRONMENT The programs are implemented in BASIC enhanced by the Command-O software package under the 3.0 DOS operating system on a Commodore 8032 microcomputer with 32K of memory and two disk drives.

STATUS The programs have been used to study service and fare changes for the Brockton Area Transit System, and have been fully documented.

AVAILABILITY Available for $25 to compensate costs for diskettes, reproduction, shipping, and handling.

The procedures are available in source listing form or on a Commodore 8050 diskette. They would require modifications to incorporate another operator's relevant operating divisions and routes, as well as changes to accommodate any differences in forms used by drivers to report passenger and revenue counts.

CONTACT Pasquale Ciaramella
Old Colony Planning Council
47 West Elm Street
Brockton, MA 02401
(617) 583-1833

microcomputers in transportation

Transit Operations Software

Ridership Reporting

APPLICATION Section 15 Ridership Survey Processing

DEVELOPER Old Colony Planning Council, Brockton, MA

SUMMARY Programs have been developed to facilitate the entry and processing of ridership data required for transmittal to UMTA on Form F2710.69 (7-78) as part of the Section 15 annual submittal. The first program in the series provides a user-friendly environment for the entry of data recorded on the Survey Trip Sheet (UMTA Form F2710.4 (12-77)--day, date, time, route number, bus number, direction, and the following information for each stop: arrival time, odometer reading, boarding passengers, and deboarding passengers.

The second program uses the data for all bus lines surveyed to date in a given year to provide Items 20-27 and 29 required on UMTA Form F2710-69 (7-78), for the weekdays, Saturdays and Sundays surveyed, and also for all surveys. These items include passengers boarded and on-board, bus trip distance and time, passenger-miles and minutes, capacity-miles and seat miles, and the total number of bus trips in the sample. Also provided are the following sample averages: passengers per trip, passenger-miles per trip, and passenger trip time per trip.

The third program uses the survey data file to provide printer plots of the load profiles (passengers on board versus route distance) for selected bus routes, directions, dates, days, and times of the day.

ENVIRONMENT Commodore 8032, 32K (RAM), and two disk drives.

STATUS The programs have been used to study service and fare changes for the Brockton Area Transit System, and have been fully documented.

AVAILABILITY Available for $25 to compensate costs for diskettes, reproduction, shipping, and handling.

The programs are available in source listing form or on a Commodore 8050 diskette.

CONTACT

Pasquale Ciaramella
Old Colony Planning Council
47 West Elm Street
Brockton, MA 02401
(617) 583-1833

microcomputers in transportation

Transit Operations Software

Ridership Reporting

APPLICATION Processing of Data From Bus Passenger Surveys

DEVELOPER Golden Gate Bridge, Highway and Transportation District, Department of Planning and Policy Analysis

SUMMARY Data from an ongoing bus passenger survey are entered in VisiCalc™ files. Each file represents a bus schedule surveyed; each row within the file represents data for a single passenger. These are read into DIF (Data Interchange Format) files which can be used in both VisiCalc™ and BASIC programs. A BASIC program checks for inconsistencies or omissions of key data. When these are corrected, the DIF file is transferred to a BASIC data file. There is one data file for each route in each direction for each time of day.

Report programs provide the following:

a. Estimates with 95% confidence intervals for average passenger fare, average passenger distance traveled, and the proportion of passengers living in each county. Estimates are also made of the proportion of passengers using transfers, commute tickets, and passes.
b. Origin-destination lists.
c. Passenger and passenger trip characteristics.
d. Percentages of passengers by fare type: full cash fare or type of discount fare.
e. Information on activity at bus stops including the number of passengers boarding, alighting, and transferring, by trip purpose and distance between the stop and origin or destination.
f. Transfers to and from other transit systems.
g. Percentages of passengers who are elderly or handicapped.

ENVIRONMENT Programmed in Apple III Business Basic to operate on an Apple III with 256K memory. Requires only one disk drive, but a hard disk makes operation faster and more convenient.

CONTACT

Mr. Alan Zahradnik
Golden Gate Bridge, Highway & Transportation District
1011 Andersen Drive
San Rafael, CA 94901
(415) 457-3110, extension 411

microcomputers in transportation

Transit Operations Software

Ridership Reporting

APPLICATION — Lotus Symphony™/1-2-3 template for route evaluation

DEVELOPER — Northern Virginia Transportation Commission, Arlington, VA

SUMMARY — This spreadsheet template organizes and processes route segment ridership, mileage, and bus trip schedule information into reports by route direction, for example, "Route 2C, Eastbound."

A "Summary Report" section provides performance indicators by five daily, operating time periods and a 24-hour total, which includes: total trips, total pax, max leave load, avg-pax/trip, rev-miles/trip, rev-hours/trip, pax/rev-mile, pax/rev-hour, pax-mile/trip, pax-mile/rev-mile, and pax-mile/rev-hour. Additional performance indicators such as revenues and costs can be incorporated into the template, if so desired. Also provided is a subsection on average trip boardings, alightings, leave loads, and pax-miles by route segment for each time period.

All data, except for route segment boundaries descriptions, are entered into a separate "Data file" section which also provides such information as trip and route segment totals for boardings, alightings, and max leave loads by five operating periods and a 24-hour total.

Graph templates and "named ranges" (for extracting indicators to a spreadsheet database for multi-route analyses) as well as a macro for printing 8" by 11" paged reports are also provided.

ENVIRONMENT — IBM-compatible PC which will run either Lotus Symphony (1.0/1.1) or 1-2-3 (release 2); 640K RAM and hard disk recommended.

STATUS — Used since late 1984 to analyze performance of WMATA Metrobus routes operating in northern Virginia.

AVAILABILITY — Suggested uses - tailor to local needs or use as model in developing new template. Template file on diskette, documentation for data entry, and sample output.

CONTACT — Ben Lin
NVTC
2009 N. 14th St., Suite 300
Arlington, VA 22201
(703) 524-3322

microcomputers in transportation

Transit Operations Software

Ridership Reporting

APPLICATION Service Monitoring Package (SMP)

DEVELOPER Capital District Transportation Authority, Albany, NY

SUMMARY SMP performs two major functions: The first is a passenger count system which is used to enter counts taken by bus drivers and to provide averages for a selected time period (typically a month) by route for weekday, Saturday, and Sunday service. Passenger count data sampling is supported. These data are also posted to the database for the second section.

The second segment performs route performance analyses. Inputs include the passenger counts and a bus route database which contain information on route distance, travel times, peak vehicle requirements, and average fare. Other inputs include operating cost factors and a calendar of service provided. Based upon these, two reports are provided: a detailed report lists ridership, revenue, cost, and performance statistics for each route; a summary report generates similar data in a comparative fashion between routes.

SMP is entirely menu-driven, with extensive error checking and password security protection. All output may be directed to disk files or a printer. Disk output may be in text format or Lotus 1-2-3 import format for further analysis.

ENVIRONMENT SMP is an application of the database manager KnowledgeMan™. SMP requires KnowledgeMan™ 1.07 or later, MS-DOS 2.0 or later, and an IBM PC (or compatible) with hard disk, 1 floppy disk, printer, and 512 Kb memory.

(A limited version is available written in Pascal for the Apple II with 64 Kb memory, 2 disk drives, and printer.)

STATUS Operational at CDTA, Albany, NY

AVAILABILITY Although SMP is written to CDTA's specifications, it is easily modified using the utilities available with the Kman. All source code is provided.

CONTACT TIME Support Center
Department of Civil Engineering
Rensselaer Polytechnic Institute
Troy, NY 12180-3590
(518) 266-6227 between 9:00 AM and 4:00 PM (EST)

microcomputers in transportation

Transit Operations Software
Ridership/Revenue Estimation

APPLICATION EZFARE: Farebox Auditor and Revenue Enumerator System

DEVELOPER ATE Management & Service Company, Inc.

SUMMARY EZFARE automates the manual data collection and calculation system that reconciles farebox register readings with money room cash counts. The manual calculation and reconciliation functions require the expenditure of thousands of labor hours annually and the resulting data gathering procedure is subject to error and time delays.

Remote data collection and microcomputer technology perform the exact fare revenue data gathering and calculation functions. The system offers several significant benefits:

1) Reports will be generated on a timely basis, permitting immediate corrective action.
2) Cash handling security will be improved.
3) Accuracy will improve in the data collection and calculation processes.
4) Reports generated by the system are management tools.
5) Farebox mechanism preventive maintenance scheduling will yield fewer farebox problems and increase equipment life expectancy.

Increased cash handling security will be a direct result of using this system. Potential sources of cash handling abuse can be identified through daily use of its audit and exception reports:

Daily revenue	Vaults pulled but not counted
Vault puller activity	Over-short exceptions
Cash counter activity	Vaults counted but not pulled
Vehicles not counted	Vaults pulled that do not match last vault in
Vaults not used	Farebox mechanism PM schedule
Foreign vaults pulled	

ENVIRONMENT IBM PC with hard-disk; hand-held data collectors (optional).

STATUS Operational at NJ Transit Bus Operations

CONTACT
Erwin J. Hein
ATE Management & Service Co., Inc.
617 Vine Street, Suite 800
Cincinnati, OH 45202
(800) 543-1944
(513) 381-7424

microcomputers in transportation

Transit Operations Software

Ridership/Revenue Estimation

APPLICATION STOPS

DEVELOPER Criterion Incorporated

SUMMARY STOPS is an interactive computer graphic program designed for transit route planning and analysis. It uses computerized street network files and census data to retrieve information on the number and type of potential transit users within a specified distance of transit facilities.

STOPS has two applications for the transit planner. First, it can be used to evaluate the accessibility of transit facilities for various subgroups of the population. Second, it can be used to measure the propensity for transit usage for alternative route configurations, based on the number and type of potential transit riders with access to each route.

To use STOPS, a user first identifies transit stops and routes on a map of the street network and specifies a maximum walking distance from each stop. The STOPS program delineates all possible paths from each stop that terminate within the specified distance. The census information related to the street links along those paths is then allocated to the appropriate transit stops. Socio-economic profile reports can be produced for both individual stops and entire routes. The process can be continued iteratively to evaluate alternative route designs.

ENVIRONMENT IBM PC, XT, or AT with a hard disk drive. A minimum of 512K and a color graphics adapter are required.

STATUS STOPS is used by the City of Colorado Springs, the San Diego Association of Governments, the San Diego Transit Corporation, the San Diego Metropolitan Transit Board, and the San Diego North County Transit District.

AVAILABILITY STOPS software program $895. Data files prepared at cost based on size of study area.

CONTACT Bob S. Evatt, Jr.
Criterion Incorporated
11100 Roselle Street, Suite A
San Diego, CA 92121
(619) 455-0162

microcomputers in transportation

Transit Operations Software

Ridership/Revenue Estimation

APPLICATION FPE: Fare Policy Evaluation

DEVELOPER Technology Research and Analysis Corp. (TRAAC), Arlington, VA

SPONSOR UMTA, Office of Management, Research, and Transit Services

SUMMARY The FPE program analyzes a proposed fare policy by determining its effects on individual riders and summarizing these results by ridership categories. The user must supply group elasticities as well as ridership survey data. The program models the following fare policies: flat, pure distance-based, step distance-based, and zone-based. Different policies may be used for different ridership groups. The program is especially useful in determining the effects on various ridership groups of a major fare policy change. A typical application would be in analyzing a change from flat to distance-based fares. The original modeling approach was developed by Professors Ballou and Mohan of the State University of New York (SUNY) at Albany.

ENVIRONMENT Can be used on IBM and compatible microcomputers which have at least 128K RAM and two disk drives. Requires the NCI version of the UCSD p-System operating system.

STATUS The modeling approach used in FPE has been applied (using an earlier mainframe program developed at SUNY) to the Greater Albany, New York area.

AVAILABILITY Public domain. Available from TIME Support Center.

CONTACTS

TIME Support Center
Rensselaer Polytechnic Institute
Department of Civil Engineering
Troy, NY 12180-3590
(518) 266-6227, between 9:00 AM and 4:00 PM (EST)

Robert Johnson
TRAAC
2020 N. 14th Street
Suite 400
Arlington, VA 22201
(703) 522-2000

microcomputers in transportation

Transit Operations Software

Ridership/Revenue Estimation

APPLICATION DEL: Disaggregate ELasticity Model for Fare Revenue Forecasting

DEVELOPER Technology Research And Analysis Corp. (TRAAC), Arlington, VA

SPONSOR UMTA, Office of Management, Research, and Transit Services

SUMMARY The Disaggregate ELasticity (DEL) Model is an easy-to-use, quick-response fare revenue forecasting model. Using the notion of demand elasticities, the DEL model forecasts for each user-defined submarket the impact on ridership and revenue of an overall fare and service policy. The model incorporates the effects of demographic changes, seasonality, and inflation, as well as the implication of ridership shifts between cash fare and pass-user categories. The basic version of the DEL model forecasts monthly transit ridership and revenue for a period of one year for five service and nine fare categories; however, users can easily expand the model depending upon available microcomputer memory. Additional features of the model include provisions for phasing in the final effects of any fare and service changes, availability of 11 reference tables displaying fare and service elasticities derived from various U.S. transit properties, and ability to produce output in graphical form.

ENVIRONMENT Model is a template for the Lotus 1-2-3™ spreadsheet program, which runs on IBM and compatible computers. A one-year forecast requires 320K RAM; a two-year forecast requires 384K.

STATUS Tri-Met in Portland, Oregon is currently using the model.

AVAILABILITY Public domain. Available from TIME Support Center.

CONTACTS

TIME Support Center
Rensselaer Polytechnic Institute
Department of Civil Engineering
Troy, NY 12180-3590
(518) 266-6227, between 9:00 AM and 4:00 PM (EST)

Robert Johnson or
Jitendra Bajpai
TRAAC
2020 N. 14th Street
Suite 400
Arlington, VA 22201
(703) 522-2000

microcomputers in transportation

Transit Operations Software

Ridership/Revenue Estimation

APPLICATION TOP: Transit Operations Planning and Analysis

DEVELOPER Dr. Mark Turnquist, Cornell University

SPONSOR U.S. Department of Transportation, Office of University Research and Urban Mass Transportation Administration

SUMMARY The TOP model predicts short-range route level changes in cost and ridership as a function of service changes. The model is sensitive to changes in fare, number of stops, frequency of service, running time, timed-transfer schedules, and park-ride development. Extensive sample case studies are also available.

ENVIRONMENT Operates on:

Apple III microcomputer under the UCSD p-System. 256K, 3 floppy disk drives required.

IBM PC microcomputer under the UCSD p-System. 256K, 2 floppy disk drives required.

UCSD p-System comes installed on the IBM version.

Support for graphics and 8087 coprocessor is available.

An IBM PC/XT version with optional graphics and 8087 support is also available.

AVAILABILITY Available from contact below.

CONTACT
TIME Support Center
Rensselaer Polytechnic Institute
Department of Civil Engineering
Troy, NY 12180-3590
(518) 266-6227, between 9:00 AM and 4:00 PM (EST)

microcomputers in transportation

Transit Operations Software

Ridership/Revenue Estimation

APPLICATION FRACAS: Transit Operations Planning and Analysis

DEVELOPER Dr. George Kocur, Center for Transportation Studies, MIT, Cambridge, MA

SPONSOR U.S. Department of Transportation, Office of University Research

SUMMARY The Fare and Route Analysis Computer Aided System (FRACAS) is a strategic planning model for transit systems. It both generates and evaluates service and fare options. It accepts inputs describing a fixed-route transit system's operating objectives, service parameters and existing service and market sensitivities, and produces guidelines for the route structures, fares, and headways that will best meet the objectives. FRACAS is a flexible approach to the problems of adjusting service and fares to meet budget constraints, and is also useful in addressing service design issues such as peak/offpeak service mixes, the most appropriate vehicle size, and the tradeoffs of express versus local service.

ENVIRONMENT Operates on the Apple II microcomputer under Apple Pascal. Two disk drives, 64K RAM, and an 80-column display board are required. A printer is highly recommended.

STATUS The software is being modified by Dr. Kocur to operate on an IBM PC.

AVAILABILITY Available from the contact below.

CONTACT TIME Support Center
Rensselaer Polytechnic Institute
Civil Engineering Department
Troy, NY 12180-3590
(518) 266-6227, between 9:00 AM and 4:00 PM (EST)

microcomputers in transportation

Transit Operations Software

Ridership/Revenue Estimation

APPLICATION TRFM: Transit Ridership Forecasting Model

DEVELOPER Alan J. Horowitz, Center for Urban Transportation Studies, University of Wisconsin--Milwaukee

SPONSORS University of Wisconsin--Extension and UMTA University Research and Training Program

SUMMARY The Transit Ridership Forecasting Model (TRFM) estimates ridership on a single route. It is based upon state-of-the-art methods of demand forecasting, employing many of the same steps as mainframe programs. TRFM was designed specifically for ease of operation. TRFM is a sophisticated forecasting tool which is suitable for both quick response and detailed analysis.

FEATURES:

1) Fully interactive. Extensive use of animated color graphics for data input makes working with TRFM a pleasure.

2) State-of-the-art. TRFM is built around the "four-step" model: trip generation, trip distribution, mode split, and trip assignment.

3) Thorough documentation. A 100-page reference manual will allow a novice to become proficient in only a few hours.

4) Can be easily customized. All parameters for the model are located on "Parameter Pages" which can be quickly accessed.

5) Fast calculation. Every optimization trick has been employed to reduce the time of execution to less than that of a typical coffee break.

ENVIRONMENT Apple II/+/e/c with 64K RAM and one disk drive. Supports high-quality game paddles, mouse, color monitors, and a second disk drive. IBM-PC's must have a Quadlink board.

AVAILABILITY Available from contact below. Price is $30.

CONTACT Center for Urban Transportation Studies
University of Wisconsin--Milwaukee
P.O. Box 784
Milwaukee, WI 53201
(414) 963-5787

microcomputers in transportation

Transit Operations Software

Personnel Recording

APPLICATION — OPETS: Operator Performance and Tracking System

DEVELOPER — Multisystems, Inc.

SUMMARY — OPETS is an operator performance monitoring package for microcomputers for use by transit systems or divisions with up to several hundred employees. OPETS was designed for use at an operating division by clerical staff with no prior computer training.

OPETS is a database system which allows managers to access up-to-date information on attendance, accidents, passenger complaints, and supervisor write-ups for each operator. The system was developed using the INFORMIX™ database management system. A menu system guides the users through available input screen and reports.

Information is entered into the database using four primary screens that resemble the paper forms previously used. At the end of each month, OPETS tabulates a series of 15 performance measures for each operator as well as for the division and system as a whole. It automatically produces monthly summary reports comparing performance to target levels and identifies operators whose performance was exceptionally good or exceptionally poor. The system also provides a personal summary for those employees due to be conferenced (counseled) in the upcoming month. Users can also develop their own on-line queries and ad hoc reports using INFORMIX™, which is included with the OPETS package.

ENVIRONMENT — The single-user version of OPETS runs under PC-DOS (e.g., on an IBM PC or compatible; hard disk required). A multi-user version can be operated under UNIX SYS 3 (e.g., on a Plexus P-35).

STATUS — San Francisco Municipal Railway has implemented OPETS on the PC-XT at its Presidio division (300 employees) and intends to expand to other divisions in the future.

AVAILABILITY — Available as proprietary software from Multisystems.

CONTACT — Larry S. Englisher
Multisystems, Inc.
1050 Massachusetts Avenue
Cambridge, MA 02138
(617) 864-5810

microcomputers in transportation

Transit Operations Software

Personnel Recording

APPLICATION Employee Recordkeeping System

DEVELOPER LTK Management Services, Inc.

SUMMARY The Employee Recordkeeping System is one of three integrated modules of a turn-key fleet management system. The other two modules (vehicle maintenance, parts inventory control) are described elsewhere in this publication.

The Employee Recordkeeping System is an electronic personnel file that maintains up-to-date records for each employee of a fleet operation. Although designed primarily for bus fleet operators to track driver fulfillment of requirements, the system has wide applicability to virtually any type of transportation fleet. The system:

1) Maintains a complete personnel file for each employee;
2) Tracks compliance with pre-employment and periodic requirements like physical exams, refresher courses, and license renewals;
3) Records disciplinary actions and commendations for each employee, and ensures that each case is carried to conclusion;
4) Produces a wide range of reports for both internal management and external reporting to government agencies, school districts, and others.

The system was designed for maximum flexibility and can be customized by the user to fit the precise requirements of each fleet. All incoming data are validated against file records, and self-explanatory messages are provided to the user for immediate correction.

ENVIRONMENT Burroughs B-25 and XE520 series business microcomputer systems, 512K RAM, 10MB Winchester disk, COBOL.

STATUS System installed and operating with several bus fleet operators, including George M. Carroll, Inc., of Newburgh, New York and Richmond (VA) Public Schools.

CONTACT George N. Dorshimer, P.E.
LTK Management Services, Inc.
Pennsylvania Building, Suite 1300
1500 Chestnut Street
Philadelphia, PA 19102
(215) 563-2579

microcomputers in transportation

Transit Operations Software

Personnel Recording

APPLICATION Sun-Tran Personnel Management System (PMS)

DEVELOPER Washington Consulting Group in association with Chase, Rosen, and Wallace under UMTA sponsorship.

SUMMARY This program is an application of dBASE II™ that tracks and calculates personnel and payroll information for transit employees. This software supports one user at a time, and it is most appropriate for small and medium sized transit agencies. Although a hard disk is highly preferred, the system can be implemented on a floppy disk system. In that the source code and file definitions are provided, the package could be economically adapted to other agencies' requirements.

ENVIRONMENT IBM PC or compatible, dBASE II™ ver. 2.4, 2 disk drives or 1 floppy disk and one hard disk, 256K RAM.

STATUS Operational at SunTran, Albuquerque, NM.

CONTACT TIME Support Center
Department of Civil Engineering
Rensselaer Polytechnic Institute
Troy, NY 12180-3590
(518) 266-6227 between 9:00 AM and 4:00 PM (EST)

microcomputers in transportation

Transit Operations Software

Personnel Recording

APPLICATION — Personnel Recordkeeping

DEVELOPER — San Mateo County Transit District (SamTrans)

SUMMARY — This software allows input, manipulation, and output of a wide range of personnel information, including personal data and salary history. Printouts include data file listing, list of employees by health/dental insurance type, salary anniversary, Paid Time Off bonus anniversary, and others. Design is specific to SamTrans' union requirements, but can be modified to meet other needs.

ENVIRONMENT — IBM XT with 256K RAM and DOS 2.0. dBASE II™ is the program language.

STATUS — Installed and operating at SamTrans. This program is designed to SamTrans specifications and includes some features which may be unique to SamTrans. Documentation is still somewhat sketchy.

AVAILABILITY — Available for the cost of transmittal. Modifications to suit individual needs available at standard programming cost per hour.

CONTACT — Gregory L. Kipp
Data Analyst
SamTrans
945 California Drive
Burlingame, CA 94010
(415) 872-6748

microcomputers in transportation

Transit Operations Software

APPLICATION Transportation Management System

DEVELOPER VISTA Systems, Inc.

SUMMARY VISTA's Transportation Management System includes five modules which provide a comprehensive set of tools to assist transit planning, scheduling, and operating departments. The five modules are Data Maintenance, Scheduling, Run Cutting, Dispatch Control, and Operator Bidding.

Data Maintenance facilitates creation and maintenance of the scheduling database. Scheduling includes computer-assisted trip building, timetable maintenance, and hooking trips into vehicle assignments (blocks). Run Cutting performs computer-assisted run cutting. Dispatch Control provides computer-assisted dispatch and extraboard assignment functions, operator's exception timekeeping, bus assignment tracking, and road call/incident tracking. Operator Bidding provides an on-line tool to prepare for, monitor and control, and record operator bidding.

The first three modules are typically grouped together into the Transit Scheduling system. Dispatch Control and Operator Bidding are each stand-alone modules. All modules interact directly with each other and utilize a central database.

ENVIRONMENT Operates on UNIX-based and MS-DOS microcomputers.

STATUS In use in Sacramento and San Diego, California; Wilmington, Delaware; Springfield, Massachusetts; and Albany, New York.

AVAILABILITY For sale from contact below.

CONTACT VISTA Systems, Inc.
900 State Road
Princeton, NJ 08540
(609) 921-0065

microcomputers in transportation

Transit Operations Software

APPLICATION Transit Operations System (TOS)

DEVELOPER SAGE Management Systems Corp.

SUMMARY SAGE developed the Micro TOS package to handle the on-line exception timekeeping and operator bidding as well as extraboard management tasks. The package is comprised of 9 modules:

- Operator Personnel Information
- Master Production Schedule
- Operator Bids
- Day's Schedules and Exceptions
- Day's Operator Assignments
- Day's Vehicle Assignments/On-Street Tracking
- Operator Timekeeping
- Operator Absentee Tracking
- User Security

In combination, these modules assist in the tracking of drivers, and provide payroll ready output.

ENVIRONMENT IBM PC-DOS (or compatible) microcomputers.

STATUS Operational in Long Beach Transit, Long Beach, CA.

AVAILABILITY License sale from contact below.

CONTACT Jeff Proudfoot
Marketing Representative
SAGE Management Systems Corp.
156 Front Street West, Suite 500
Toronto, Ontario M5J 2L6
(416) 596-1710

microcomputers in transportation

Transit Operations Software

APPLICATION — MIS: Management Information System for Fixed Route Transit Services

DEVELOPER — BC Enterprises

SUMMARY — This software package is menu-driven and provides security and information-sharing among multiple transit departments. Functions include maintenance management (including road calls, automatic inspection scheduling in-house repairs, as well as outside vendor repairs); parts, consumables and fluids inventory control, including purchase order creation and automatic part order flagging; personnel files; accident records; ridership and revenue files; performance reports including standard route parameters. A complete, menu-driven financial package is also available, including accounts receivable and payable, payroll, and general ledger.

ENVIRONMENT: The entire system is written within the UNIFY™ database management system, under the UNIX V operating system and can operate on any computer supporting UNIX V. The system will support multiple terminals simultaneously (multi-user). All standard user functions are menu-driven. Even the UNIX commands to copy files, make backups of the database, etc., are menu-driven. In addition, all automatic record update processing and reports are written in SQL, an enhanced version of IBM's query language. SQL has recently been recommended by the U.S. Bureau of Standards & Department of Defense as the national database query language standard. With SQL, non-computer-experienced staff can generate powerful "ad-hoc" reports from virtually any information in the entire database, using English-like syntax.

STATUS — The system is being implemented in five cities in Iowa as part of a Federal demonstration. All sites are using NCR Tower hardware.

AVAILABILITY — The cost of the software/hardware package depends upon the amount of customization required for a particular site, the number of workstations required, and the type of hardware to be used.

CONTACT — Paul McOwen, Associate
BC Enterprises
1 East Pleasant Street
Amherst, MA 01002
(413) 549-7480

microcomputers in transportation

Transit Operations Software

APPLICATION Transit Accident and Crime Information System (ATACS)

DEVELOPER Southeast Michigan Council of Governments (SEMCOG)

SUMMARY This multipurpose microcomputer software system monitors, reports, analyzes, and maps transit accident and crime data. A relational database management system is used to store a variety of information related to specific incidents of transit accidents and crimes. Users can use the default database elements or customize the system to meet unique information needs. Functions of the database include: data input screens, full screen editing, and flexible searching and sorting routines. The real strength of this system lies in its ability to report, analyze, and map transit incident data. Standard or custom reports are available for all database elements. A variety of statistical procedures include:

- o univariate descriptive statistics
- o two-way cross tabulations
- o frequency distributions, histograms, pie charts
- o time series analysis, etc.

Full color computer maps of transit data are available for:

- o specific site locations
- o shaded conformant maps at specified geographic levels.

ENVIRONMENT IBM PC or other MS-DOS microcomputers with 256K and RBASE 4000™. For computer mapping, Hewlett-Packard 7470A or 7475A plotters. For larger transit systems, a 10MB hard disk is recommended.

STATUS Operational. ATACS Software and Documentation costs including technical assistance is $1000. Demonstration workshops are planned for early 1986 at various U.S. sites in conjunction with PTN.

CONTACTS

Ms. Anne Nolan
Mr. Jeff Moyer
SEMCOG
800 Book Building
Detroit, MI 48226
(313) 961-4266

microcomputers in transportation

Transit Operations Software

APPLICATION Security Incident Reporting System (SIRS)

DEVELOPERS Associated Science Group, Inc./Transportation Systems Center (original program); Systems Development Corporation (modifications/enhancements)

SPONSOR UMTA, Safety and Security Staff, URT-6

SUMMARY SIRS is a microcomputer-based program developed to record and summarize bus security incidents. SIRS incorporates security incident information from dispatcher reports, bus driver reports, security officer reports, and municipal police reports. Data is entered using a series of data entry screens and becomes part of a single incident record.

SIRS produces reports summarizing security incident frequency, type, time, and location. The system can be queried to provide ad hoc statistical information on security incidents, and individual records can be retrieved for inspection.

SIRS was designed to meet the requirements of the Metropolitan Transit Commission in Minneapolis, MN, but could be modified to meet the requirements of other bus systems. In addition, SIRS has the potential for use as a safety incident reporting system with minor modifications.

ENVIRONMENT IBM PC/XT, PC-DOS 2.0, dBASE III.

STATUS Operational at Metropolitan Transit Commission, Minneapolis/St. Paul, MN.

AVAILABILITY Documentation and source code available from UMTA/TSC.

CONTACTS

Mr. Dana H. Harris
Director of Security
Metropolitan Transit Commission
560 6th Avenue North
Minneapolis, MN 55411-4398

Ms. Nancy Cooney
Safety and Security Systems Division
Transportation Systems Center
55 Broadway
Cambridge, MA 02142

microcomputers in transportation

Transit Operations Software

APPLICATION Automated Emergency Response System (AERS)

DEVELOPERS San Francisco Bay Area Rapid Transit District (original version)
Transportation Systems Center (generic version)

SPONSOR UMTA, Safety and Security Staff, URT-6

SUMMARY AERS provides fast emergency information to transit controllers. In case of a fire or other emergency, the controller, within five to ten seconds after entering the location, will obtain a graphical display showing key information including ventilation fans to open and direction to run them, affected third rail sections, nearest track access points, nearest emergency telephones, and fire and other emergency departments to call.

AERS was originally designed for the Bay Area Rapid Transit (BART) District in San Francisco, CA. A generic version is currently being developed, with completion expected in the spring of 1986. This version will allow AERS to be quickly installed at any transit system, as well as, once installed, to quickly adapt to modifications in the system or its emergency procedures.

ENVIRONMENT Any MS-DOS IBM-compatible environment at the level of IBM PC/XT or Compaq Plus; dBASE III™.

STATUS Generic version at BART and TSC, completion expected in spring 1986.

Original (Apple-based) version operational at BART, WMATA, and PATCO.

AVAILABILITY Documentation and source code available from UMTA/TSC.

CONTACT Mr. David Heimann
Safety and Security Systems Division
Transportation Systems Center
55 Broadway
Cambridge, MA 02142
(617) 494-2206 or 494-2577

microcomputers in transportation

Transit Operations Software

APPLICATION Special Trips and Reservation System

DEVELOPER Bispac Systems

SUMMARY BISPAC's Special Trips package is a Reservation System for time slots, drivers, and vehicles. Special Trips are recorded historically by schools, departments, and activities. Also available is a historical report of drivers' special trip assignments and refusals. Budgetary billings and outside agency billings are available for any given period, (i.e., daily, weekly, and monthly).

A driver copy of the trips, giving departure dates and times, special instructions, and a place for recording actual mileage, time, and expenses can be printed on demand.

Year end or season end recaps by activity are available for analysis.

The user can define rate codes in any combination of mileage, time, flat rate, or driver rates to determine trip costs.

Optional integration available with BISPAC's "TIMS" Vehicle Maintenance and Routing Systems.

ENVIRONMENT The program is written in BASIC for the IBM Business Computers; PC/AT, XT, System 23, and the System 36.

STATUS In use at Antioch Unified, Lodi Unified, Stockton Unified, Oxnard, and El Dorado School Districts in California.

AVAILABILITY Available as a proprietary system from the contact below. Six-month guarantee, user training, and telephone support available.

CONTACT
Gary Coverdale
Bispac Systems
4095 Bridge Street, Suite A
Fair Oaks, CA 95628
(916) 967-5555

microcomputers in transportation

Transit Operations Software

APPLICATION Spreadsheet Applications

DEVELOPER Capital District Transportation Authority, Tom Hillegass (UMTA)

SUMMARY A set of spreadsheet templates are provided. Three of the samples are as used by CDTA in the development of an annual budget. These include cash flow forecasting, analyzing of ride check data as collected for Section 15 reporting, and generalized budget estimation.

In addition to the above, the "1-2-3 Route Planner" is a Lotus spreadsheet for scoping out routes, headways, layovers, and workable modules. Use proceeds from a sketch level where costs and general feasibility are of interest, to just before scheduling when exact times and service levels by time of day are needed.

The Route Planner allows the segmentation of a route, measurement of distance and running times, addition of layovers, variation of headways, etc. Operating costs are estimated by peak vehicles, hours, and miles for weekday and weekend service. Any number of routes can be processed and totaled on the spreadsheet.

A separate set of case studies is also available.

ENVIRONMENT The CDTA Budget Templates are available for the Apple II in VisiCalc™ format. 48K and one disk drive are required.

The CDTA Budget Templates are available for the IBM PC in VisiCalc and Lotus 1-2-3 format. The 1-2-3 Route Planner is available only for 1-2-3. (All IBM PC spreadsheets come on the same disk.) For VisiCalc, 1 floppy disk and 128K are required. For Lotus 1-2-3, 256K and 2 floppy disks are requried.

STATUS Operational

CONTACT
TIME Support Center
Department of Civil Engineering
Rensselaer Polytechnic Institute
Troy, NY 12180-3590
(518) 266-6227 between 9:00 AM and 4:00 PM (EST)

microcomputers in transportation

Transit Operations Software

APPLICATION	Statistical Sampling of Trip Data
DEVELOPER	Transit Industry Microcomputer Exchange
SUMMARY	The program determines which vehicle trips should be sampled to obtain statistically valid values for route ridership, fare levels, etc. The initial program identifies alternate sampling plans, each consisting of the number of days and number of trips per day to sample. Subsequent programs randomly select the actual days and trips to sample. The program follows the procedures and uses the values in the tables of the Bus Transit Monitoring Manual (Report No. UMTA-IT-09-9008-81-1). The user must supply the following inputs: the between day and within day coefficient of variation of the trip measure being studied, the desired tolerance level of significance, length of the sampling period, and total number of trips operated per day.
ENVIRONMENT	Apple II+, 48K RAM, or IBM PC, a disk drive, and a printer. Program is written in BASIC.
STATUS	Operational at Capital District Transportation Authority, Albany, NY.
AVAILABILITY	Available from contact below.
CONTACT	TIME Support Center Rensselaer Polytechnic Institute Department of Civil Engineering Troy, NY 12180-3590 (518) 266-6227, between 9:00 AM and 4:00 PM (EST)

microcomputers in transportation

Transit Operations Software

APPLICATION Transit Route Planning CAI Course

DEVELOPER Alan J. Horowitz, Center for Urban Transportation Studies, University of Wisconsin--Milwaukee

SPONSORS UMTA University Research and Training Program

SUMMARY This is a 3 to 4-hour course of instruction about principles of route evaluation and route location. The computer asks questions, evaluates responses, provides tutorial as necessary, and keeps score. The first module, "Route Evaluation," covers basic definitions, operating characteristics of routes, performance indicators, and costs of operation. The second module, "Route Location," covers stop spacing, stop location, running time analysis, route structure, and disutility of travel. Both modules make extensive use of problems and reinforcement of previously covered material.

ENVIRONMENT Apple II+/e/c with 64K RAM and one disk drive; or IBM-PC with 128K.

AVAILABILITY Free loan for a period of two weeks to transit systems, planning agencies, departments of transportation, and educational institutions. Specify type of computer and dates needed.

CONTACT Center for Urban Transportation Studies
University of Wisconsin--Milwaukee
P.O. Box 784
Milwaukee, WI 53201
(414) 963-5787

microcomputers in transportation

Transit Operations Software

APPLICATION Microcomputers in Transit: A Software Handbook

DEVELOPERS Eve Wyatt, Editor, Institute for Urban Transportation;
Applications developed by staff at transit agencies

SPONSOR UMTA, Office of University Research and Training

SUMMARY

Spreadsheets

General Applications
- Time Trend Analysis, Multiple Regression
- Preparation of Operating Documents

Budgeting
- Wage and Fuel Budget, Operating Budget, Budget Comparison, 10-Year Operating Budget, 10-Year Capital Budget, Cash Flow Projection, Cash Flow Manager

Financial Analysis
- Fare Structure Analysis, Cost Tracking and Forecasting

Service Monitoring
- Monthly Route Summary, Monthly Reporting System with Macros, Service Variance Tracking, Ride Check Analysis and Summary

Service and Operations Planning
- Route Evaluation, Schedule Builder A, Schedule Builder B, Run Summary

Database Managers
- Customer Service Records, Client Records, Parts Inventory

ENVIRONMENT Each application is documented to be reconstructed and modified as required on commercial spreadsheet or database management software.

AVAILABILITY This document will be available at no cost from:
Technology Sharing Program
Office of the Secretary
U.S. Department of Transportation, I-30
Washington, DC 20590

CONTACT
Kent McDaniel
Indiana University
Institute for Urban Transportation
825 East Eighth Street
Bloomington, IN 47405
(812) 335-8143

microcomputers in transportation

Transit Operations Software

APPLICATION Bus Zone Maintenance System

DEVELOPER K.L. (Dan) Wong, Transit Planner II, San Francisco Municipal Railway

SUMMARY The system is currently used to keep track of all bus zone maintenance requests sent from the Municipal Railway to other City departments. In addition, search functions are included in the program to locate records.

The Bus Zone Maintenance System is written in dBaseII™ using simple menu screens for basic data entry, editing, and output.

ENVIRONMENT An MS-DOS PC (IBM PC, IBM Compatible, and WANG PC) with a minimum of 256K RAM, and dBASE II™.

STATUS Operational at the San Francisco Municipal Railway's Planning Division since January 1985.

AVAILABILITY Program disks and documentation are available from the contact below.

CONTACT K.L. (Dan) Wong, Transit Planner II
San Francisco Municipal Railway
Planning Division
949 Presidio Avenue, #204
San Francisco, CA 94115
(415) 558-5441

TRANSPORTATION PLANNING SOFTWARE

microcomputers in transportation

Transportation Planning Software

Land Use and Trip Generation

APPLICATION HALLEY and COHORT: Population Projection

DEVELOPER Ned Levine, UCLA School of Architecture and Urban Planning

SUMMARY HALLEY is a three-part population projection program in template form. It contains a life expectancy table, an age-structure model, and a population projection program. The population projection program allows the addition of assumptions about fertility and migration to produce a 10-year population projection.

A supplementary program, COHORT, which is included in the same package, allows the user to enter survival rates directly, allowing for population projections where survival rates have already been determined or where chain projections are desired.

ENVIRONMENT HALLEY operates on the IBM PC and compatibles. It requires DOS 1.1, Lotus 1-2-3™, and two disk drives.

AVAILABILITY Available from contact below.

CONTACT Microcomputers in Transportation
FHWA HPN-22
400 7th Street, S.W.
Washington, DC 20590

microcomputers in transportation

Transportation Planning Software

Land Use and Trip Generation

APPLICATION — HLFM: Highway Land-Use Forecasting Model

DEVELOPER — Alan J. Horowitz, Center for Urban Transportation Studies, University of Wisconsin-Milwaukee

SPONSOR — Wisconsin Department of Transportation

SUMMARY — The Highway Land-Use Forecasting Model (HLFM) estimates population and employment redistribution due to highway projects in or near small communities. It is based on the Lowry-Garin model of land-use forecasting. HLFM was designed for ease of operation, using interactive color graphics for data input and display of results. It will handle road networks with up to 200 intersections, 320 two-way road segments, and 40 land-use zones. Results consist of employment and population totals in each zone and estimates of traffic on each road segment. All parameters are found on "Parameter Pages," which can be quickly accessed. Several "Worksheets" are provided to aid numerical data entry.

ENVIRONMENT — Apple II+/e/c with 64K RAM and one disk drive. Supports high-quality game paddles, mouse, color monitors, and a second disk drive. IBM-PC's must have a Quadlink board. The program is written in BASIC and can be easily customized.

AVAILABILITY — Available from contact below. Price is $30.

CONTACT — Center for Urban Transportation Studies
University of Wisconsin-Milwaukee
P.O. Box 784
Milwaukee, WI 53201
(414) 963-5787

microcomputers in transportation

Transportation Planning Software

Land Use and Trip Generation

APPLICATION Land Use Estimator

DEVELOPERS Microtrans Corp.

SUMMARY Land Use Estimator by Microtrans™ calculates the maximum building size for a parcel of land with given zoning and parking requirements. It is designed to be used in connection with:

- o Trip Generation by Microtrans
- o Traffic Impact Analysis
- o Evaluation of Land Use Development Scenarios
- o Input for Transportation Planning
- o Land Use Planning

The program allows the user to explore a variety of land use options. For each development scenario, calculation results indicate the following:

- o Maximum size of building
- o Area of building footprint
- o Lot coverage
- o Floor area ratio
- o Number of parking spaces

Up to 28 different scenarios can be derived, then results can be prioritized (four listed per page) for presentation purposes. The output can be printed, or saved on diskette and retrieved for further analysis. It can also be retrieved using Lotus 1-2-3™ or Lotus Symphony™.

ENVIRONMENT IBM PC or PC compatible. Requires 64K RAM and one 360K disk drive, though two drives are desirable. Also requires an 80-column or larger printer.

STATUS Operational at City of Fort Worth, TX and Longview, TX.

AVAILABILITY For sale at $99.95.

CONTACT Penny L. Buttke, President
Microtrans Corporation
P.O. Box 636
Portland, OR 97207
(503) 223-4728

microcomputers in transportation

Transportation Planning Software

Land Use and Trip Generation

APPLICATION TRIPGENT: Trip Generation Model

DEVELOPER Bernardin, Lochmueller & Associates, Inc. under contract to the Indiana Department of Highways

SUMMARY TRIPGENT is an interactive program designed to serve both as a land use file manager, and disaggregate or zonal regression trip generation model with disk output readable by PLANPAC. The program makes use of seven household and land use variables input at the zonal level which can be edited individually in a user-friendly, random access environment. The trip generation module outputs vehicle productions and attractions for three internal trip purposes and external-internal trips. A cross-classification methodology is used to compute home-based work and home-based other productions and as a regional control total for non-home-based productions. All attractions make use of zonal regressions which are subsequently factored to their respective production total. Through a series of iterations, the methodology successively adjusts the number of households in each auto ownership category (per zone) until the resultant implied number of total vehicles falls within plus or minus 1 percent of the given number of personal vehicles input for the zone.

The user is given a chance to view the output data and, if satisfied, save the output file on a diskette in "card image" format which can be uploaded into an IBM mainframe and read directly into PLANPAC's gravity model program.

ENVIRONMENT IBM PC-DOS or Compaq DOS. Requires 256K RAM. Two disk drives desirable. Source code available in BASIC.

STATUS The program is presently being used by the Indiana Department of Highways' Division of Location & Environment in connection with advanced studies of the relocation of U.S. 231 in the Lafayette, Indiana area.

AVAILABILITY Public domain. Array dimensions, trip rates, and regressions are specific to the greater Lafayette area. Would require a modest level of effort to adapt for use in other areas.

CONTACTS

Mr. Vincent L. Bernardin, AICP
Bernardin, Lochmueller & Associates, Inc.
Hulman Building - Suite 606
20-24 N.W. 4th Street
Evansville, IN 47708
(812) 426-1737

Mr. James R. Gulick, P.E.
Div. of Location & Environment
Indiana Dept. of Hwys.
Rm. 1204, St. Ofc. Bldg.
100 North Senate Avenue
Indianapolis, IN 46204
(317) 232-5468

microcomputers in transportation

Transportation Planning Software

Land Use and Trip Generation

APPLICATION Trip Generation

DEVELOPER Microtrans Corp.

SUMMARY Trip Generation by Microtrans™ calculates the amount of traffic generated by 80 different land uses or building types. The program uses the database in the ITE Trip Generation Report, 3rd edition, 1983. It is completely menu-operated and requires no user lookup of terminology, land use types, or data. It is designed to be used in connection with:

- o Traffic Impact Analyses
- o Evaluation of Land Use Development Scenarios
- o Transportation Corridor Analyses
- o Small Area Transportation Planning
- o Design of Traffic Circulation Systems
- o Quick Response Planning Techniques

This program can be used for single or mixed-use developments. The user can add trip adjustment factors to reflect local conditions, the effect of alternative modes, or the effect of mixed-use developments on driveway volumes. It also includes a file option which is compatible with Lotus 1-2-3™ or Lotus Symphony™, so calculation results can be saved on diskette and retrieved for further analysis. [See also "Land Use Estimator" under 'Site and Subarea Planning'.]

ENVIRONMENT PC-DOS and MS-DOS operating systems; Apple IIE and Apple Plus; CP/M available at extra cost. 128K RAM and one 360K disk drive are required, though two disks are desirable. Needs an 80-column or larger printer.

STATUS Operational. Used in Houston, Texas; Jersey City, New Jersey; and other cities in the U.S. and Canada. The program is also used in seminars at Northwestern University.

AVAILABILITY Available from contact for $395.

CONTACT Penny L. Buttke, President
Microtrans Corp.
P.O. Box 636
Portland, OR 97207
(503) 223-4728

microcomputers in transportation

Transportation Planning Software

Mode Choice

APPLICATION Mode Choice: Work Trip Mode Choice Estimation Model

DEVELOPER Cambridge Systematics, Inc.

SUMMARY Mode Choice is a Lotus 1-2-3™ template which provides a worksheet-based technique for estimating travel modes for work trips, based on population attributes and travel choice characteristics. The model has a logit form. The attributes of each mode are established by the model, and the relative "utility" of each mode is compared to estimate its share of the total market. A complete description of the model is included in "Transportation Air Quality Analysis--Sketch Planning Methods," a report prepared by Cambridge Systematics for the Environmental Protection Agency in 1979 and available from Office of Methods & Support, URT-41, UMTA, Washington, DC 20590.

ENVIRONMENT Runs on IBM PC and compatibles, with Lotus 1-2-3™ Version 1A and DOS 2.0. At least 192K RAM and one DSDD disk drive is required.

AVAILABLE Available from contact below.

CONTACT Microcomputers in Transportation
FHWA, HPN-22
400 7th Street S.W.
Washington, DC 20590

microcomputers in transportation

Transportation Planning Software

Mode Choice

APPLICATION RTD Pivot Point Logit Model

DEVELOPER Susan Cohen, Regional Transportation District, Denver, CO

SUMMARY The RTD version of the pivot-point logit model is designed to predict changes in transit ridership. Service level changes which can be analyzed include changes in transit fares, headways, in-vehicle travel times, and access/egress times. Changes in parking costs and access and travel times by other modes may also be analyzed.

The model formulation is based on the pivot-point logit model developed by Cambridge Systematics, Inc. (CSI) for the Federal Energy Administration. A complete description of the model is included in "Transportation Air Quality Analysis -- Sketch Planning Methods," a report prepared by CSI for the U.S. Environmental Protection Agency in 1979 and available from the Office of Methods & Support, URT-41, UMTA, Washington, DC 20590. The model coefficients for the RTD version of the model are those of the Unified Travel Patterns Model developed by the Denver Regional Council of Governments. However, any set of model coefficients may be used, and a sample template using the CSI coefficients is also enclosed.

ENVIRONMENT Requires IBM PC or compatible, SuperCalc3™ and MS-DOS 2.0 or higher. The templates are also on disk in ASCII format for uploading to other spreadsheet programs.

AVAILABILITY Available from the contact below.

CONTACT Micromcomputers in Transportation
FHWA, HPN-22
400 7th Street S.W.
Washington, DC 20590

microcomputers in transportation

Transportation Planning Software

Mode Choice

APPLICATION EXTRA: Express Transit Analysis

DEVELOPER William G. Barker

SUMMARY EXTRA is a planning tool which can be utilized to estimate environmental and cost impacts of destination-oriented transit. The program calculates mode splits, fuel consumption, air pollutant emissions, VMT, cost changes, operating costs, and operating revenue of proposed bus or rail services. It is especially useful in the analysis of park-and-ride services.

ENVIRONMENT EXTRA runs on an IBM PC, XT, AT or compatible with 64K RAM.

STATUS Utilized by the North Central Texas Council of Governments.

AVAILABILITY Available from the contact for $100.

CONTACT Douglas Allen
DeShazo, Starek & Tang, Inc.
330 Union Station
Dallas, TX 75202
(214) 748-6740

microcomputers in transportation

Transportation Planning Software

Network-Based Highway and Transit Planning

APPLICATION EMME/2

DEVELOPER Center de Recherche sur les Transports, Universite de Montreal

SUMMARY EMME/2 is a comprehensive multi-mode urban and regional transportation planning system designed for interactive graphic use, as described in **Transportation Research Record** 866, pp. 1-8. The system contains about 50 modules which are subdivided into the following groups:

1. Utilities
2. Network Editor
3. Matrix Editor
4. Function Editor
5. Assignment Procedures
6. Results

The assignment procedures include the following features:

1. Equilibrium Road Assignment
2. Multipath Transit Assignment
3. Multimodal Equilibrium Assignment

The microcomputer version handles problems of up to 400 zones, 2500 nodes, 8000 links, 200 transit lines, and 15,000 transit line segments.

ENVIRONMENT EMME/2 is implemented on the following microcomputers: Under MS-DOS: IBM PC/XT and AT equipped with Definicon DSI-32 card. Under UNIX: AT&T UNIX PC, SUN Workstations, MASSCOMP 500, PIXEL. Under VMS: MICROVAX II.

Requires a minimum of 1MB RAM and 40MB Winchester hard disk. Graphic terminals supported are Tektronix 4014, 4110 series, 4120 series, Seiko GR-1104, and Lexidata.

STATUS Implemented at Metro of Portland, Oregon; Maryland NCPPC; Montreal, Ottawa, Edmonton, and Vancouver in Canada; Stockholm, Sweden; Rome, Italy, among others.

AVAILABILITY Object code. Software support agreements in effect and available.

CONTACT INRO Consultants, Inc.
83 Dufferin Road
Hampstead, Quebec
Canada H3X 2X8

microcomputers in transportation

Transportation Planning Software

Network-Based Highway and Transit Planning

APPLICATION MicroTRIPS

DEVELOPER PRC Voorhees/RVA/MVA Systematica

SUMMARY MicroTRIPS is a comprehensive software system for transportation planning paralleling UTPS/PLANPAC in functional capability. MicroTRIPS includes programs for:

- Highway and Transit Network Simulation
- Travel Demand Forecasting: Generation, Distribution,
- Mode Split
- Matrix Manipulation and Adjustment
- Capacity Restraint Assignment: Iterative, Incremental, Volume-Averaging, or Multi-Route
- Subarea Windowing
- Selected Link Analysis
- Network Plots: With Automatic or User-Defined Windows, Node & Link Annotation, Bandwidths, up to 10 colors
- Network Performance Summary

MicroTRIPS programs are menu-driven, can be operated interactively or through pre-stored command files, and can be interfaced with UTPS and Database Management programs.

ENVIRONMENT CP/M, IBM PC-DOS, MS-DOS Operating System versions available, minimum of two disk drives recommended, hard disk recommended for systems over 300 zones with more facilities. Mainframe version (TRIPS) available.

STATUS Over 120 installations in 25 countries worldwide, including in the USA the cities of Austin, Dallas, Ft. Worth, and Richardson, Texas; North Central Texas COG; Altamonte Springs, Colorado; Seminole County, Tampa, and Winter Park in Florida; Bakersfield, Los Angeles, San Diego, and San Francisco in California; King County and Kent City in Washington; Boulder and Denver in Colorado; Memphis, Tennessee; Huntsville, Alabama; and Edmonton and Toronto in Canada.

AVAILABILITY For sale from contacts below.

CONTACTS

USA	Canada	Overseas
Gene Lucas	Art Read	MVA Systematica
PRC Engineering	RVA Ltd.	MVA House
1500 Plng Research Dr.	160 Duncan Mill Rd	Victoria Way
McLean, VA 22102	Don Mills	Woking, Surrey
(703) 556-2487/2489, or	Ontario M3B 1Z5	GU21 1DD
(800) 336-3772, ext. 2487	(416) 445-4360	UK (44) 4862-28051

microcomputers in transportation

Transportation Planning Software

Network-Based Highway and Transit Planning

APPLICATION MINUTP

DEVELOPER COMSIS Corp.

SUMMARY Complete highway and transit transportation planning system similar in operation to UTPS, PLANPAC, etc. System consists of 14 programs that interconnect to operate in either a batch or on-line processing mode. Easy setup capability allows for rapid analysis of various scenarios and system configurations. Standard package includes modules for:

- Network Building (Macro Speeds/Capacities)
- Path Selection (Cost, Time, Dist, Turn Pen/Prohib)
- Trip Generation (User Rates, Equations, Generators)
- Trip Distribution (Gravity Model)
- Network Manipulation
- Fratar Distribution
- Data Base Converter for Sub-area modeling
- Transit Network Routing/Skimming/Assignment
- Matrix Manipulations (Add, Sub, Div, Mpy, Repl, Format, Sum, Print, TLF, Modal Choice, Row/Col/Value Selection)
- Matrix Conversion (Transpose, Expand/Compress, Renum)
- Traffic Assignment (All-or-Nothing, Stochastic, Select Link, Capacity Restraint, Turn Volumes)
- Network Analysis Report Generator

ENVIRONMENT IBM PC (or compatible) with PC-DOS/MS-DOS.

RAM	Disks	Zones	Nodes	Links
192K	2-320K	100	900	2500
256K	2.5M	500	3000	11000
320K	5M	1000	8190	16400

STATUS In use at County of Fresno COG; Colorado Department of Highways; Palm Beach County; and over 50 other agencies and consultants.

AVAILABILITY MINUTP as described (w/training, test data).....$5000
Demonstration System (19 zones, 50 nodes).....$ 100

Network Plotting module available for additional $500.

CONTACT Mr. Larry Seiders
COMSIS Corporation
The 1200 Building
2685 Marine Way, #1208
Mountain View, CA 94043
(415) 964-5911

microcomputers in transportation

Transportation Planning Software

Network-Based Highway and Transit Planning

APPLICATION MOTORS

DEVELOPER M.M. Dillon Ltd.

SUMMARY MOTORS is an integrated package of 40 programs designed to cover the whole range of multi-modal transportation planning functions. The package contains programs for:

- o Trip Generation - category analysis or multiple regression
- o Trip Distribution - gravity model (power or exponential), or Fratar growth factor
- o Modal Split - trip interchange, using travel time (or cost) ratios or differences
- o Highway Networks - network checking, building, minimum path skimming, tree-building, pre-loading, all-or-nothing and capacity restrained assignment, select link analysis, network evaluation
- o Transit Networks - network building, tree-building, minimum path skimming, route and link assignment
- o Matrix Analysis - building, adding, transposing, multiplying, dividing, compressing, and splitting

ENVIRONMENT IBM-PC (or XT or AT) or any IBM-compatible microcomputer

RAM	Disks	Zones	Nodes	Links
256K	2x360K floppies	200	800	2500
256K	Hard Disk	400	2000	6000

STATUS In use by numerous government agencies, consultants, and universities in the U.S., Canada, U.K., South Africa, and Holland. User list available.

AVAILABILITY For sale from contact below. User Manual and demo diskettes available for U.S. $50.

CONTACT Bob Lewis
M.M. Dillon Ltd.
47 Sheppard Avenue East
Toronto, Ontario
Canada M2N 6H5
(416) 229-4646

microcomputers in transportation

Transportation Planning Software

Network-Based Highway and Transit Planning

APPLICATION TRANPLAN

DEVELOPERS R. James W. Fennessy and Raif Kulunk for DeLeuw, Cather & Co.

SUMMARY TRANPLAN, the most popular proprietary transportation modeling software, is a comprehensive, fully-integrated, user-oriented system, with highway and transit programs fully compatible, thus simplifying the procedures of multi-modal systems planning. Unlike other transportation software, TRANPLAN uses English-like syntax and uniform specifications in all programs.

TRANPLAN is designed for 3,000 zones and 32,000 links. For highway network analysis, TRANPLAN accepts turn prohibitors, turn penalties, and up to 31 links at each node. The path building algorithm is a vine builder which guarantees the minimum path with turn prohibitors and penalties. Transit network analysis utilizes the UTPS link/line concept but with up to 30 modes. TRANPLAN's suite of programs encompasses the following categories:

- o Trip Distribution/Mode Choice
- o Matrix Utilities
- o Reporting
- o Plotting
- o Sub-area Analysis
- o Graphics: Network Editing/Display
- o Highway Networks
- o Transit Networks
- o Network Loading
- o Trip Generation
- o Selected Link Analysis
- o Menu-Driven Environment

[See also "NEDS" under 'Network Encoding and Plotting'.]

ENVIRONMENT Operates on IBM PC/XT's and PC/AT's under DOS operating system (512K RAM required), as well as MC 68000 microcomputers under UNIX. Minicomputer versions available.

AVAILABILITY Several license purchase options: both source and non-source. Demonstration packet available.

STATUS Used by many public agencies and consultants.

CONTACT
James Fennessy
Manager, Systems Division
DKS Associates
1419 Broadway, Suite 700
Oakland, CA 94612
(415) 763-2061

microcomputers in transportation

Transportation Planning Software

Network-Based Highway Planning

APPLICATION TransPro™

DEVELOPERS Transware Systems

SUMMARY TransPro™ (formerly TS MicroTrans) is an integrated package of computer programs designed for area or sub-area analysis of highway networks. It performs transportation planning functions which parallel UTPS or PLANPAC, but with easy setups. The package may be used independently for modeling a city or region, or as part of a windowing procedure within a large urban area.

All TransPro™ programs are written in the "C" language for maximum efficiency and speed. Data files are simple to create and programs are easy to execute.

TransPro™ currently accommodates 300 zones, 2000 nodes, and 3000 links in its minimum configuration.

TransPro™ programs include the following features:

Network Organization	Trip Generation
Tree Building	Trip Distribution
Minimum Path Skimming	Matrix Manipulation
Traffic Assignment	Row/Column Reporting
Matrix Compression	Capacity Restraint
Assignment Merging	Network/Path Reporting
Network Phasing	Select Link Analysis
Zone Data Phasing	Intersection Turning Movements

ENVIRONMENT System: PC-DOS (8087 version available)
RAM: 128K (minimum configuration)
Disks: Two 360K floppies, or one floppy and one hard disk

STATUS Currently being used by the North Dakota Highway Department and Des Moines Area Transportation Planning Agency, and by consultants in Minnesota and Southern California.

AVAILABILITY For sale at $995 from contact below. User manual and demonstration diskettes provided for review upon request.

CONTACT John M. Kain, AICP
Transware Systems
42 Sequoia Tree Lane
Irvine, CA 92715
(714) 559-4599, (714) 786-9266

microcomputers in transportation

Transportation Planning Software

Network-Based Highway Planning

APPLICATION TMODEL/TMODEL-EX: Transportation Modeling System

DEVELOPER Professional Solutions, Inc., Vashon, WA

SUMMARY The TMODEL Transportation Modeling System is screen menu-driven for easy step-by-step operation. Easy entry/edit routines allow for quick corrections or changes of data. Set-up takes less than 8 hours, revisions less than 15 minutes.

TMODEL is unique in that both intersection and link capacities and delays are used to build trees and calculate the gravity model for each increment or iteration. Options include stop sign/signal modeling, time/distance weighting, link pre-loading, and turn movements for up to six approaches each. Trip distribution and assignment is performed completely in RAM memory for maximum speed.

Model outputs are provided for a standard link report (two format options), trip table, and turn movement report and may be modified as desired. Outputs note links and nodes with capacity problems (V/C ratios over 0.9). Select zone analysis details link volumes and percents of total loadings attributable to selected zones, which is useful for development analysis.

TMPLOT plots a TMODEL network on the monitor screen and dot matrix printer. Attribute values such as volume, capacity, v/c ratio, design speed, operating speed, and node delay are graphically represented by link width and node diameter. Select zone information also may be plotted for specific development analysis.

ENVIRONMENT TMODEL and TMPLOT Versions are available for Apple II/II+/IIe/IIc/III, CP/M-80 (40 formats), IBM PC (PC-DOS), and MS-DOS (Wang PC, HP 150, etc.). TMODEL-EX is for IBM PC, PC/XT, PC/AT, and compatibles with 512K and math coprocessor.

STATUS The TMODEL System is in use by more than 100 firms and agencies in the United States and other countries. TMODEL was first used by Washington County, OR in 1981.

AVAILABILITY TMODEL costs $1200. TMODEL-EX is $1500 and TMPLOT is $250. Sample versions (with reduced dimensions) available for $60.

CONTACT Robert M. Shull or Dave Larrabee
Professional Solutions, Inc.
Route 3, Box 182
Vashon, WA 98070
(206) 463-3768

microcomputers in transportation

Transportation Planning Software

Network Encoding and Plotting

APPLICATION NETBUILD

DEVELOPER Bernardin, Lochmueller & Associates, Inc. under contract with the Indiana Department of Highways

SUMMARY NETBUILD is divided into three modules. The first is for the entry of link-node network data into a disk file which can be uploaded and used by PLANPAC programs. The links are described by the following input variables: A-node, B-node, link distance, link speed, directional intersection approach capacities, and a one-way street indicator. A pre-established peak-hour factor of 0.09 is automatically entered for the user in order to eliminate repetitively entering this variable. These factors may subsequently be edited for select links in the View/Edit Module of this program. Data entry may be interrupted at any time and then reinitiated at a later date.

The Network View/Edit Module allows the user to view network data by ranges of record numbers. This module also allows you to edit any and all of the network variables including peak-hour factors and one-way indicators.

The "BUILDHR" Input Module converts the random access network data entry file into a seqential disk file. This new file is in "card image" format designed for direct input into the IBM mainframe BUILDHR program in the PLANPAC battery of transportation planning programs.

ENVIRONMENT IBM PC-DOS or Compaq DOS. Minimal RAM required; primarily an I/O program. Two disk drives desirable. Size of network limited only by space available on double density two-sided disk. Source code in BASIC.

STATUS In use by the Indiana Department of Highways.

AVAILABILITY Public domain.

CONTACT

Mr. Vincent L. Bernardin, AICP
Bernardin, Lochmueller & Assoc.
Hulman Building - Suite 606
20-24 N.W. 4th Street
Evansville, IN 47708
(812) 426-1737

Mr. James R. Gulick, P.E.
Div. of Location & Environment
IN Dept. of Highways
Room 1204, State Ofc. Bldg.
100 North Senate Avenue
Indianapolis, IN 46204
(317) 232-5468

microcomputers in transportation

Transportation Planning Software

Network Encoding and Plotting

APPLICATION GNE: General Network Editor

DEVELOPER Anand R. Pithavadian, Center for Urban Transportation Studies
University of Wisconsin--Milwaukee

SPONSORS University of Wisconsin--Milwaukee and UMTA University Research and Training Program

SUMMARY The General Newtork Editor produces an ASCII text file of network data for nearly any transportation application. GNE is designed to be the "front-end" for a variety of mathematical models and database functions.

A series of menus are provided for defining the application structure (e.g., node and link definitions, attribute names, colors, and shapes). Once the application structure has been defined the network can be drawn in high resolution color graphics. A full set of network editing features are provided (e.g., node and link plotting, deleting, undeleting, windowing, translation, rotation, and rescaling). Numerical data can be entered for link or node attribute values, or attribute values can be computed from predefined attribute models (consisting of variables, parameters, and a functional form). Networks can be as large as memory permits.

ENVIRONMENT IBM-PC's and compatibles. GNE is written in Turbo Pascal.

AVAILABILITY Available at $15 for copying and handling after February 1986.

CONTACT Center for Urban Transportation Studies
University of Wisconsin--Milwaukee
P.O. Box 784
Milwaukee, WI 53201
(414) 963-5787

microcomputers in transportation

Transportation Planning Software

Network Encoding and Plotting

APPLICATION NEDS: Network Editing and Display System

DEVELOPER Center for Urban Analysis and James Fennessy, DKS Associates

SUMMARY NEDS enables road and transit networks to be created, annotated, edited, displayed, and analyzed through interactive graphics. Loaded networks may be displayed with directional volumes, capacities, or volume/capacity ratios shown as link annotation, link colors, or link widths.

The network may be retrieved with the graphic editor. The view of the network may be adjusted with pan and zoom commands, as well as with coordinate-defined specifications. Descriptive data about nodes and links may be displayed. Editing features include graphic or descriptive updating to add a zone centroid, add, move, or remove a node, add, break, or remove a link, or shape a link (transit only).

A menu provides for the selection of up to six colors or patterns defining a continuous range for a variable attribute and a selection of bandwidths for user-defined ranges. This combination enables the display of loaded networks where color illustrates range of volume/capacity ratio and width illustrates range of assigned volume; alternatively, volume and capacity may be displayed as superimposed bandwidths. Assignment groups, link groups, or modes and line groups may be displayed in user-selected colors.

NEDS is currently integrated with the TRANPLAN suite of transportation planning programs also described in this report. Changes made interactively with NEDS may be processed with TRANPLAN.

ENVIRONMENT Written in FORTRAN 77. Implemented on a 16/32-bit MC68000, multi-user Xenix-based system, IBM PC/XT and AT. A Seiko GR-1104 raster color terminal with digitizing tablet and puck interface is used as the display device.

STATUS Version 2.1 is being used by Santa Clara County.

AVAILABILITY Available on a license basis.

CONTACT Frank Lockfeld, Director
Center for Urban Analysis, Santa Clara County
70 West Hedding Street
San Jose, CA 95110
(408) 299-3285

microcomputers in transportation

Transportation Planning Software

Site and Subarea Planning

APPLICATION GNET/NETWORK: Interactive Graphics Network Analysis

DEVELOPER Institute of Transportation Studies, University of California, Berkeley

SUMMARY This is a simple interactive graphics network analysis package suitable for simple shortest path and traffic assignment applications. Nodes and links are drawn on the computer screen, creating a network data file compatible with menu-driven shortest path and traffic assignment procedures. Program capacity is 125 two-way links and 110 nodes, limiting applications to localized transportation planning problems and classroom situations.

ENVIRONMENT Softech UCSD-P operating system for IBM-PC, dual floppy disk computers and compatible equipment with turtle graphics capability. (Note that the UCSD-P system must be acquired separately.)

AVAILABILITY Available for $25 copying and handling cost.

CONTACT ITS Systems Unit
107 McLaughlin Hall
University of California
Berkeley, CA 94720
(415) 642-1008

microcomputers in transportation

Transportation Planning Software

Site and Subarea Planning

APPLICATION QRS: Quick-Response Travel Estimation

DEVELOPER COMSIS Corp., Wheaton, MD

SPONSORS UMTA, Office of Methods & Support, URT-41 and
FHWA, Office of Planning, HPN-22

SUMMARY In 1978 the Comsis Corporation produced an NCHRP report* which described techniques for quickly estimating urban travel volumes. Most of the methods were presented as tables or nomographs which are tedious to use. The Quick Response System (QRS) software has been developed to relieve this tedium by implementing these techniques on a microcomputer.

Only those techniques involved with the traditional four-step planning process (trip generation, distribution, mode split, and assignment) have been implemented. [See also TspAssign in this section.]

ENVIRONMENT Operates on the Apple II, IBM PC and TRS-80 microcomputers under the UCSD p-System Version IV. Two disk drives and 64K of RAM are required. Note: this software will NOT run under Apple Pascal.

AVAILABILITY Available from the contact below.

CONTACT Microcomputers In Transportation
FHWA, HPN-22
400 7th Street S.W.
Washington, DC 20590

*Comsis Corporation, "Quick-Response Urban Travel Estimation Techniques and Transferable Parameters," NCHRP Report 187, 1978.

microcomputers in transportation

Transportation Planning Software

Site and Subarea Planning

APPLICATION TspAssign: Traffic Assignment

DEVELOPER Transportation Systems Planning

SUMMARY TspAssign is an interactive assignment program that is perfect for QRS users. The two files used in this program (a network file consisting of an A node, B node, speed, capacity, distance, and ADT; and a trip table file) can be input quickly, accurately, and at a lower cost. TspAssign will do an all-or-nothing assignment or incremental randomized capacity restraint.

TspAssign was originally developed for QRS users, thereby giving them a level of assignment wherein time savings, alternatives analysis, and reliability can be realized. All data files can be saved on disk, printed, and manipulated for later use. Output can be requested in several forms: 1) Volume/capacity assigned, 2) Volume assigned at each increment, 3) Trace from all origin zones to all destination zones and travel time. This data can be saved to disk.

ENVIRONMENT Operates on the IBM PC and compatibles (including the Z100 and the Radio Shack 2000) under MS-DOS, and requires 128K RAM. Distributed in compiled Pascal.

STATUS Operational; in use by the City of Jacksonville, Florida Planning Department.

AVAILABILITY For sale from contact below.

CONTACT David L. Phipps
Transportation Systems Planning
1032 South Shores Rd.
Jacksonville, FL 32207
(904) 399-4066

microcomputers in transportation

Transportation Planning Software

Site and Subarea Planning

APPLICATION CASWELL MODEL: Traffic Assignment Predictor for New Developments

DEVELOPER John R. Caswell P.E., Consultant, and Mark J. Peterson, in cooperation with the Town of Lincoln, MA

SUMMARY The CASWELL MODEL (APPREHEND) is a tool which local planning and zoning boards can use to predict the impact of a development on the roads in their community. The development need not be in the community but may be in a nearby town. The CASWELL MODEL allows the playing of "what-if" games and includes the capability to add or close roads, to add or delete stop signs or lights, and allows for scaling of current traffic data bases into the out years so that various traffic control ideas may be modeled both now and against future predictions. It is organized with menus so that it is user-friendly.

ENVIRONMENT Operates in BASICA on an IBM-PC or equivalent with DOS 2.0 or 2.1 as an operating system. Earlier version operates on a PDP-11 with RSTS as the operating system.

STATUS In use in Lincoln, Massachusetts.

AVAILABILITY License, program, and User's Manual available from contact below. Price is $500 plus any applicable taxes.

CONTACT John R. Caswell, P.E., Consultant
P.O. Box 98
Lincoln Center, MA 01773
(617) 259-0830

microcomputers in transportation

Transportation Planning Software

Impact Estimation

APPLICATION — ROADWAY AQ: Roadway Design Air Quality Impact Analysis
INTERSECTION AQ: Intersection Design Air Quality Impact Analysis

DEVELOPER — Charles Cook, Berkshire County (MA) Regional Planning Commission, with modifications by Cambridge Systematics, Inc., Cambridge, MA

SUMMARY — ROADWAY AQ is a VisiCalc™ template which can be used to estimate the air quality impacts of a roadway's design. Predictions for three kinds of emissions--carbon monoxide, hydrocarbons, and nitrogen oxide--are provided for both a base year and user-selected future years. Design parameters include the number and width of travel lanes, projected travel volumes, design capacities, roadside characteristics, and roadway type. Current emission rate tables are provided, but may be updated by the user.

INTERSECTION AQ is a similar template which examines air quality impacts of alternative intersection designs.

ENVIRONMENT — Operates on the Apple II, Apple III, and IBM PC microcomputers. One disk drive, 64K RAM, and the VisiCalc™ spreadsheet software are required. A version for the IBM PC and Lotus 1-2-3™ is also available.

AVAILABILITY — Available from the contact below.

CONTACT — Microcomputers In Transportation
FHWA, HPN-22
400 7th Street S.W.
Washington, DC 20590

microcomputers in transportation

Transportation Planning Software

Impact Estimation

APPLICATION Energy Analysis

DEVELOPERS New York State Department of Transportation

SUMMARY TRANSTSM program calculates transit ridership changes and energy savings associated with 11 transit-related TSM actions. It is a microcomputer version of manual worksheets in UMTA report, "Energy Impacts of Transportation Systems Management Actions."

Program PROLEV calculates the direct energy due to vehicle flow and indirect energy associated with construction actions on the specific project segment being analyzed. Methodology based upon program and procedures developed by CALTRANS and noted in "Energy Requirements for Transportation Systems" (NCHRP Project 20-7, Task 8, or as FHWA workshop notes with the same title).

Program PROLEV.HICOND calculates energy impacts associated with pavement rehabilitation improvements. Program works in conjunction with PROLEV data.

ENVIRONMENT Each program runs on Apple II or II+, 48K RAM, one disk drive, and Applesoft BASIC. TRANSTSM also runs on IBM PC.

AVAILABILITY Free from contact. Call or write technical contact below regarding Apple to IBM conversion or documentation questions.

CONTACT
David T. Hartgen
Data Services Bureau
New York State Department of Transportation
1220 Washington Avenue
State Campus, Building 4
Albany, NY 12232

TECHNICAL CONTACT
Nathan S. Erlbaum
(518) 457-2967

microcomputers in transportation

Transportation Planning Software

Impact Estimation

APPLICATION Computation of Accident Rates and Economic Evaluation of Proposed Accident Countermeasures

DEVELOPER Joseph L. Schofer, Midwest System Sciences, Inc.

SUMMARY This program facilitates analysis and evaluation of proposed highway accident-reducing projects. Screen-oriented and command-driven, it presents the user with a series of input forms emulating hand computation procedures. The user specifies attributes of the location and enters up to eight years of accident records. The program computes accident rates and permits the user to describe a countermeasure, its capital, operating, and maintenance costs, and its expected contribution to reducing accidents by severity class.

The program then predicts expected accident experience based on 1) user-specified annual traffic growth rate or horizon year volume; 2) assumptions that the historic accident rates prevail in the absence of the countermeasure, and that user-specified accident reductions due to the countermeasure occur.

Given user-specified average accident costs by severity class, the program computes present and annualized project costs, accident reduction benefits, net worth, and benefits/cost ratio. Reports summarizing all inputs and results may be printed.

ENVIRONMENT Version 3.0, now available, permits project files to be saved to and retrieved from diskettes. The program requires an IBM PC, XT, AT, or compatibles with at least 128K RAM, one DSDD diskette drive, and MS-DOS.

STATUS The program has been in use at the Wisconsin DOT, the City of Norfolk, VA, and other local government agencies.

AVAILABILITY For sale by contact.

CONTACT Midwest System Sciences
325 Sheridan Road
Wilmette, IL 60091

microcomputers in transportation

Transportation Planning Software

Impact Estimation

APPLICATION — HC20 and HC30: Hydrocarbon Emissions Impacts of Roadway Construction Projects

DEVELOPER — Transportation Planning Division, Broward County Office of Planning, Fort Lauderdale, FL

SUMMARY — These programs were developed to project hydrocarbon emissions resulting from new roadway construction and roadway widening projects for Broward County's Transportation Control Plan for Air Quality. HC20 is based on all-or-nothing traffic assignment to a facility. HC30 incorporates capacity restraint assumptions for adjustment of future traffic. The programs utilize MOBILE3 emission factors and default parameters. These factors and parameters can be altered for a specific area by the user.

Required inputs include project name and length, before-and-after facility types, area type, and traffic volumes by year of analysis. Program outputs consist of before-and-after average speeds and annual hydrocarbon emissions, as well as annual emission credits.

ENVIRONMENT — Hardware: Digital Equipment Corporation PDP11/44 or Micro 1123
Operating System: RSX11M-Plus Version 2.1
Software: FORTRAN-77

STATUS — Operational. Documentation in development.

AVAILABILITY — Source and execute files are available from contact.

CONTACT — Scott P. Seeburger
Broward County Transportation Planning Division
115 S. Andrews Avenue
Fort Lauderdale, FL 33301
(305) 357-6608

microcomputers in transportation

Transportation Planning Software

Geographic Data Processing and Display

APPLICATION Census Data System

DEVELOPERS Sammamish Data Systems, Inc.

SUMMARY The Census Data System is capable of interactively retrieving and displaying all of the data on the Census Bureau's STF1 and STF3 files. The heart of the system is the dBASE II™ relational database management system. The user can display the desired data in one of 79 "preprogrammed" displays, or write the data out to a separate disk file for further processing or to prepare special reports. Individual data items or structured sets of related data items can be retrieved with equal ease. The data can be grouped either by subject matter or by user-defined geographic areas.

The user is able to find the data through the use of English language commands. Data can be located for specific areas by the use of simple "FIND" commands. Data can also be retrieved for specific relationships such as "locate all cases where variable A is greater than 3 times variables B or C." All the data searches for geo-specific areas are done with names of the areas rather than census codes.

ENVIRONMENT The system is available for any machine supporting CP/M, and for the IBM PC (128K) with CP/M-86 or MS-DOS, or other MS-DOS microcomputers.

STATUS Used by the planning departments in the following areas: the Borough of Queens, New York; Hot Springs County, Wyoming; St. Petersburg, Florida. Also in use at the Whatcom County COG in Bellingham, Washington, as well as at other agencies and universities.

AVAILABILITY For sale from contact below.

CONTACT Mr. Richard Schweitzer
Sammamish Data Systems, Inc.
P.O. Box 70382
Bellevue, WA 98007
(206) 644-2442

microcomputers in transportation

Transportation Planning Software

Geographic Data Processing and Display

APPLICATION CenTrak

DEVELOPER Criterion Incorporated

SUMMARY CenTrak is a demographic retrieval and reporting system for the IBM Personal Computer. It provides access to census information and other demographic data for counties, cities, ZIP codes, census tracts, and block groups. It includes data from the 1980 Census, including population and housing characteristics, income, labor force, and family status. CenTrak also has 1985 estimates of population, households, and income.

With CenTrak you can produce a labeled printout of demographic data for any ZIP code, county, place, census tract, or block group in your data base. You can select from 352 demographic variables including household income, age and sex distribution, ethnic breakdowns, housing information, and transportation data.

CenTrak will produce a standard ASCII format data file to be used by other analytical programs on your computer, such as Lotus 1-2-3™. This file is generated with a companion "dictionary" file which describes the data in the file.

You can also produce a "mapping data file" that can be used by PCMAP, which is also described herein, to make color or black-and-white maps of any of the data in CenTrak. These maps augment and enhance the information contained in printed reports.

ENVIRONMENT IBM PC, XT, AT, or compatible computer with 320K of internal memory and a hard disk drive.

STATUS CenTrak is used by a number of agencies and private firms including the City of Colorado Springs.

AVAILABILITY $2,250 for software and data, $2,750 with block group data.

CONTACT

Bob S. Evatt, Jr.
Criterion Incorporated
11100 Roselle Street
San Diego, CA 92121
(619) 455-0162

microcomputers in transportation

Transportation Planning Software

Geographic Data Processing and Display

APPLICATION DemoScan: Access and Reporting of Census Data

DEVELOPER Claritas Partners, L.P.

SUMMARY DemoScan consists of report generation and data manipulation utilities to produce demographic summaries for any Census geography, ZIP Code, or user-defined geographic areas, such as transportation zones. Input data include any Census data as well as user input data. Output includes a choice of six standard report formats or flexible custom formatting. Summary measures available are counts, percentages, indices, and cumulative values. A single report can contain up to 500 geo-units and 10 columns of data.

DemoScan was designed for ease of use by non-programmers and non-data processors. It is completely menu-driven allowing for step-by-step report generation, yet allows the advanced user complete flexibility in custom designing a report. Data utilities include selecting geo-units for processing, aggregating data across geo-units, and inputting new data.

ENVIRONMENT DemoScan operates under the UCSD p-System for the Apple IIe with 128K RAM, and IBM PC with 128K RAM, printer, and 2 disk drives.

STATUS Operational at New Jersey National Bank in Trenton, NJ.

AVAILABILITY For sale from contact below.

CONTACT Lisa Tracy
Claritas Partners, L.P.
201 N. Union St.
Alexandria, VA 22314
(703) 683-8300

microcomputers in transportation

Transportation Planning Software

Geographic Data Processing and Display

APPLICATION 2-D: Address Matching, Geographic Retrieval and DIME Maintenance

DEVELOPERS Center for Urban Analysis, in collaboration with Census Bureau staff, with funding by UMTA, Office of Methods and Support

SUMMARY The 2-D system provides capabilities to display, query, and maintain a DIME-type computer representation of a map. The system provides capabilities to match street addresses and street intersections with the map, retrieving geographic data such as coordinates, Census tract, city, and Zip code.

The 2-D system organizes GBF/DIME records in a geometric record structure based on the mathematical representation of a map, and a related set of descriptive records. Additions, changes, and deletions can be made without system degradation or file rebuilding. Data for the 2-D system is initialized directly from Census Bureau GBF/DIME records.

The system provides interactive graphic display, retrieval and manipulation of the map. Complete graphic editing is provided, including addition and deletion of segments and nodes, shaping of curved features, as well as entry and change of descriptive data, such as address ranges and Zip codes. The graphic editor features the ability to retrieve portions of the map based on a variety of descriptive criteria, ranging from a specific street address to a named geographic region.

ENVIRONMENT Written in Pascal. Implemented on 16/32 bit MC68000, multi-user Xenix-based system and an HP9000 model 40. A Seiko GR-1104 raster color terminal with digitizing tablet and puck interface is used as the preferred display device. Tektronix 4012 storage tube and HP2627A color graphics terminals also used.

STATUS Version 4.3 is being used by Santa Clara County and the Maryland-National Capital Park and Planning Comm. Previous versions transferred to 68000-based systems at Baltimore Regional Planning Council and Statistical Research Division of the Bureau of the Census.

AVAILABILITY Available with a fee for installation and training.

CONTACT Frank Lockfeld, Director
Center for Urban Analysis, Santa Clara County
70 West Hedding Street
San Jose, CA 95110
(408) 299-3285

microcomputers in transportation

Transportation Planning Software

Geographic Data Processing and Display

APPLICATION LandTrak

DEVELOPER Criterion Incorporated

SUMMARY LandTrak is a computerized geographic information management system that captures, displays, and analyzes spatial data, such as facilities, parcels, district boundaries, and street networks. This system generates customized maps and reports interactively to provide immediate input to the planning process. LandTrak's on-screen menus and use of color graphics makes the system easy to learn and use. LandTrak's features include:

- o Computerized mapping
- o Interactive query and updating of locations, boundaries, and streets
- o Interactive address geocoding (assignment of geographic coordinates to addresses)
- o Interactive digitizing of areas, points, and linear features
- o Pre-defined and ad hoc geographic database reports

LandTrak applications in transportation include:

Database preparation for transportation models
Transportation network digitizing
Traffic analysis zone digitizing
Transit route planning and analysis
Paratransit routing and scheduling
Zone Change/Land Use Analysis

ENVIRONMENT IBM PC, XT, AT compatible computer with 512K internal memory and a hard disk. Both a color and monochrome color display are required.

STATUS LandTrak is used by the County of Los Angeles, Orange County, CA, Boise Urban Stages, City of Vancouver, BC, City of Davenport, IA, Municipality of Anchorage, AK

AVAILABILITY Software, training, and installation: $20,000

CONTACT Bob S. Evatt, Jr.
Criterion Incorporated
11100 Roselle Street
San Diego, CA 92121
(619) 455-0162

microcomputers in transportation

Transportation Planning Software

Geographic Data Processing and Display

APPLICATION DIDS: Interactive Computer Mapping

DEVELOPER Sammamish Data Systems, Inc.

SUMMARY The Desktop Information Display System (DIDS) is an integrated computer mapping system for microcomputers. It is capable of displaying data for counties, minor civil divisions, census tracts, and five-digit Zip codes in up to eight colors on the computer's CRT.

Output can be produced on a color dot matrix or inkjet printer, a plotter, or a film recorder. The software allows the user to zoom in on the display to enlarge portions of the map area with a two- and four-power enlargement. The image can be panned in any direction, colors can be changed from a color palette, several statistical tests can be invoked to display the data in various distributions, and the title, legends, and credit notes are totally user-definable. Data can be easily input using standard database management or spreadsheet software packages. By using specially processed geographic boundary files, individual maps are prepared in seconds from user-defined menus. Digitized polygon boundary files are available for use with DIDS for all census tracts, counties, and five-digit metropolitan ZIP codes. Solid fill or dot density maps can be produced.

ENVIRONMENT IBM PC, XT, or AT with IBM color card, Plantronics ColorPlus card or Everex Graphics Card, and 128K RAM. Zenith Z100 or TI Professional Micro. Any IBM compatible with appropriate color graphics card.

STATUS Has been used by the planning departments in the Borough of Queens, New York; Dallas, Texas; and many other locations.

AVAILABILITY For sale from contact below.

CONTACT Mr. Richard Schweitzer
Sammamish Data Systems, Inc.
P.O. Box 70382
Bellevue, WA 98007
(206) 644-2442

microcomputers in transportation

Transportation Planning Software

Geographic Data Processing and Display

APPLICATION GADS: Geo-Data Analysis and Display System

DEVELOPER Center for Urban Analysis

SUMMARY GADS provides capabilities to display data associated with zones described on a map image, and to combine zones into larger units by interacting with the displayed map image. GADS maintains the association and summarization of zonal data to the larger units. Data pertinent to the larger units only, as well as data pertinent to the constituent zones, may be displayed. A GADS database consists of a zone identifier followed by descriptive data items for the zone. This tabular database may be created and manipulated by spreadsheets or system utilities and programs, such as "awk" in Unix-based systems.

Graphic functions, including zoom and pan, enable portions of the map to be enlarged for detailed data analysis. Zonal configurations are defined by touching the cursor location to the zone and then to the desired larger unit. Facility is provided to relocate the position where zone-specific data is displayed, normally the centroid of the zone. The GADS-EDIT feature enables arbitrary polygons to be created with respect to the DIME database maintained in the 2-D system also described in this report. Facility is provided to retrieve and simultaneously display portions of the 2-D database so that GADS zone boundaries may be aligned with known geographic features.

ENVIRONMENT Written in Pascal, and implemented on 16/32-bit MC68000 multi-user Xenix-based system with 1.5M RAM, the AT&T Unix PC7300, and the HP9000 model 40. A Seiko GR-1104 raster color terminal (1024 x 780) with digitizing tablet and puck interface is the preferred display and interacting device. Tektronix 4012 storage tube and HP2627A color graphics terminals also used.

STATUS Used by Santa Clara County and Maryland National Capital Park and Planning Comm.

AVAILABILITY Available with a fee for installation and training.

CONTACT Frank Lockfeld, Director
Center for Urban Analysis, Santa Clara County
70 West Hedding Street
San Jose, CA 95110
(408) 299-3285

microcomputers in transportation

Transportation Planning Software

Geographic Data Processing and Display

APPLICATION PCMAP

DEVELOPER Criterion Incorporated

SUMMARY PCMAP is a thematic mapping program for use with the IBM PC. It provides an easy-to-use and powerful map creation tool with capabilities previously available only on large computers. PCMAP allows mapping of any geographic area (such as census tracts), linear features (such as freeways), and point-specific items (such as employment centers).

PCMAP makes map creation easy. Only four commands are required to generate a basic map. More sophisticated maps also can be created quickly and efficiently. The user exercises various map options by "filling in the blanks" on the screen.

For transportation planners, PCMAP provides an excellent tool for data summary and reporting. Applications include:

- o Mapping trip origins and destinations by traffic zone
- o Mapping transportation networks to display traffic flow, congestion, or other network variables

PCMAP can also be used to produce successive overlay maps for transit planning. Transit-related variables such as car ownership, income, and age can be plotted on transparent map sheets to be overlayed with each other and a base map. In this way, potential areas of high transit patronage can be identified for use in evaluating alternative routes.

ENVIRONMENT IBM PC, XT, or AT with 256K and color graphics card. Outputs to several popular pen plotters and most dot-matrix printers.

STATUS PCMAP is used by a large number of agencies and private firms, including the Federal Highway Administration, the Association of Central Oklahoma Governments, the Baltimore Regional Planning Council, the Central Mississippi Planning and Development District, the City of Corpus Christi, the City of Richardson, TX, and the City of Plano, TX.

AVAILABILITY PCMAP software $895. Coordinate files are also available.

CONTACT

Bob S. Evatt, Jr.
Criterion Incorporated
11100 Roselle Street
San Diego, CA 92121
(619) 455-0162

microcomputers in transportation

Transportation Planning Software

Highway Maintenance Planning

APPLICATION Pavement Management System

DEVELOPER Tulare County Association of Governments

SUMMARY This program is an adaptation of a pavement management system, developed for microcomputers by FHWA, which was based on the system used by the California Department of Transportation to recommend and prioritize corrective maintenance on flexible pavements. It includes the following features: (1) it has a user-oriented terminal display for entering and editing physical attributes, pavement survey data, and maintenance history information; (2) it computes a pavement condition index adapted from APWA-COE'S "PAVER" to represent the general condition of a pavement segment; (3) it analyzes pavement defects and recommends corrective repair strategies and associated costs; (4) it places each roadway segment in one of 19 priority matrix categories according to ride, ADT, and PCI and rates them within each category according to the cost per user mile of the recommended strategy; (5) it sorts the segments alphabetically by location and numerically in order of priority; and (6) it prints lists of recommended maintenance activities sorted by location or priority.

ENVIRONMENT IBM-PC DOS 2.10 and IBM-PC BASIC 3.0

STATUS Operational. Prediction routines and subprograms which recommend reconstruction and routine maintenance are being developed.

AVAILABILITY Software within public domain. Program and documentation available from contact.

CONTACTS Allen Wilson
Tulare County Public Works Department
Room 10, County Civic Center
Visalia, CA 93291
(209) 733-6645

or

Philip Slitor
(209) 733-6557

microcomputers in transportation

Transportation Planning Software

Highway Maintenance Planning

APPLICATION PMS: Flexible Pavement Management System

DEVELOPER Caltrans, in cooperation with Zen Jao, FHWA Region 9

SPONSOR FHWA, Region 9

SUMMARY PMS is an adaptation for microcomputer of the Caltrans Flexible Pavement Management System. The program furnishes an inventory and strategy system for evaluating pavement distress and plots strategies and priorities for rehabilitation. PMS uses simplified decision trees to analyze distress and assign repair strategies. The program determines the dominant strategy for rehabilitation of each segment, figures out the repair costs, and assigns priority based on the ADT, ride, and compatible repair strategy. The user can change all the trigger values on the decision trees, the cost parameters, and the priority rankings.

ENVIRONMENT PMS is available for Radio Shack microcomputers (Models 2, 12, and 16), and for the IBM PC and compatibles. On Radio Shack Model 2, the TRSDOS 2.0A operating system is required; for Models 12 and 16, TRSDOS 4.1 or 4.2 is needed. The IBM PC version operates under MS-DOS 2.0.

AVAILABILITY Available from the contact below.

CONTACT Microcomputers In Transportation
FHWA, HPN-22
400 7th Street S.W.
Washington, DC 20590

microcomputers in transportation

Transportation Planning Software

Highway Maintenance Planning

APPLICATION Regional Highway Maintenance Planning

DEVELOPER Capital District Transportation Committee

SUMMARY Based on the New York State Department of Transportation's Highway Projection Model, this program projects highway conditions and maintenance costs for up to 99 years into the future, given current highway conditions, repair policies, and rates of road deterioration. The model takes the current highway condition scores and checks them against a matrix of repair policies. If a repair is specified, the road is repaired and the cost of the repair along with other pertinent data is saved. If no repair is specified, the road is deteriorated by the yearly amount.

The program is extremely user-friendly and versatile.

ENVIRONMENT The program operates on a XENIX operating system but could run on any system with a FORTRAN 77 compiler. The program requires 100K RAM.

STATUS Operational, and currently in use by the below agency.

AVAILABILITY Source code is available free of charge via telephone hook-up from the below agency.

CONTACT Glenn Posca
Capital District Transportation Committee
5 Computer Drive West
Albany, NY 12205

microcomputers in transportation

Transportation Planning Software

Highway Maintenance Planning

APPLICATION — Quick-Benefit-Cost procedure for evaluating proposed highway projects

DEVELOPER — New York State Department of Transportation

SUMMARY — There has been a need within New York State's Department of Transportation to quickly evaluate proposed highway projects from an economic standpoint for use in deciding which projects deserve further consideration in setting priorities.

This procedure estimates operating and travel time costs under "before" and "after" conditions over the projected life of the project. It computes the difference and compares it with the estimated construction costs for an evaluation of the project's worth. Accident costs are considered separately since they are site-specific and difficult to generalize.

The program contains a section of explanation and instruction, and data are input through a series of prompts.

This Quick-Benefit-Cost procedure can be applied to a variety of project types, including closed and posted bridges, highway resurfacing, and major reconstruction.

ENVIRONMENT — Apple IIe, 64K memory and 80-column card, one disk drive (Apple BASIC) or IBM PC (BASIC)

AVAILABILITY — Free from contact. Call or write technical contact noted below regarding Apple or IBM documentation questions.

CONTACT — David T. Hartgen
Data Services Bureau
New York State Department of Transportation
1220 Washington Avenue
State Campus, Building 4
Albany, NY 12232

TECHNICAL CONTACT — Nathan S. Erlbaum
(518) 457-2967

microcomputers in transportation

Transportation Planning Software

Highway Maintenance Planning

APPLICATION HIM: Highway Impact Analysis/Modeling

DEVELOPER Infocomp Systems, Inc.

SUMMARY The Highway Impact System consists of file maintenance and reporting functions which permit planners to store information about the current condition of a network, commodities being transported, and vehicles transporting them. This information combines with site-specific information collected on interview to serve as input to processing programs which calculate the level of stress being generated by either an actual or projected transportation scenario. Stress levels are compared to each segment's ability to absorb stress. In this way, planners can identify and prioritize areas of concern, in addition to determining their causes and a preliminary indication of the required level of response.

System reports provide output in summary and detail for road segments, vehicle types, commodities, and time of year. Final output provides an indicator of the structural strength of roadway required to support the level of traffic indicated. The system may be run for user-defined subsets of the overall road network, vehicle fleet, and commodity inventory.

ENVIRONMENT HIM runs on the Hewlett-Packard HP3000 using the standard operating system and a report generator which is part of the software. The system requires approximately 20MB disk storage for all programs and databases. The system requires a single terminal and a 132-column dot matrix printer.

STATUS Installed at South Dakota DOT, Pierre, South Dakota.

AVAILABILITY The system is offered either for sale or on a service bureau basis. In both cases, contact below.

CONTACT Kenneth M. Kennard
Infocomp Systems, Inc.
2340 Robinson, Suite 110
Colorado Springs, CO 80904
(303) 630-8345

microcomputers in transportation

Transportation Planning Software

Highway Maintenance Planning

APPLICATION Revenue/Expenditure Analysis (MAP-Management Assistance Program)

DEVELOPER Department of Agricultural Economics, University of Illinois at Urbana/Champaign, and Department of Economics
Western Illinois University at Macomb

SPONSOR Office of Transportation and Agricultural Marketing Service, U.S. Department of Agriculture, Illinois Department of Agriculture

SUMMARY This program analyzes available revenues and compares them to expected expenditures of township governments with rural low volume road responsibilities. The program is organized so calculations and comparisons can be made for individual townships or for all townships in a county. In addition to calculating expected budget surpluses or deficits, MAP has a simulation routine to analyze budget implications of cost inflation, weakening revenue bases (e.g., declining property assessed valuation), service improvements, etc. The output can be directed to screen or printer.

ENVIRONMENT MAP is a basic program written for the IBM-PC w/256K.

STATUS Final software field testing will occur during the winter of 1985-86 with Illinois townships.

AVAILABILITY Software is generally designed for Illinois townships but is generic enough that it may be applicable for townships and counties in other States without major modifications.

CONTACT IlliNET
Cooperative Extension Service
College of Agriculture
University of Illinois
1301 West Gregory Drive
Urbana, IL 61801

microcomputers in transportation

Transportation Planning Software

Highway Maintenance Planning

APPLICATION Low-Volume Road Maintenance/Rehabilitation Decision-Making

DEVELOPER West Virginia University, Department of Civil Engineering

SPONSOR U.S. Forest Service, Northeastern Forest Experiment Station

SUMMARY Program has been developed to assist in making a preliminary determination of the feasibility of upgrading/rehabilitating unpaved low-volume road links. Program is self-guiding in that user is asked various questions which need to be considered when reviewing a road for potential upgrading. User simply makes "YES/NO" responses to questions about road usage, road surfacing, drainage, geometric design, soils, bridges, and other factors of this nature. Output is a list of those road links in jurisdictions which are candidates for upgrading or rehabilitation.

ENVIRONMENT Program written in Applesoft BASIC. Operates on 48K Apple II microcomputer under the DOS operating system. One disk drive required. IBM PC version is also available.

STATUS Program has been in use for approximately two years by Monongahela National Forest, Elkins, West Virginia.

AVAILABILITY Program has been developed for roads in the Appalachian region. Transferability to other geographic areas may be affected by differences in physical environment. Available at cost in source listing form or on diskette.

CONTACT Ronald W. Eck, P.E.
Department of Civil Engineering
West Virginia University
P.O. Box 6101
Morgantown, WV 26506-6101
(304) 293-5580

microcomputers in transportation

Transportation Planning Software

Highway Maintenance Planning

APPLICATION Quick Procedure to Forecast Rural Traffic

DEVELOPER New York State Department of Transportation

SUMMARY The Quick Procedure to Forecast Rural Traffic is designed to estimate future traffic volumes on rural State highways. The procedure makes use of three elasticity based models to predict future AADT values on interstates, principal arterials, and minor arterials and major collectors using town and county households, county auto registrations, and town population. The program calculates an average growth rate for each dependent variable from the values and years input by the user. These growth rates are then multiplied by the design life and elasticities to yield AADT growth rates.

ENVIRONMENT IBM PC or Apple IIe/+

AVAILABILITY Free from contact. Call or write technical contact noted below regarding documentation questions.

CONTACT
David T. Hartgen
Data Services Bureau
New York State Department of Transportation
1220 Washington Avenue
State Campus, Building 4
Albany, NY 12232

TECHNICAL CONTACT
Nathan S. Erlbaum
(518) 457-2967

microcomputers in transportation

Transportation Planning Software

Highway Maintenance Planning

APPLICATION — ESALS: Design-lane Equivalent Single Axle Load Forecasting for Rural Trunk Highways

DEVELOPER — Office of Transportation Data, Research and Analysis
Minnesota Department of Transportation

SUMMARY — LOTUS 1-2-3™ template calculates:

a) a 20-year design-lane Equivalent Single Axle Load (ESAL)
b) 16-hour vehicle class count expansion to ADT and base year vehicle mix, and
c) a design lane annual load

The program used Minnesota-based growth factors for each vehicle type. User inputs can include the number of lanes, the design period base year and design year ADT, a base year or raw count vehicle type distribution, and the month when the raw count was taken.

Use of this template requires only a basic knowledge of LOTUS 1-2-3™ since a programmed menu guides the user through the template and permits the saving of results to disk or paper.

ENVIRONMENT — IBM PC and LOTUS 1-2-3™, the template requires approximately 50K of RAM after LOTUS has been loaded.

AVAILABILITY — Available from contact below.

CONTACT — Mark Flinner
Room 820, Transportation Building
John Ireland Blvd.
St. Paul, MN 55155
(612) 296-8526

microcomputers in transportation

Transportation Planning Software

Highway Maintenance Planning

APPLICATION — Rail-Highway Grade Crossing Resource Allocation

DEVELOPER — West Virginia University, Department of Civil Engineering

SPONSOR — Based on research sponsored by the West Virginia Department of Highways, in cooperation with the Federal Highway Administration

SUMMARY — The U.S. Department of Transportation's Rail-Highway Grade Crossing Resource Allocation Model assists agencies in setting priorities for rail-highway grade crossing improvement programs. This optimization model uses data about the physical and operational characteristics of each crossing from the National Railroad Highway Grade Crossing Inventory and accident data from the Railroad Accident/Incident Reporting System. Originally written in FORTRAN, the program has been adapted to the Applesoft BASIC language for use on the microcomputer. Transfer of data from magnetic tape to diskette can be accomplished using a commercial communications software package with a micromodem.

ENVIRONMENT — Program written in Applesoft BASIC. Operates on 48K Apple II Computer under the DOS operating system. One disk drive required. Procedure requires at least three diskettes (one for the resource allocation program, one for output, and at least one for the original data, depending on magnitude of accident and inventory data in the jurisdiction of interest).

STATUS — In use at West Virginia University.

AVAILABILITY — Copies of the resource allocation program (one diskette), sample data for West Virginia (two diskettes), sample output (one diskette), and limited documentation are available for $25 per set to cover expenses. Please make checks payable to "Department of Civil Engineering Fund."

CONTACT — Ronald W. Eck, P.E.
Department of Civil Engineering
West Virginia University
P.O. Box 6101
Morgantown, WV 26506-6101
(304) 293-5580

microcomputers in transportation

Transportation Planning Software

APPLICATION Matrix Transposition using Lotus 1-2-3™ to create O/D trip tables from P/A trip tables

DEVELOPER Shari Gilevich
Transportation and Economic Development Division
Clackamas County, Oregon

SUMMARY This information is being presented to aid transportation planners who, when preparing to do a trip assignment, need to create O/D format trip tables from P/A tables. The Translate function on the Lotus Utility Disk can be used to quickly transpose a matrix, saving the planner from having to input both a P/A table and its transposition. The P/A table and the A/P table can then be modified as needed and combined to create the O/D matrix using Lotus System Disk.

ENVIRONMENT Micros using Lotus 1-2-3™, Release 1. Release 2 has an internal Transpose function which eliminates the need for Translations described in this paper.

STATUS Lotus 1-2-3™ commercially available from software vendors.

AVAILABILITY Description of process to complete matrix transposition available at no charge from contact below.

CONTACTS Shari Gilevich/Gary Spanovich
Clackamas County
Department of Transportation and Development
902 Abernethy Road
Oregon City, OR 97045
(503) 655-8521

microcomputers in transportation

Transportation Planning Software

APPLICATION TRANUS: An Integrated Land Use - Transport Model

DEVELOPER MODELISTICA, Caracas, Venezuela

SUMMARY TRANUS consists of a number of interrelated programs for the simulation and evaluation of urban or regional land use - transportation plans. The land use model, based on spatial input-output analysis, simulates the location of activities and their interaction. It also simulates a property market with land prices. The area to be analyzed can be divided into a two-level hierarchy of zones, and external zones can be included to represent imports and exports. The transport model performs multi-path search, transport costs calculations, elastic trip generation, a two-level hierarchical mode split, multi-path probabilistic assignment, and capacity restriction. It can accommodate a variable number of modes, from cargo to passengers. Public transport capacities can be made explicit. Both the land use and transport models iterate internally to achieve supply/demand equilibrium. Transport costs are fed back to the land use model in a dynamic fashion. Most of the formulation throughout the models is based on random utility concepts, and consistent user benefit indicators are produced. Complementary programs perform functions like extensive output, evaluation, calibration, interactive data entry, and some graphics. Reference: De la Barra, Perez, and Vera, 1984, Environment and Planning B, Vol. 11, pp. 87-101.

ENVIRONMENT All programs in Fortran 80 for CP/M or MS-DOS. Versions in Spanish and English with extensive documentation. A hard disk is desirable.

STATUS TRANUS has been successfully applied to several cities and regions in Venezuela and Curacao. Several enhancements and extensions are underway.

AVAILABILITY On 5-1/4" diskettes for most CP/M and MS-DOS formats.

CONTACTS T. de la Barra or B. Perez
Apartado Postal 78198
La Urbina
Caracas 1074
Venezuela

microcomputers in transportation

Transportation Planning Software

APPLICATION MASSVAC2: Network Evacuation Planning

DEVELOPER Transportation Division, Civil Engineering Department, Virginia Polytechnic Institute and State University

SUMMARY MASSVAC2 is the second version of the MASSVAC evacuation model. It is a computer simulation model developed for the analysis and evaluation of evacuation plans for urban areas threatened by natural disasters. The area demographic characteristics, network geometry, link parameter, and risk factor are inputs to the model. The model outputs include network clearance time, best evacuation routes by zone, optimum shelter locations, sites of possible traffic bottlenecks, and proper traffic management strategies to alleviate bottlenecks. An interactive model PREMAS also helps the user prepare input data under a friendly environment.

ENVIRONMENT The programs are written in FORTRAN(F77). MASSVAC2 is implemented on an IBM-PC with 320K RAM to simulate a network with 105 zones and 300 nodes.

STATUS MASSVAC is being used by City of Virginia Beach. A real time heuristic version, MASSVAC3, is under development.

AVAILABILITY Available from the contact below.

CONTACT Dr. Antoine G. Hobeika, Head
Transportation Division
Civil Engineering Department
Virginia Tech
Blacksburg, VA 24061
(703) 961-7407

microcomputers in transportation

Transportation Planning Software

APPLICATION	Forecast Annual State Population
DEVELOPER	N.M. State Highway Dept., Santa Fe, N.M.
SPONSOR	U.S. Department of Transportation
SUMMARY	This set of seven programs, written in Apple IIe DOS 3.3 BASIC, helps the user to enter the State's 1980 population table and birth and death rate history from 1977 to 1983, and projects the rates up to 26 years, to forecast annual total State population estimates. Program output includes: printout of the forcasted birth and death rates, and number of births, deaths, and immigrants, as well as the total population, percent change for each year, Coefficient of Determination (R2), and T and F tests of the equations used to forecast the rates.
ENVIRONMENT	Apple IIe with 128K RAM and two disk drives.
STATUS	Used by N.M. State Highway Dept.
AVAILABILITY	Available. Please send a 5.25 in. floppy disk and a self-addressed, stamped disk mailer for programs. Documentation and/or Basic source program listings - free for the asking.
CONTACT	Richard Boyce Planning Bureau New Mexico State Highway Department P.O. Box 1149 Santa Fe, NM 87504-1149 (505) 982-0955 ext. 294

microcomputers in transportation

Transportation Planning Software

APPLICATION CPMS - Capital Program Management System

DEVELOPER Victor S. Teglasi

SUMMARY CPMS is a powerful, menu-driven, database management system specifically designed for transportation professionals who are involved in capital program planning, development, or management.

CPMS produces four basic types of project reports and two types of funding summary reports. One of the reports conforms to the federally mandated Transportation Improvement Program (TIP) document and is especially useful to metropolitan planning organizations. The other reports contain project management information which is useful in monitoring and managing projects in the five-year capital program.

CPMS allows the management of different capital programs (i.e., highway, bridges, transit, etc.) within the same system, thereby reducing the need for development of separate database management programs. Data maintained by CPMS is in dBASEIII™ DBF format, allowing users to access the data for separate processing or reporting. The dBASEIII™ software or knowledge of its operation is not required to install or operate CPMS. CPMS includes the following features:

- Search/Display
- Project Selection
- Project Sorting
- Reports/Summaries
- On-screen Editing
- Search & Replace Fields
- File Management
- Xtract or Combine Files

ENVIRONMENT CPMS is designed to operate on an IBM PC or XT with two disk drives and 256K of RAM under DOS 2.1 operating system. A wide carriage printer is desirable but not required.

STATUS Operational - in use by NYSDOT (NYC and Long Island).

AVAILABILITY For sale from contact below.

CONTACT
Mark Roskin
COMSIS Corporation
11501 Georgia Avenue
Wheaton, MD 20902
(301) 933-9211

microcomputers in transportation

Transportation Planning Software

APPLICATION Site-Selector

DEVELOPER M.M. Dillon Ltd.

SUMMARY SITE-SELECTOR is an integrated package of programs designed to assist in choosing optimum locations for public sector facilities.

Spatial separation between facilities and activities is developed by means of a network model, and may be measured in terms of time or distance. Activities within a zone are user-defined, e.g., households, population (by category), employment, etc.

For each scenario, the model computes:

- o the time (or distance) and best route between each activity zone and its nearest facility
- o the time (or distance) frequency histogram, and cumulative histogram for all zones to their nearest facility
- o the area-wide average (weighted) time or distance
- o a sequenced list of facilities nearest to each zone
- o the loading on each facility, based on its catchment

The programs have been designed throughout to be interactive and user-friendly.

ENVIRONMENT IBM PC (or XT or AT) or any IBM-compatible microcomputer. Requires 256K RAM.

STATUS Used by City of Yellowknife, NWT, Canada to determine optimum fire station locations. Currently being used to locate ambulance stations and other public sector facilities.

AVAILABILITY For sale from contact below. User Manual and demo diskettes available for U.S. $50.

CONTACT Bob Lewis
M.M. Dillon Ltd.
47 Sheppard Avenue East
Toronto, Ontario
Canada M2N 6H5
(416) 229-4646

TRAFFIC ENGINEERING SOFTWARE

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION	Computational Procedures for the 1985 Highway Capacity Manual
DEVELOPER	Polytechnic University
SUMMARY	This software was developed for the Federal Highway Administration. It computerizes the procedures for computing capacity and level of service for the types of facilities described in all the chapters of the 1985 Highway Capacity Manual. The programs are menu-driven and highly interactive, allowing users to run multiple analyses very quickly.
ENVIRONMENT	IBM-PC and PC compatible microcomputers with DOS 2.0 or later and 128K RAM. Apple II microcomputers with PRODOS and 64K RAM. (PRODOS is distributed with the software.)
STATUS	Fully operational.
AVAILABILITY	The program and documentation are available for a nominal charge through the Microcomputers in Transportation Support Center. The 1985 Highway Capacity Manual can be ordered from the Transportation Research Board for $40.
CONTACT	Ron Giguere FHWA/HTO-23 Washington, DC 20590 (202) 426-0411

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION SICA: Signalized Intersection Capacity Analysis

DEVELOPER Steven Gayle, James Papaleo
Binghamton Metropolitan Transportation Study

SUMMARY Performs analysis of signalized intersections using the methodology of the 1985 Highway Capacity Manual. Fully menu-driven and user interactive. Disk file handling capability combined with on-screen editing of input data permits the analyst to quickly run numerous "what if?" iterations to review level-of-service improvements. Hard copy results include flow ratios, lane group capacity, v/c ratios, and delay and level-of-service for lane group, approach, and the entire intersections. Fully documented.

ENVIRONMENT IBM/PC and MS-DOS machines; 128K in DOS 1.1 or 256K in DOS 2.1

STATUS Operational; in use throughout New York State.

AVAILABILITY Available from contact. Public domain; $15 to cover cost of reproduction and postage.

CONTACT Steven Gayle
Binghamton Metropolitan Transportation Study
P.O. Box 1766
Binghamton, NY 13902
(607) 772-2443

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION Intersection Level-of-Service Analysis - Operations and Design

DEVELOPER Transportation Planning Division, Broward County Office of Planning, Fort Lauderdale, Florida

SUMMARY The program was developed following the Critical Movement Analysis method for Operations and Design described in TRB Circular 212. The program calculates intersection LOS, Saturation and Critical Volumes for at-grade, signalized intersections with up to eight phases. A "left-turn check" is performed on those intersection approaches without an exclusive left-turn phase.

All required inputs, except signal timing, may be retrieved from a local file. The file interface may be overriden so that any intersection may be analyzed through manual inputs. Required inputs include intersection geometry, hourly turning movements, and signal phasing. The user can either default values or enter area-specific data for lane utilization, truck/bus factor, local bus factor, pedestrian crossings, and minimum left-turns per cycle. The program also includes a recalculation function so that alternative intersection designs may be tested.

ENVIRONMENT Hardware: Digital Equipment Corp. PDP 11/44 or Micro 1123
Operating System: RSC11M-Plus Version 2.1
Software: FORTRAN-77 and forms management subroutines

STATUS Operational; documentation in development.

AVAILABILITY Source and execute files are available from contact.
Requesters should send a description of their system hardware and operating system configuration.

CONTACTS Scott P. Seeburger or Jeff Weidner
Broward County Transportation Planning Division
115 S. Andrews Avenue
Fort Lauderdale, FL 33301
(305) 357-6608

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION NCAP: Intersection Capacity Analysis

DEVELOPER Professional Solutions, Inc., Vashon, Washington

SUMMARY NCAP Intersection Capacity Analysis provides six alternative methods for analyzing intersection capacity as described in TRB Circulars 212 and 281 and the 1985 Highway Capacity Manual.

NCAP features easy menu operation and data entry similar to TMODEL [see TMODEL under Network Based Highway Planning]. In addition to operating as a stand-alone analysis tool, NCAP will read TMODEL turning movement files for minimum data entry requirements.

Complete tables are included with no need for manual lookups. An instant recalculation feature is available, permitting you to change one or more intersection characteristics with instantaneous capacity recalculation.

Intersection data can be analyzed with the Planning, Operations & Design, or Unsignalized Intersection Methods (4-leg or T), and the 85 HCM Planning and Operational Analysis methods with no data re-entry of shared characteristics. Outputs are similar to standard recognized worksheets for ease of comparison and checking.

ENVIRONMENT Versions are available for IBM PC, PC/XT, PC/AT and compatibles, and other MS-DOS (Wang PC, HP150, etc.) computers. Soon to be available for the Apple Macintosh.

STATUS NCAP has been used in Washington County, Oregon and other locations.

AVAILABILITY For sale from contact below for $295.

CONTACTS Robert M. Shull or Dave Larrabee
Professional Solutions, Inc.
Route 3, Box 182
Vashon, WA 98070
(206) 463-3768

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION ICU: Intersection Capacity Utilization

DEVELOPER LAU Engineering, Inc.

SUMMARY ICU (Intersection Capacity Utilization) ratios are used to assess the overall signalized intersection capacity utilization (i.e., volume-to-capacity ratio), a practice which is widely used in the Los Angeles area for assessment of traffic impacts from proposed land developments. The ICU program requires trip generation input for each proposed project, existing volumes, annual growth rate, existing intersection geometrics, and percent distribution of project generated traffic at each impacted intersection. The program then calculates projected volumes at each intersection for each project, and prints a summary of existing and project traffic volumes for each movement at each intersection. The program calculates the "critical movements" at each intersection and prints ICU tables for each intersection for three scenarios: 1) Existing traffic volumes and geometrics; 2) Existing conditions plus the proposed project; and 3) Existing conditions plus all future land developments.

ENVIRONMENT IBM PC (or compatibles with MS-DOS). 64K RAM. One disk drive. Matrix or daisy wheel printer (graphics capability not required). Simplified versions run on the Radio Shack Model II and III using TRS DOS.

STATUS Different versions have been in use for numerous environmental impact reports prepared for or submitted to local governmental agencies for approval since 1980, including the City of Los Angeles, County of Los Angeles.

AVAILABILITY For sale at $600 for IBM PC version; $300 for Radio Shack TRS Model II or Model III versions.

CONTACT Steve Lau, P.E.
LAU Engineering, Inc.
17220 Newhope Street, Suite 204
Fountain Valley, CA 92708
(714) 966-1709

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION Intersection Level-of-Service Analysis - Planning

DEVELOPER Old Colony Planning Council

SUMMARY The Old Colony Planning Council has developed a program which will compute the capacity of an intersection using the Critical Movement Analysis method for "Planning" described in TRB Circular 212. The program calculates the LOS for at-grade, two-phase signalized intersections. Required as inputs are peak-hour turning movement volumes; number of lanes; and the G/C ratio. All other inputs can be calculated on the basis of these. The program can be applied to existing conditions to determine whether or not problems might exist with the geometry or signalization. Alternative improvements can be tested to achieve a design LOS through adjustment to lane geometry and signal timing.

ENVIRONMENT Apple II+, 48K, Applesoft BASIC.

STATUS Operational.

AVAILABILITY Available for $25 to compensate costs for diskettes, reproduction, shipping, and handling. The program is available on 5-1/4" diskettes, including documentation and source code.

CONTACT

Pasquale Ciaramella
Old Colony Planning Council
47 West Elm Street
Brockton, MA 02401
(617) 583-1833

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION — SICAP - Signalized Intersection Capacity Analysis Program

DEVELOPER — James A. Bonneson

SUMMARY — SICAP is a program which automates the analysis of signalized intersection capacity. It is based upon and exactly duplicates the methodology described in the 1985 Highway Capacity Manual. Intersection data, including phasing, is entered via user-friendly, "Visi-Calc" type screens and self-explanatory prompts. The program has the capability to evaluate existing signal timings or to iteratively search for the optimal cycle length.

Output includes all intermediate and final calculations as would be obtained using manual methods. In addition, excess fuel, stops, and delays are used to estimate an hourly cost index.

ENVIRONMENT — Apple II+ and Apple IIe; a minimum of 64K is required and 1 hard disk drive. Future plans include program conversion to the IBM format.

STATUS — Used by city traffic Engineering Department in Lincoln, Nebraska.

AVAILABILITY — Available from contact for $100.

CONTACT — James A. Bonneson
Henningson, Durham & Richardson, Inc.
8404 Indian Hills Drive
Omaha, NE 68114
(402) 399-1074

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION	EZ-ICAP
DEVELOPER	TRANSTEK Software (distributed exclusively by TransWare)
SUMMARY	EZ-ICAP (Intersection Capacity Analysis Program) is an interactive implementation of the 1985 Highway Capacity Manual (TRB Special Report 209) procedures on signalized and unsignalized intersections. All calculations described in Chapters 9 and 10 of the Manual are covered by EZ-ICAP in a user-friendly manner. The program produces identical input worksheets as in the Manual on-screen through efficient multi-window, full-screen editors. A user simply fills in the data fields and EZ-ICAP will generate requested analysis results. The program ensures error-free input and calculations in a timely manner for either operational or planning analysis of intersections.
ENVIRONMENT	IBM PC or compatibles with PC/MS-DOS 2.0 or higher operating system, a minimum of one 360K disk drive, and 256K RAM.
STATUS	EZ-ICAP is being used by the University of Kansas.
AVAILABILITY	For sale by contact for $200.
CONTACT	TransWare P.O. Box 6896 McLean, VA 22106-6896

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION SCA: Signalized Capacity Analysis

DEVELOPER DeShazo, Starek & Tang, Inc.

SUMMARY SCA is a spreadsheet program for use with LOTUS 1-2-3 that performs the signalized capacity analysis procedure described in the 1985 Highway Capacity Manual, Chapter 9. It is arranged in six sections to look and function like the worksheets supplied in the manual. It entails a step-by-step approach which can be integrated with other Lotus 1-2-3 features, and can be user modified. Telephone assistance and training on its use are also available.

ENVIRONMENT SCA operates on the IBM PC, XT, AT and compatibles. It requires 128K, PC DOS, and Lotus 1-2-3.

STATUS Operational in Farmers Branch, Fort Worth, and Dallas, Texas.

AVAILABILITY Available from the contact for $150.

CONTACT

Brian Jahn
DeShazo, Starek & Tang, Inc.
330 Union Station
Dallas, TX 75202-4802
(214) 748-6740

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION CAPCALC 85: Traffic Engineering: Intersection Capacity Analysis

DEVELOPERS Roger Creighton Associates Incorporated (RCAI)

SUMMARY RCAI's CAPCALC 85 embodies procedures contained in the 1985 Highway Capacity Manual (Transportation Research Board, Washington, DC, 1985). CAPCALC 85 fully automates intersection capacity calculation; there are no table look-ups or manual calculations for signalized intersections. CAPCALC 85 handles both unsignalized intersections and signalized intersections -- the latter with both the "planning" and "operations and design" procedures. The following features are built into CAPCALC 85 to increase professional productivity.

(1) Full "bullet-proofing" ("error-trapping") to prevent data entry errors.
(2) Modifiable default values supplied for traffic and roadway conditions, plus lane width, to speed up data entry.
(3) User control over critical variables such as signal phasing, signal timing, and vehicle adjustment factors.
(4) Full screen cursor control to allow rapid editing of input values.
(5) "Lane-grouping" for ease of data entry.
(6) Upon revision of the data in any data cell, all results are recalculated immediately.
(7) Stores up to 200 intersections per diskette, enhancing ability to compare alternative designs.
(8) Computer-printed intersection diagram showing lane group volumes, turning movements, and number of lanes per lane group.
(9) Inputs and outputs printed in camera-ready form for reproduction in engineering reports.

ENVIRONMENT Apple II+ and Apple IIe with 64K and 3 diskette drives; TRS 80 Models 12 and 16 with 64K and 2 floppy diskette drives; and IBM PC and PC/XT with 128K RAM.

STATUS CAPCALC 85 is operational at Virginia Dept. of Highways and Transportation and many local governments and private consultants.

AVAILABILITY For sale at $745; Extended Warranty Support is $150 (provides enhancements for one year and periodic technical notes).

CONTACT Charles W. Manning
Roger Creighton Associates Incorporated
274 Delaware Avenue
Delmar, NY 12054
(518) 439-4991

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION Selected 1985 Highway Capacity Manual Procedures

DEVELOPER Institute of Transportation Studies
University of California, Berkeley

SUMMARY This is a collection of three interactive programs incorporating the following procedures from the 1985 Highway Capacity Manual:

UNSIG - Unsignalized Intersection Analysis

SIGPLAN - Signalized Intersection Analysis (Planning Method)

RURAL - Rural Highways Analysis (including Two-Lane and Multilane Highways and Basic Freeway Sections)

ENVIRONMENT Runs on IBM-PC and compatibles, under any version of DOS.

STATUS Programs have been used by Caltrans and several local government agencies within California.

AVAILABILITY The set of programs is available for $25 copying and handling cost.

CONTACT ITS Systems Unit
107 McLaughlin Hall
University of California
Berkeley, CA 94720
(415) 642-1008

microcomputers in transportation

Traffic Engineering Software

General Traffic Operations

APPLICATION — TRAFCON: Traffic Engineering Programs

DEVELOPERS — TEAS-Traffic Engineering Application Software

SUMMARY — The TRAFCON program (Traffic Control) is a master control program that interacts with specific traffic engineering modules. Features include: menu-driven function screens, built-in editors; edit checks for input data; and high-speed sorting and record selection. Specific modules include the following:

WEBSAT-Webster delay analysis for isolated signalized intersections.
HALA-High accident location analysis program. Allows rapid retrieval of accident data, record deletion, and record updating. The program will calculate high accident locations based on rate, frequency, severity, and a composite ranking.
SPDPLOT-Cumulative speed distribution curve plot for speed zone surveys.
WARRANT-Traffic signal warrant program.
MDATA-A master data base that maintains grid information for PASSER, TRANSYT, and WEBSAT.
SIGN-Traffic sign inventory program.
CURB-Curb marking inventory program.
LIGHT-Safety lighting inventory program.
SIGNAL-Traffic signal inventory program.
MARK-Pavement marking inventory program.

All programs have rapid record selection and sorting, record addition and deletion, and report generation. TRAFCON is capable of direct chaining to and editing of PASSER and TRANSYT7 and will assemble a PASSER or TRANSYT data file from the MDATA data base.

ENVIRONMENT — CP/M or MS-DOS operating systems.

STATUS — Selected modules are operating in the Cities of Martinez, Montebello, Oxnard, and Colton, California, and in several others across the country.

AVAILABILITY — Available on license agreement basis from developer.

CONTACT — Brian Smith, P.E.
Director, TEAS
P.O. Box 629
Newhall, CA 91322
(805) 253-1131

microcomputers in transportation

Traffic Engineering Software

General Traffic Operations

APPLICATION ATEMS: Traffic Engineering Programs

DEVELOPERS Mohle, Grover & Associates (MGA)

SUMMARY The ATEMS (Automated Traffic Engineering Management System) programs are designed to increase the productivity of the traffic engineering function by providing powerful traffic engineering related analysis capabilities in a simplified form and at a low price. Software is furnished under license agreement. The ATEMS programs include:

- CAPSSI-85 (Comprehensive Analysis Program for Single Signalized Intersections) Based on delay per 1985 Highway Capacity Manual
- SPEED (Speed Data Reduction Program)
- TARP (Traffic Accident Report Program) With collision diagram plotting and high accident location surveillance
- COUNT (Traffic Count Reduction Program)
- TCD Inventory Program (Available for SIGNS, CURBS, MARKINGS, SIGNALS, and LIGHTING)

ENVIRONMENT CP/M or MS-DOS operating systems, dual floppy disk drives and 64K of RAM

STATUS Operational in the following cities: Beverly Hills, Big Bear Lake, Chino, Claremont, Compton, Cupertino, Cypress, Downey, Emeryville, Escondido, Gardena, Huntington Beach, Inglewood, Irvine, Oakland, Orange, Palm Springs, San Bernardino, Santa Clara, Santa Monica, Torrance, West Covina and Whittier, California; Anchorage, Alaska; Arizona State University, Tempe, Arizona; Fort Collins and Lakewood, Colorado; Jersey City, New Jersey; Dallas, Texas; Wickliffe, Ohio; and Richland, Washington.

AVAILABILITY For sale by contact.

CONTACT
Albert L. Grover
Executive Vice-President
MGA
901 East Imperial Highway, Suite A
La Habra, CA 90631
(714) 738-3471

microcomputers in transportation

Traffic Engineering Software

General Traffic Operations

APPLICATION Traffic Engineering Programs

DEVELOPER Bather Belrose Boje, Inc.

SUMMARY

VOLTAPE/VOLPLOT - An interactive traffic-volume count data analysis program
SIGART/TIMESPACE II - An arterial signal timing program
PASSER/PASSER DATA LOADER - An interactive multiphase arterial signal timing program
SIGRID - A grid signal timing program
TRANSYT/7 and TRANSYT/7F - General purpose arterial and grid signal timing plan development and analysis program
TIMESPACE III - A general purpose timing space diagram plotting program
CMA - An interactive, TRB 212-based, signalized intersection evaluation program
INTERCALC - An interactive Webster-based multiphase signalized intersection development and analysis program
ICAPACITY - An interactive HCM-based signalized intersection approach capacity analysis program
SPEEDPLOT - A Data Collection and Analysis System for spot speed measurement and analysis

ENVIRONMENT All programs operate on CP/M-80, MS-DOS, or PC-DOS-based microcomputer systems. CP/M systems require 50K of RAM; MS-DOS and PC-DOS systems require 128K of RAM. At least one 180K disk and a 132-column printer are required. The SPEEDPLOT Data Collection and Analysis System is available on office-type and portable battery-operated computers.

STATUS All programs are fully operational. Used by Traffic Division, City of Minneapolis, Minnesota; Sioux Falls, South Dakota; and Lakewood, Colorado. SPEEDPLOT used by Traffic Division, City of San Diego; Stockton, CA.

AVAILABILITY Available on a license agreement basis from contact.

CONTACT

William M. Belrose
Bather Belrose Boje, Inc.
7101 York Avenue South
Minneapolis, MN 55435
(612) 921-3303

microcomputers in transportation

Traffic Engineering Software

General Traffic Operations

APPLICATION Comprehensive Vehicular Accident and Traffic Law Enforcement Activity Program

DEVELOPER Mr. Morris Gibson, Administrator, Fulton County Police Department, Atlanta, Georgia

SUMMARY This microcomputer program maintains information on vehicular accident and traffic law enforcement activities of the Fulton County Police Department. The program produces a seven page summary report that is utilized by the Uniform Division and Special Enforcement Groups, such as the DUI Task Force and the 55 mph Task Force to target areas where selective traffic enforcement is indicated. The seven-page report comprises the following:

- Page 1 - Day and hour scattergram of vehicular accident information.
- Page 2 - Vehicular accident summary listing 23 categories and 180 elements.
- Page 3 - Area grid map of Fulton County divided into one square mile grids indicating inside each grid the number of vehicular accidents experienced in requested time span.
- Page 4 - Day and hour scattergram of traffic law enforcement information.
- Page 5 - Traffic law enforcement summary listing 24 categories.
- Page 6 - Area grid map of Fulton County divided into one square mile grids indicating inside each grid the number of citations issued in requested time span.
- Page 7 - Traffic Law Enforcement activity listed by officer's badge number and collated into eight offenses.

ENVIRONMENT Tandy 2000 H.D./Dual Screen Color Graphic Display

STATUS Utilized by the Fulton County Police Department, Atlanta, Georgia, and the Augusta Police Department, Augusta, Georgia.

AVAILABILITY Arrangements made by contact below.

CONTACT

Officer R.A. Nixon
Crime Analysis Unit
Fulton County Police Department
183 Central Ave.
Atlanta, GA 30303
(404) 572-3211

microcomputers in transportation

Traffic Engineering Software

General Traffic Operations

APPLICATION Computation of Accident Rates and Economic Evaluation of Proposed Accident Countermeasures

DEVELOPER Joseph L. Schofer, Midwest Systems Sciences, Inc.

SUMMARY This program facilitates efficient and routine analysis and evaluation of proposed highway accident-reducing projects. Screen-oriented and command-driven, it presents the user with a series of input forms emulating hand computation procedures. The user specifies attributes of the proposed improvement location and enters up to eight years of accident reports. The program computes accident rates and permits the user to describe a countermeasure, its capital, operating, and maintenance costs, and its expected contribution to reducing accidents by severity class.

The program then predicts expected accident experience over the project time horizon based on (1) user-specified annual traffic growth rate or horizon year volume; (2) assumptions that the historic accident rates prevail in the absence of the countermeasure, and that user-specified accident reductions due to the countermeasure occur.

Given user-specified average accident costs by severity class, the program computes present and annualized project costs, accident reduction benefits, net worth, and benefit/cost ratio. At the user's option, reports summarizing all inputs and results may be printed.

ENVIRONMENT Version 3.0, now available, permits project files to be saved to and retrieved from diskettes. The program requires an IBM PC, XT, AT, or compatibles with at least 128K RAM, one DSDD diskette drive, and MS-DOS.

STATUS The program is in use at the Wisconsin DOT, the City of Norfolk, VA, and other local government agencies.

AVAILABILITY For sale by contact.

CONTACT Midwest System Sciences
325 Sheridan Road
Wilmette, IL 60091

microcomputers in transportation

Traffic Engineering Software

General Traffic Operations

APPLICATION COUNT1

DEVELOPER Carl Shea, FHWA

SPONSOR FHWA, Office of Highway Planning

SUMMARY COUNT1 is a program written in BASIC which computes the sample sizes for the estimation of regional vehicle miles traveled (VMT). The program implements those sections of the Guide to Urban Traffic Volume Counting (FHWA Report FHWA/PL/81/019, September 1981) which concern the development of an integrated traffic counting program for the estimation of regional VMT. From input factors such as the numbers and types of highways to be counted, estimated volumes and errors, and desired precision, the program produces the numbers of samples needed for each category.

ENVIRONMENT Operates on the IBM PC and compatibles under MS-DOS 1.1 or 2.0.

AVAILABLE Available for a nominal charge from contact below.

CONTACT Microcomputers in Transportation Support Center
Toni Wilbur
FHWA/HTO-23
Washington, DC 20590
(202) 426-0411

microcomputers in transportation

Traffic Engineering Software

General Traffic Operations

APPLICATION Left Turn Warrant Study

DEVELOPER City of Lakewood, Colorado, Traffic Engineering Division

SUMMARY Using the State of Colorado, Division of Highways "Traffic Signal Study: Left turn phasing," volume-delay criteria.

Based upon the input of turning movement volumes and left turn vehicle delay, the program will aid in the determination of a warrant for a left turn arrow at a signalized intersection.

Format shows CDH criteria and program then computes whether input volumes are above or below the recommended limit for left turn arrow warrant. The software is self explanatory and easy to use.

Inputs Include:	Outputs Include:
Peak hour turning volumes	All Inputs plus:
Number of lanes	Stopped time delay
Number of vehicle samples	Approach delay
Intervals between samples	Stop delay per vehicle
	Mean delay
	Total delay
	Volume product

ENVIRONMENT IBM-PC with 128K RAM, you must have your own Supercalc 2 or 3 to use the program.

STATUS Used by the City of Lakewood Traffic Engineering Division.

AVAILABILITY Free by sending a formatted DSDD diskette and a self-addressed, stamped return mailer.

CONTACTS Lowell Bender or Robert Kochevar
City of Lakewood
Traffic Engineering Division
445 South Allison Parkway
Lakewood, CO 80226-3105
(303) 987-7980

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION	SOAP84: Signal Operations Analysis Package
DEVELOPER	University of Florida Transportation Research Center (TRC)
SUMMARY	SOAP84 was developed by TRC for the Federal Highway Administration. The program develops and evaluates timing plans for individual, isolated intersections serviced by pretimed or actuated controllers. To enhance and speed up data entry SOAP84 comes with a data input manager (DIM).
ENVIRONMENT	IBM PC (or PC compatible) under DOS 2.0 or later and VICTOR 9000 under DOS 1.25 and 256K RAM. Apple Macintosh and 512K RAM. Apple II under CP/M and 64K RAM (Apple II version has limited analysis options).
STATUS	Fully operational. In use by over 200 cities, States, and consultants nationwide.
AVAILABILITY	The program and documentation are available through the Micrcomputers in Transportation Support Center for a nominal charge.
CONTACT	Ron Giguere FHWA/HTO-23 Washington, DC 20590 (202) 426-0411

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION Computation of Pedestrian Timings and Clearance Intervals at a Signalized Intersection

DEVELOPER City of Lakewood, Colorado, Traffic Engineering Division

SUMMARY Using Supercalc 2 or 3 this program will calculate, flashing "Don't Walk," yellow, and red clearance periods.

Inputs are flowline to flowline street width, stopline to flowline distances, and speeds in 5-mile-per-hour increments. Program takes these three entries and then calculates the clearance times. Program is based on MUTCD and City of Lakewood Signal Timing Standards.

Program also has sorting capability by intersection number.

ENVIRONMENT The program requires IBM-PC with at least 128K RAM, and Supercalc 2 or 3.

STATUS Used by the City of Lakewood Traffic Engineering Division. It has been used to calculate clearance times for approximately 75 intersections.

AVAILABILITY Free by sending a formatted DSDD diskette and a self-addressed, stamped return mailer.

CONTACTS

Lowell Bender or Robert Kochevar
City of Lakewood
Traffic Engineering Division
445 South Allison Parkway
Lakewood, CO 80226-3105
(303) 987-7980

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION TSDRAFT is a worksheet for drafting a time-space diagram.

DEVELOPER Greg Bullock, traffic engineering technician

SUMMARY Using TSDRAFT, the traffic engineer can quickly develop a time-space diagram for an arterial. The entire diagram may be seen in high resolution on the screen at once. TSDRAFT is very user-friendly. The traffic engineer can easily adjust any parameter (cycle length, offset, phase sequence, splits, scales, etc.) for any intersection as often as desired. TSDRAFT accommodates up to forty intersections and all phase sequences: two-phase, lead-left turns, lag-left turns, and lead-lag combinations. When a satisfactory time-space diagram is developed, it can be printed out along with the timing parameters necessary to implement it. Diagrams can be saved for future reference. TSDRAFT is especially helpful to users of the Multisonics VMS 220 Master Traffic Controller since the parameters are of the appropriate form and units for VMS input.

ENVIRONMENT Requires IBM PC (or a compatible thereof), 128K, one disk drive, an IBM graphics card, and MS-DOS v. 2.0 or greater. A dot-matrix printer is recommended.

STATUS Ready to run. Currently used by the City of Concord, and the City of Richmond, California. Comes with detailed instructions manual for $295.

CONTACT Greg Bullock
11 Dublin Ct.
Pleasant Hill, CA 94523

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION TRANSYT-7F: Traffic Signal Timing Optimization
PPD: Platoon Progression Diagrams

DEVELOPER TRANSYT-7F was developed by the University of Florida Transportation Research Center (TRC).
PPD was developed by Ken Courage, University of Florida, and converted to the IBM PC by the Federal Highway Administration.

SUMMARY TRANSYT-7F was developed by TRC for the Federal Highway Administration and is an "Americanized" version of the British TRANSYT-7 traffic signal timing optimization program. The program provides optimal signal timing plans which minimize stops, delay and fuel consumption, and can be used to time isolated intersections or coordinated arterial or network systems.

The Platoon Progression Diagram (PPD) program reads flow profile data created by TRANSYT-7F and provides plots of the density of traffic as it moves in time and distance. A PPD plot is similar to a flow profile that has been superimposed onto a time-space diagram.

ENVIRONMENT IBM PC (or PC compatible) microcomputers with DOS 2.0 (or later) and 256K RAM. Two floppy disk drives and a 132-character printer are also required. An 8087 math coprocessor chip is recommended to speed execution of the TRANSYT-7F program. The PPD program requires an EPSON M/X series or compatible printer.

STATUS Fully operational. In use by over 400 cities, States, and consultants nationwide.

AVAILABILITY The programs and documentation are available for a nominal fee from contact below. TRANSYT-7F and PPD are distributed together on the same diskette.

CONTACT Toni Wilbur
FHWA/HTO-23
Washington, DC 20590
(202) 426-0411

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION FLOWPROF: Flow Profile - A BASIC program which reads the recorded traffic flow rates and plots "flow profiles" for comparison with simulated flow profiles from running the TRANSYT program

DEVELOPER LAU Engineering, Inc.

SUMMARY The program reads input data, i.e., observed number of vehicles per specified time interval (which may be chosen to be equal to one "step" of the TRANSYT program), then prints "flow profiles" similar to the flow profiles from running the TRANSYT program. By using the same cycle length and scale as is used for the TRANSYT simulation run, the flow profiles from this program can be placed over the TRANSYT simulated profiles in order to determine how well the TRANSYT simulated profiles match the actual flow profiles (i.e., recorded in the field).

ENVIRONMENT IBM PC (or compatible with MS-DOS); or Radio Shack TRS Model II or III; or KAYPRO with CPM/80 (or other microcomputers with CPM/80). 64K RAM and one disk drive are required.

Matrix or daisy wheel printer (graphics capability not required).

STATUS Program in use since 1984. It was used by the City of Inglewood for calibrating TRANSYT simulation runs.

AVAILABILITY For sale at $50.

CONTACT Steve Lau, P.E.
LAU Engineering, Inc.
17220 Newhope Street, Suite 204
Fountain Valley, CA 92708
(714) 966-1709

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION LINKFLO/INTCAP

DEVELOPER Warren Tighe, DKS Associates, Oakland, California

SUMMARY LINKFLO is a set of LOTUS 1-2-3 templates to determine link-to-link relationships between upstream and downstream traffic flows when preparing data for TRANSYT-7F.

INTCAP is a LOTUS 1-2-3 template that interactively calculates volume/capacity at individual intersections using the critical movement analysis method of TRB Circular 212.

ENVIRONMENT IBM PC (or compatible) microcomputers with DOS 2.0 (or later), 2 disk drives, and LOTUS 1-2-3.

AVAILABILITY Available for a nominal fee from contact below.

CONTACT Microcomputers in Transportation Support Center
Toni Wilbur
FHWA/HTO-23
Washington, DC 20590
(202) 426-0411

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION PASSER II-84 version 2.1, November 1985

DEVELOPER Texas Department of Highways and Public Transportation - Freeway Operations Group; Texas Transportation Institute

SUMMARY The Progression Analysis and Signal System Evaluation Routine for Arterials version 2.1 assists the traffic engineer in calculating green splits, phase sequence, and offsets that will maximize progression opportunity and reduce delay for a given set of traffic flow conditions.

Features added since the PASSER II-80 release include:

1) Incorporating 1985 Highway Capacity Manual delay equation capable of evaluating slightly over-saturated conditions;
2) Enhancing the offset and split fine tuning process reducing delay 5-15% without changing bandwidth;
3) Adding number of stops and fuel consumption as measures of effectiveness;
4) Adding a Cycle Length vs. Efficiency plot;
5) Improving the Time/Space Diagram;
6) Changing the numbering system to be consistent with the Traffic Control Systems Handbook and NEMA Standards Publication to ease field implementation; and
7) Adding a highly efficient and comprehensive interactive data entry and editor facility.

The program runs a maximum of ten, 8-phase signals per system in 6 minutes without an 8087 math coprocessor. The program is identical to the mainframe program.

ENVIRONMENT Available on IBM PC or compatibles, using DOS 2.0 with two DSDD disk drives.

STATUS The program has been used by hundreds of agencies worldwide.

AVAILABILITY Available from Installation Contact at approximately $20.

CONTACTS

For Installation
Dave Davis
Texas Trans. Technology Transfer
Texas Engineering Extension Service
Texas A&M University
College Station, TX 77843-8000
Texas Watts 1-800-824-7303
Outside Texas 1-409-845-4369

For Engineering
Blair G. Marsden
Texas SDHPT
Division 18 Traffic
11th and Brazos Streets
Austin, TX 78701

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION PASSER III, TIMDIS 2, CARDED: Traffic Signal Coordination

DEVELOPER DKS Associates

SUMMARY These three programs, together with TRANSYT 7F and PASSER II, which now have IBM PC versions available directly from the FHWA, make a comprehensive package for designing and documenting traffic signal coordination plans. PASSER III, developed by the Texas Department of Highways, is a special implementation of PASSER II specifically for diamond interchanges. It can optimize the phase sequence, splits, and offsets at a single diamond interchange, and can also optimize coordination between interchanges on frontage roads. TIMDIS 2 is a menu-driven program which allows the user to quickly and easily perform manual signal coordination designs by interactively varying offsets, splits, phase sequences, speed, cycle length, etc., and observing the effects on both a time location diagram displayed on the computer screen, and a detailed time-space diagram printed on any ordinary printer. The program accommodates any type of single ring or dual ring phasing, including overlaps, and is also useful for simply drawing time-spaced diagrams of existing coordination plans. CARDED is a menu-driven special screen editor which effectively puts the data coding form on the screen, complete with column markers, headings, and explanatory information, thereby greatly simplifying the task of creating and editing data input files for TRANSYT and PASSER, or any other program requiring 80-column card image input files.

ENVIRONMENT All programs operate on the IBM PC, XT, or AT, and compatibles with 256K, DOS 2.x or 3.x, two floppy disk drives or a hard disk, and a 132-column printer.

AVAILABILITY License sale from contact below.

STATUS List of current users available on request.

CONTACTS

Warren Tighe
Senior Transportation Engineer
DKS Associates
1419 Broadway, Suite 700
Oakland, CA 94612
(415)763-2061

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION EZ-TRANSYT II.1 and EZ-SIGOP II.1

DEVELOPER TRANSTEK Software (Distributed exclusively by TransWare)

SUMMARY EZ-TRANSYT and EZ-SIGOP are multi-window, full-screen editors for preparing input data for FHWA's TRANSYT-7F and SIGOP-III programs, respectively. The programs greatly ease the task of building input files: simply fill in the data fields and EZ-TRANSYT or EZ-SIGOP will generate the appropriate fixed format input data file. Both programs have an on-line pop-up help manual, comprehensive error checking, and produce a very readable data summary report. In addition, the programs allow the user to maintain a traffic network database that can be easily updated.

ENVIRONMENT IBM PC or compatible with PC/MS-DOS 2.0 or higher operating system, a minimum of one 360K disk drive, and 128K of RAM.

STATUS EZ-TRANSYT is being used by the University of Florida, Pennsylvania State University, Arizona State University, University of Kansas, all 10 District Offices of the Missouri State DOT, City of Fairfield, CA, and approximately 25 other agencies. EZ-SIGOP is being used by all FHWA Regional Offices.

AVAILABILITY For sale by contact at $150 for EZ-TRANSYT and $50 for EZ-SIGOP. Shipping and handling charge of $5 per order.

CONTACT TransWare
P.O. Box 6896
McLean, VA 22106-6896

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION EZ-PASSER II.X5

DEVELOPER TRANSTEK Software (distributed exclusively by TransWare)

SUMMARY EZ-PASSER is an optimized and interactive implementation of the highly popular PASSER-II 80 arterial signal optimization program. It contains a full-screen editor for data entry and performs comprehensive error-checking. This fast and user-friendly EZ-PASSER optimizes a typical 7-intersection arterial in only one minute. All of the mainframe PASSER-II capabilities are maintained, including the time-space diagram. On-screen phase diagrams are standard for clear and error-free editing.

ENVIRONMENT For IBM PC or compatibles, PC/MS-DOS 2.0 or higher, a minimum of one 360K disk drive, 128K RAM, and a printer with 132-column print capability. For Apple II computer - UCSD-P system, a minimum of one disk dirve, and a printer with 132-column print capability.

STATUS EZ-PASSER is being used by Pennsylvania State University, University of Delaware, Arizona State University, University of Kansas, all 10 District Offices of the Missouri State DOT, New York State DOT, City of Topeka, KS, and approximately 45 other agencies.

AVAILABILITY For sale by contact at $250. A rebate of $50 is available for every order accompanied by an original disk from any other commercial PASSER-II 80 program vendor.

CONTACT TransWare
P.O. Box 6896
McLean, VA 22106-6896

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION TW-Bandwidth & Edband

DEVELOPER TransWare

SUMMARY TW-Bandwidth is a bandwidth maximization program based on a model developed by John D.C. Little of the Massachusetts Institute of Technology using an operations research approach. TW-Bandwidth maximizes a weighted sum of main street through green band in each direction by optimally selecting cycle length, offsets, and most importantly, left-turn phase sequence for an arterial of up to 20 intersections or a triangular loop. TW-Bandwidth features:

- Progression speeds can vary on each link.
- Green advance feature allows for queue discharge before a platoon arrives at the intersection.
- Directional bandwidth weighting.
- Choice of user specified or program computed green splits.
- Time-Space diagram.

Edband is a full-screen editor for preparing an input data file for FHWA's MAXBAND program or TransWare's TW-Bandwidth. Edband prepares input data files for arterials only.

ENVIRONMENT TW-Bandwidth & Edband operate on IBM PC's and most MS-DOS compatibles with 384K and DOS 2.00 or higher. An 8087 math coprocessor, two floppy drives (or a hard disk), and 132-column print capability are also required. Edband requires 192K, DOS 2.00 or higher, and ANSI.SYS which comes with DOS. Requires an IBM PC compatible monochrome or color graphics adapter card.

STATUS Arizona State Univ.; Ministre des Transports, Montreal, Centennial Engr., CO

AVAILABILITY TW-Bandwidth is available for $200 and Eband for $100. 50% academic discount.

CONTACT TransWare
P.O. Box 6896
McLean, VA 22106-6896

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION SIAP & FREESIAP

DEVELOPER TransWare

SUMMARY SIAP, the Signalized Intersection Analysis Program, evaluates an existing or alternative timing control plan for an isolated intersection. SIAP can select cycle length, green splits, and dial assignments for up to 48 time periods. There are 196 possible phase sequence combinations that can be evaluated. Other SIAP features:

- Permissive and restrictive left turn treatments.
- Partial user control over green split optimization for directional favoring.
- Variable approach speeds.
- The 1985 HCM adjustments for lane width, trucks, grade, parking, bus blockages, area type, and progression type.
- Extensive measures of effectiveness outputs.

FREESIAP is an interactive free format to fixed format input processor for SIAP. Designed specifically for SIAP's multiple time period capability, it permits the transportation professional to perform a detailed intersection analysis quickly. FREESIAP features:

- Keyword driven.
- Two levels of help information for card types and commands.
- Built-in line editor.

ENVIRONMENT SIAP & FREESIAP operate on IBM PC's and MS-DOS compatibles with 256K and DOS 2.0 or higher. An 8087 math coprocessor is optional and a 132-column print capability is required.

STATUS Arizona State Univ.; Nebraska Dept. of Hwy.; Knoxville Traffic Engr.; City of Allentown, PA; Gov't. of Quebec; City of Ocala, FL; Illinois DOT; Arizona DOT; Oakland Co. Rd. Comm., MI; City of Monroe, LA; City of Everett Engr. Dept., WA; Lake Co. Hwy. Dept., IL; Port Authority, NY and NJ; Boston Dept. of Traffic & Parking; Ministre des Transports, Montreal; City of Grand Island, NE

AVAILABLE SIAP & FREESIAP are available for $60. Academic discount price is $30. Additional information can be obtained by writing to the address below.

CONTACT TransWare
P.O. Box 6896
McLean, VA 22106-6896

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION EZ-POSIT II.6

DEVELOPER Hobih Chen

SUMMARY EZ-POSIT (Program for Optimizing Signalized Intersection Timing) is used to analyze the signal timing plan for single intersections. Based on the traffic and geometry data, the program can find the optimal timing plan, including cycle length and phase patterns, that minimizes the fuel consumption rate.

Main Features:

- o Multi-Window Color Display (IBM PC version only).
- o User-Friendly.
- o Minimize Fuel Consumption.
- o Signal Optimization or Simulation.
- o Minimum Data Requirement.

ENVIRONMENT IBM PC/XT PC-DOS (MS-DOS), Apple II+ UCSD p-System.

STATUS Operational. The program is being used by over 200 universities, consulting firms, and public agencies such as: University of Kansas, MIT, Penn State University, and Northwestern University.

AVAILABILITY Free. Send $15 for copy, shipping/handling. Please make check payable to KU Transportation Center.

CONTACT

Carl Thor
Transportation Center
2011 Learned Hall
University of Kansas
Lawrence, KS 66045
(913) 864-5658

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION	MAXBAND-PC (Maximal Bandwidth Signal Setting Optimization Program for Microcomputers)
DEVELOPER	University of Kansas Transportation Center
SUMMARY	MAXBAND-PC is a microcomputer implementation of the MAXBAND program developed by John Little and Mark Kelson at MIT. It generates optimum signal timing patterns for up to 20 signalized intersections along an arterial street by maximizing the bandwidth for traffic in both directions. The microcomputer program does not include the capability to optimize a triangular network which was available in the original program.
ENVIRONMENT	Runs on the IBM PC under MS-DOS.
STATUS	Operational.
AVAILABILITY	For sale from contact for $75.
CONTACT	Carl Thor Transportation Center 2011 Learned Hall University of Kansas Lawrence, KS 66045 (913) 864-5658

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION SSTOP - Offline Signal System Optimization Program

DEVELOPER Ontario Ministry of Transportation and Communications, Transport Canada, Metropolitan Toronto

SUMMARY SSTOP was developed in 1979 for use on a mainfram computer system to reflect "Canadian" conditions for signal timing and coordination. It has received widespread use and has subsequently been released for use on a microcomputer. The program is used to calculate optimal signal timings for a network by minimizing stops and system delay. The program also includes an interactive data entry preprocessor.

ENVIRONMENT IBM PC microcomputer, DOS 1.1, 2.X, 3.X, 256K RAM minimum, 2 double-sided disk drives. 8087 math coprocessor chip, optional.

STATUS Operational. Currently undergoing a review/enhancement procedure.

AVAILABILITY Program available free of charge. Send three 5-1/4" double-sided disk drives.

CONTACTS Phil Masters or S.W. Erwin
Traffic Management and Engineering Office
1201 Wilson Avenue
Room 236, Central Building
Downsview, Ontario
M3M 1J8

microcomputers in transportation

Traffic Engineering Software

Traffic Maintenance Management

APPLICATION SignINVT - Traffic Control Device Data Management

DEVELOPER MHM Associates Inc.

SUMMARY SignINVT is a comprehensive sign/signal inventory and maintenance management program.

The SignINVT program was developed to create a data base for sign/signal maintenance management using manually collected inventory or video-log inventory of traffic control devices. The HELP function of the program contains twelve (12) full monitor screens graphically showing signs and their MUTCD designation (type). Two additional screens show signal lense configuration.

The SignINVT software records sign information including type, size, direction, location, message on sign face, condition, support type, maintenance history, product type, etc. Also it records signal information including lense size, configuration, poles, controller, detector and amplifier equipment, and maintenance history at any traffic signal location.

The SignINVT program allows each sign or signal file to be updated as maintenance effort is completed.

The SignINVT multi-level sorting capabilities allows the user to sorty by: type; size; type and size; name and condition; location; direction; condition; type of support; area; and maintenance type or date. It offers extensive reporting capabilities for yearly budgets and maintenance management.

ENVIRONMENT IBM PC, IBM XT, IBM AT and compatibles, plus most CP/M-80 systems. Reguires 256K RAM. One 5-1/4 floppy drive is required, and second floppy drive or a hard disk is recommended. 80-column text printer is required. Operates under MS-DOS, PC-DOS, or CP/M-80.

STATUS Traffic Division, City of Hamilton, Ohio, Cook County, Illinois, Van Buren County, Michigan, and Newport News, Virginia.

AVAILABILITY Available on a license agreement basis from contact. A sample diskette is available for $20.

CONTACT MHM Associates Inc.
1920 Ridgedale Road
South Bend, IN 46614
(219) 291-4793

microcomputers in transportation

Traffic Engineering Software

Traffic Maintenance Management

APPLICATION QUEWZ 85

DEVELOPER Texas Department of Highways and Public Transportation - Freeway Operations Group; Texas Transportation Institute

SUMMARY QUeue length and Economic analysis at Work Zones assists the traffic management specialist in scheduling and evaluating Traffic Control Plans, including lane closures on freeways. It develops costs for stopped delay, speed change cycling, and running vehicles.

The model can examine a variety of lane closure strategies in a single direction of travel, or crossovers, where one or more lanes are closed in both directions of travel.

QUEWZ represents the method and values used in the 1985 Highway Capacity Manual.

ENVIRONMENT Available on IBM PC or compatibles, using DOS 2.0.

STATUS Documented in various sites in Texas.

AVAILABILITY Available from Installation Contact at approximately $20.

CONTACTS

For Installation

Dave Davis
Texas Trans. Technology Transfer
Texas Engineering Extension Service
Texas A&M University
College Station, TX 77843-8000
Texas Watts 1-800-824-7303
Outside Texas 1-409-845-4369

For Engineering

Blair G. Marsden
Texas SDHPT
Division 18 Traffic
11th and Brazos Streets
Austin, TX 78701

microcomputers in transportation

Traffic Engineering Software

Traffic Maintenance Management

APPLICATION PmkngINVT - Pavement Marking Data Management

DEVELOPER MHM Associates Inc.

SUMMARY PmkngINVT is a comprehensive pavement marking inventory and maintenance management program.

The PmkngINVT program was developed to create a data base for pavement marking maintenance management using manual inventory or video-log inventory of pavement markings. It includes such information as marking type, condition, position/location, length, as well as start and end distance from a referenced intersection or point for striping and pavement markings.

The PmkngINVT program allows the user to update pavement marking files as maintenance effort is completed. It has multi-level sorting capabilities which allow the user to sort by: type and condition; location; statistical or neighborhood area; and product type. It offers extensive reporting capabilities for yearly budgets and maintenance management.

ENVIRONMENT IBM PC, IBM XT, IBM AT and compatibles, plus most CP/M-80 systems. Requires 256K RAM. One 5-1/4 floppy drive is required, and second floppy drive or a hard disk is recommended. 80-column text printer is required. Operates under MS-DOS, PC-DOS, or CP/M-80.

STATUS Traffic Division, City of Hamilton, Ohio, Newport News, Virginia

AVAILABILITY Available on a license agreement basis from contact. A sample diskette is available for $20.

CONTACT MHM Associates Inc.
1920 Ridgedale Road
South Bend, IN 46614
(219) 291-4793

microcomputers in transportation

Traffic Engineering Software

Traffic Maintenance Management

APPLICATION TSDR - Traffic Signal Defect Report

DEVELOPER MHM Associates Inc.

SUMMARY TSDR is a computer generated form for recording and keeping track of signal defects and follow-up maintenance effort.

The TSDR program keeps track of signal problems and accidents involved by location and intersection number or ID. Type of trouble and type of work performed is recorded in the data base. It offers extensive reporting capabilities for troubleshooting and applications which are of concern to the traffic engineer.

ENVIRONMENT IBM PC, IBM XT, IBM AT and compatibles, plus most CP/M-80 systems. Requires 128K RAM. One 5-1/4 floppy drive is required, and second floppy drive or a hard disk is recommended. 80-column text printer is required. Operates under MS-DOS, PC-DOS, or CP/M-80.

STATUS Traffic Division, city of Newport News, Virginia

AVAILABILITY Available on a license agreement basis from contact. A sample diskette is available for $20.

CONTACT MHM Associates Inc.
1920 Ridgedale Road
South Bend, IN 46614
(219) 291-4793

microcomputers in transportation

Traffic Engineering Software

Traffic Data Management

APPLICATION TESS - Traffic Engineering Sign Inventory System

DEVELOPER Michael J. Cestaro & Company, Inc.

SUMMARY Menu-driven system designed to replace manual or punch card Sign Inventory systems. Programs are written in Turbo PASCAL allowing fast entry and file searches.

System provides up to 40 items of descriptive information per sign. As few, or as many of these descriptive fields (items) as needed may be used. Each field can be input via direct entry or by selecting from a stored list of up to 40 user defined Optional Values per field. To simplify Data Entry, one value for each field is established as a default or initial value to be used as new records are entered into the system. Default values can be easily overridden by the user when necessary.

For reporting purposes, records may be selected via user-defined ranges for desired fields. Several field ranges (items) may be used simultaneously. Reports may be displayed on the terminal or printed on your system printer. User may print the entire sign record or specify only the (items) fields desired.

ENVIRONMENT IBM PC series of microcomputers with a minimum of 256KB RAM and IBM PC DOS version 2.0 or greater. A maximum of 150 signs are supported on a two-flexible diskette drive system. Users anticipating greater than 150 signs will require a hard disk. IBM monochrome or color monitors may be used. An 80-column, 160 CPS or greater, dot matrix printer is recommended.

STATUS Operational in Colonial Heights, Virginia, Public Works Department.

AVAILABILITY Available from contact for $350.

CONTACT Michael J. Cestaro
107 Hampton Drive
Colonial Heights, VA 23834
(804) 526-5676

microcomputers in transportation

Traffic Engineering Software

Traffic Data Management

APPLICATION KSLAD - Kansas Local Accidents Database

DEVELOPER University of Kansas Transportation Center

SUMMARY KSLAD is a package of dBASE III™ programs for traffic accident analysis, designed for traffic engineering and safety applications in small to medium-sized cities and counties. Using data input from traffic accident reports, KSLAD will produce accident summaries by location or by a number of particular accident characteristics. KSLAD also will perform a high accident location analysis. The programs are menu-driven, and require minimal computing experience to use.

ENVIRONMENT The package runs on the IBM-PC under MS-DOS, and requires dBASE III™. Production of a compiled version, eliminating the need for dBase, is under consideration.

STATUS Expected to be operational by 2/86.

AVAILABILITY For sale from contact below for $75.

CONTACT
Carl Thor
Transportation Center
2011 Learned Hall
University of Kansas
Lawrence, KS 66045
(913) 864-5658

microcomputers in transportation

Traffic Engineering Software

Traffic Data Management

APPLICATION TARS: Traffic Accident Records System - Program for CRT Input of Traffic Accident Reports (California "Long Form")

DEVELOPER LAU Engineering, Inc.

SUMMARY TARS consists of 28 sub-programs which run on the Hewlett Packard HP-3000 minicomputer. One of the programs was developed to run also on a Radio Shack Model II microcomputer. The Radio Shack program permits the user to enter traffic accident reports (California "long form") and then store on the disk. The disk database file can be transmitted to the HP-3000 accident database. The blank form (or "template") for screen data entry on the Model II has similar look as the VisiCalc™ or Lotus 1-2-3™ data entry format.

ENVIRONMENT Radio Shack TRS Model II with TRS DOS.
64K RAM. One disk drive.
Matrix or daisy wheel printer (graphics capability not required).

STATUS Program in use since 1982 by the City of Beverly Hills, California.

AVAILABILITY For sale at $300 for Model II accident report program.

CONTACT Steve Lau, P.E.
LAU Engineering, Inc.
17220 Newhope Street, Suite 204
Fountain Valley, CA 92708
(714) 966-1709

microcomputers in transportation

Traffic Engineering Software

Traffic Data Management

APPLICATION SIP: Sign Inventory Program
TSIM: Traffic Signal Inventory and Maintenance Records Program

DEVELOPER LAU Engineering, Inc.

SUMMARY SIP consists of four sub-programs which are intended for rapid entry of inventory data, updating of inventory, data retrieval, and reports. The database is organized by street names. To find out the signs (and other traffic control devices) in any "block face," the program asks for the street name, the names of the cross streets at both ends of the block, and the side of the street. The program can also print out a complete listing of inventory for all streets in alphabetical order.

TSIM allows signal equipment and timing data (for each controller phase module) and repair (or routine maintenance service) records to be stored in a database. Data can be retrieved by entering cross street names (which define an intersection) in alphabetical order. The repair records are automatically sorted in chronological order for each signal.

ENVIRONMENT Radio Shack TRS Model II with TRS DOS and RSBASIC runtime diskette. 64K RAM. One disk drive required. Hard disk or additional disk drives are desirable.

Matrix or daisy wheel printer (graphics capability not required).

STATUS Program in use since 1980 by the City of Santa Monica, California.

AVAILABILITY For sale at $300 for SIP; $300 for TSIM.

CONTACT Steve Lau, P.E.
LAU Engineering, Inc.
17220 Newhope Street, Suite 204
Fountain Valley, CA 92708
(714) 966-1709

microcomputers in transportation

Traffic Engineering Software

Traffic Data Management

APPLICATION INVENTORY

DEVELOPER Bernardin, Lochmueller & Associates, Inc. under contract with the Indiana Department of Highways (IDOH)

SUMMARY INVENTORY is a menu-driven program for the entry, printing, and storage of data for a road inventory system. The program provides for keyboard entry of HPMS (Highway Performance Monitoring System) data and IDOH inventory system data. Such data includes pavement type and width, pavement condition, number of lanes, shoulder type and width, shoulder condition, median type and width, right-of-way width, parking, curbs, turn lanes, traffic volumes, drainage, land use characteristics, and curve and grade statistics.

The program is designed to allow for updating, adding, and deleting the inventory data for road segments. Following data entry, the program also prints out the data in two formats which allow for easy editing. The resulting output data file can be directly loaded into an IBM mainframe for updating the HPMS and IDOH data files.

ENVIRONMENT IBM PC-DOS. 256K with two disk drives desirable. Source code in BASIC.

STATUS In use by the Indiana Department of Highways.

AVAILABILITY Public domain.

CONTACTS

Mr. David L. Isley
Bernardin, Lochmueller & Associates, Inc.
Hulman Building - Suite 606
20-24 N.W. 4th Street
Evansville, IN 47708
(812) 426-1737

Mr. David Pluckebaum
Division of Planning
Indiana Dept. of Highways
Room 1205, State Office Bldg.
100 North Senate Avenue
Indianapolis, IN 46204
(317) 232-5460

microcomputers in transportation

Traffic Engineering Software

Traffic Data Management

APPLICATION — Inventory Systems for Traffic Signs, Signal Hardware, and Pavement Markings

DEVELOPER — Bather Belrose Boje, Inc.

SUMMARY — THE PAVEMENT MARKING MANAGER is an inventory program for pavement markings. It includes such information as marking type, material, color and position, as well as start and end distance for curb painting, striping, and pavement markings.

THE SIGN MANAGER is an inventory program for traffic signs. It records sign information, including location, direction, sign type and size, and materials for face, blank, and mounting.

THE SIGNAL MANAGER is a traffic signal hardware and maintenance program. It records information on controller equipment, including poles, signal heads, and detectors; maintenance and repair activities at any traffic signal location; and signal timing at each intersection.

Each of the above programs has versions available for urban or rural conditions. The number of traffic signs may be divided into 99 maintenance areas for special reporting purposes or to permit smaller-capacity microcomputer systems to cover larger geographic areas. Intersections are located as individual points or nodes within the city, county, or State in one of the 99 maintenance areas. Data for each intersection is recorded and may be retrieved individually.

ENVIRONMENT — The program operates on MS-DOS or PC-DOS-based microcomputer systems and requires 256K of RAM and a 132-column printer. A hard disk is recommended.

STATUS — City of Sioux Falls, SD, Albuquerque, NM, Helena, MT, Vallejo, CA

AVAILABILITY — Available on a license agreement basis from contact.

CONTACT — William M. Belrose
Bather Belrose Boje, Inc.
7101 York Avenue South
Minneapolis, MN 55435
(612) 921-3303

microcomputers in transportation

Traffic Engineering Software

Traffic Data Management

APPLICATION Traffic Data Management System (TDMS)

DEVELOPER Traffic Data Service

SUMMARY TRAFFIC DATA MANAGEMENT SYSTEM is a fully integrated menu-driven microprocessor program that provides the Traffic Engineer with a powerful tool for dealing with vehicular volume data. Count data may be entered directly from a MITRON counter memory pack, a standard RS-232 output, an 8 or 16 channel paper tape reader, or from the keyboard. Header information and all count data may be previewed and edited prior to selective permanent disk storage. Seasonal correction factors may also be applied. A location code table module allows count stations to be uniquely identified by street name and cross street.

The report generator portion of the program provides a number of alternate report formats including:

1. a volume history of all locations
2. a volume history of specific street
3. a volume history of a specific location
4. a detailed analysis of a specific count, in table or graph format, including: individual time interval volumes, running hour volumes, 24-hr. volume, A.M. peak, mid-day peak, P.M. peak, evening peak, and highest 2-6-8-12 hrs.
5. a detailed analysis of a derived count created by adding up to 8 real counts, including trip end tables, each with its own algebraic coefficient

ENVIRONMENT IBM PC, XT, AT, or compatible. System requirements include 256K RAM color graphics board, graphic monitor, dual 360 floppy disks or hard disk, RS-232 port, and printer.

STATUS Operational since June 1984. List of using agencies available.

AVAILABILITY TDMS is available commercially through Traffic Data Service. It is an integral part of the MITRON SYSTEMS traffic counting equipment, thus it is also available through MITRON or their local rep.

CONTACTS

Keith Manley
Traffic Data Service
6177 Cecala Dr.
San Jose, CA 95120
(408) 997-0131

Bob Tyburski
MITRON SYSTEMS, INC.
2000 Century Plaza
Columbia, MD 21044
(800) 638-9665

microcomputers in transportation

Traffic Engineering Software

Field Data Collection and Analysis

APPLICATION TMC: Turning Movement Count Analysis Program

DEVELOPER Timelapse, Inc.

SUMMARY Recently revised with new capabilities, the TMC Program enables you to analyze data from the TMC/48, a microprocessor-based turning movement counter. The TMC Program totals volumes by 5- or 15-minute intervals for 16 distinct movements. Each direction--North, South, East, West--includes four movements: through traffic, right turn, left turn, and a special category, such as pedestrians, which may be specified by the user. Data collected at more than one intersection can be separated and analyzed as individual locations.

The TMC Program enables you to examine and edit data from the TMC/48, merge data records, save and retrieve data disk files, and print turning movement reports. For data recorded by 15-minute intervals, a peak period analysis can be performed which includes calculating peak hour factors and the percentage of turning vehicles.

ENVIRONMENT The TMC Program reads the TMC/48 through an RS232 interface manufactured by Timelapse. Computer requirements are a MS-DOS or CP/M-based system with 64K RAM, one disk drive (90K minimum), and a 132-column printer. Apple and Radio Shack systems must be upgraded to provide CP/M operating system.

STATUS The TMC Program has been operational since July 1982. It is being used in over 250 city and county traffic engineering departments.

AVAILABILITY The TMC Program is available commercially through Timelapse or one of their regional representatives. Call the number below to determine the representative in your area.

CONTACT Jim Corbett
Timelapse, Inc.
9025B 131st Place N.
Largo, FL 33543
(813) 585-4230

microcomputers in transportation

Traffic Engineering Software

Field Data Collection and Analysis

APPLICATION	Turning Movement Counts and Signal Warrant Studies
DEVELOPER	James D. Schroll, Anne Arundel County (Maryland) Department of Public Works
SUMMARY	The program uses VisiCalc™ templates to collate and analyze turning movement volumes and approach volumes for signal warrant studies. TMC15 is a template which collates and analyzes (row and column totals, maximum and average volumes) turning movement volumes gathered in 15-minute increments. WARRANTS is a template which analyzes hourly approach volumes to determine if signal warrants are met (including accident, pedestrian, and reduced warrants). TMC>WARRANTS(N/S) and TMC>WARRANTS(E/W) perform the same functions as TMC15 and prepare hourly totals for direct imprinting on WARRANTS template (N/S for major road running north/south, E/W for east/west).
ENVIRONMENT	Templates in use on Apple II+ with one 5-1/4-inch disk drive, 64K memory, and VisiCalc™.
AVAILABILITY	Available for a nominal charge from the contact below.
CONTACT	Microcomputers in Transportation Support Center Toni Wilbur FHWA/HTO-23 Washington, DC 20590 (202) 426-0411

microcomputers in transportation

Traffic Engineering Software

Field Data Collection and Analysis

APPLICATION "TravelPro" Travel Time Analysis Package

DEVELOPER Timelapse, Inc.

SUMMARY TRAVELPRO enables the user to process travel time data collected using a portable computer supplied by Timelapse. The portable computer can also be used to collect distance measurements, parking study data, and other information, using a special connector attached to the vehicle speedometer cable.

The software transfers the data from the Field Unit to the office microcomputer, summarizes the data, prints selectable reports, and stores the data for future use. It computes average speed, cruise speed, stopped delay, number of stops, and reasons for delay. It also estimates fuel consumption and vehicle emissions based on travel speed and number of stops.

Run summary reports are provided with selectable thresholds for delay and cruise speed. Route summaries are processed with automatic lookup of specified run numbers. Graphic plots are provided based on time or distance showing speed of vehicle, checkpoints, and reason for delay.

ENVIRONMENT The Field Unit is the HT-5000 hand-held computer. The analysis software runs on a standard desktop microcomputer. It reads data from the Field Unit via an RS-232 interface. Plots require a dot-matrix/graphics printer.

STATUS Presently in use at 15 agencies. Contact vendor for current list of users.

AVAILABILITY The program can be purchased from Timelapse, Inc. or one of their regional representatives. Contact Timelapse for more information and the name of the representative in your area.

CONTACT Roy M. White
TIMELAPSE, INC.
9025B - 131st Place N.
Largo, FL 33543
(813) 585-4230

microcomputers in transportation

Traffic Engineering Software

Field Data Collection and Analysis

APPLICATION	Travel Time Delay Study/Summary
DEVELOPER	City of Lakewood, Colorado, Traffic Engineering Division
SUMMARY	This program takes field data collected during a floating car travel time and delay study and calculates link to link speeds and delay for each trip with an overall summary for all runs, including average delay, average speed, and average travel time.
ENVIRONMENT	IBM-PC with 128K and Supercalc 2 or 3.
STATUS	Used by the City of Lakewood Traffic Engineering Division.
AVAILABILITY	Free by sending a formatted DSDD diskette with DOS 2.0 or 2.1 and a self-addressed, stamped return mailer.
CONTACTS	Lowell Bender or Robert Kochevar City of Lakewood Traffic Engineering Division 445 South Allison Parkway Lakewood, CO 80226-3105 (303) 987-7980

microcomputers in transportation

Traffic Engineering Software

Field Data Collection and Analysis

APPLICATION VOLPRO, SPEEDPRO, and AXLEPRO: Vehicle Counter Analysis

DEVELOPER Timelapse, Inc.

SUMMARY Recently revised with new capabilities, VOLPRO enables the user to analyze data gathered with automatic counters. Data is transferred from the volume counter into the microcomputer either automatically or manually. One to eight channel counts can be entered, with the allowable counting interval ranging from one minute to 60 minutes. The data can be examined on the computer screen, stored on a diskette, edited, summarized, printed, or merged with other data. With 60-minute intervals, the weekly reports include hourly and daily averages, and peak hour volumes. With 15-minute intervals, the weekly reports feature hourly totals and several peak hour calculations. Additional features include a signal warrant analysis and graphical plotting.

SPEEDPRO and AXLEPRO enable the user to analyze speed or vehicle classification data gathered with automatic traffic recorders. The data can also be entered manually if collected using radar or other devices. Data is collected in up to 13 vehicle classifications (as recommended by FHWA) or in 13 speed bins. The data can be entered in intervals from 1 to 60 minutes. It can be examined on the screen, edited, stored, summarized, printed, and graphically plotted. The reports also indicate totals of volume, mean speed, 85th percentile speed, etc.

ENVIRONMENT The software reads the volume recorder through a special interface unit, which varies depending upon the volume counter used. Data is accepted from counters manufactured by Leopold & Stevens, Streeter Amet, GK Instruments, and others. Computer requirements are a MS-DOS or CP/M operating system with 64K RAM, one disk drive (90K minimum), and printer.

STATUS In use at over 100 traffic engineering departments. List available on request.

AVAILABILITY VOLPRO, SPEEDPRO, and AXLEPRO are available commercially through Timelapse or one of their regional representatives. Call the number below to determine the representative in your area.

CONTACT Jim Corbett
Timelapse, Inc.
9025B 131st Place N.
Largo, FL 33543
(813) 585-4230

microcomputers in transportation

Traffic Engineering Software

Field Data Collection and Analysis

APPLICATION COUNTS PLUS][, COUNTS PLUS][Enhancement

DEVELOPERS Al Butler; Transyt Corp., Tallahassee, FL (COUNTS PLUS][)
James Bonneson; Henningson, Durham & Richardson, Omaha, NB (COUNTS PLUS][Enhancement)

SUMMARY COUNTS PLUS][is a program which processes 24-hour mechanical traffic counts with 15-minute subtotals (which may be cumulative) and evaluates signal warrants based on intersection geometry, approach speed, counts, and community size. The counts may be input manually or loaded from disk data files created by machine reader programs. COUNTS PLUS][can also perform multi-way stop warrants analysis.

The COUNTS PLUS][Enhancement incorporates a VisiCalc™ template into the COUNTS PLUS][program so that 8-hour counts can be extrapolated and used in place of 24-hour counts.

ENVIRONMENT Operates on the Apple II family of microcomputers with at least 48K RAM, two disk drives, and an 80-column printer. A digital keypad is recommended for inputting manual counts. The VisiCalc™ spreadsheet software is needed in order to use the COUNTS PLUS][Enhancement template; an Apple-compatible word processing program is also required for the Enhancement.

AVAILABLE Available for a nominal charge from contact below.

CONTACT Microcomputers in Transportation Support Center
Toni Wilbur
FHWA/HTO-23
Wasington, DC 20590
(202) 426-0411

microcomputers in transportation

Traffic Engineering Software

Field Data Collection and Analysis

APPLICATION COUNTS PC

DEVELOPER Based on COUNTS PLUS II developed by Al Butler, Florida Public Service Commission. Converted to the IBM PC by the Federal Highway Administration.

SUMMARY COUNTS PC is a program to process 24-hour mechanical traffic counts and to evaluate signal warrants and multi-way stop warrants. Counts may be input manually or from disk files created by machine reader programs. COUNTS PC is an enlargement of the COUNTS PLUS II program and incorporates additional warrants and a pedestrian traffic count processing routine.

ENVIRONMENT Operates on the IBM PC or compatible microcomputer and requires 128K, 2 disk drives (or one disk drive and a hard disk) and an 80-column or wide-carriage printer. Manual input of counts requires a digital keypad.

AVAILABILITY Available for a nominal fee from contact below.

CONTACT Toni Wilbur
FHWA/HTO-23
Washington, DC 20590
(202) 426-0411

microcomputers in transportation

Traffic Engineering Software

Field Data Collection and Analysis

APPLICATION Data Collection

DEVELOPER Bather Belrose Boje, Inc.

SUMMARY The PROFESSIONAL DATA COLLECTION SYSTEM (PDCS) is a combination of portable computer and a data recording program which can be used to make the data-gathering and data-entry process easier and significantly more efficient than manual techniques.

The PDCS is a general-purpose data collection tool that can be used for any kind of data collection the user may need, including information for traffic studies, inventories, time/motion studies, traveltime studies, and pavement conditions. The program allows combinations of text, time, and counter data to be collected easily.

The user's collection forms are used to create data input screens, so inventory or special study data can be collected easily and quickly at the data source in a form specifically usable with other application programs.

Collected data is temporarily saved on the data collection microcomputer system and, at the user's convenience, can be transferred to the data processing computer system. The transferred data is available for loading into the user's inventory or analysis application program using the intrinsic data input capabilities of the user's application program.

A printed report which sorts the collected data can be produced. An optional REPORT generation program is available to extend the capabilities of the system. The EXPORT utility program is available to convert collected data to other formats, including dBASE, LOTUS, and MAILMERGE.

ENVIRONMENT Selected CP/M-80, MS-DOS, and PC-DOS based microcomputer systems.

STATUS City of Albuquerque, NM; Lyle Signs, Inc., MN; Ed Swanson & Associates, MI.

AVAILABILITY Available on a license agreement basis from contact.

CONTACT
William M. Belrose
Bather Belrose Boje, Inc.
7101 York Avenue South
Minneapolis, MN 55435
(612) 921-3303

microcomputers in transportation

Traffic Engineering Software

Field Data Collection and Analysis

APPLICATION — SAP: Speed Analysis Program - A program to make statistical analysis of speed measurements and print frequency distribution curves.

DEVELOPER — LAU Engineering, Inc.

SUMMARY — The program reads input data (i.e., observed spot speeds and number of vehicles), calculates frequency distribution, plots frequency distribution curve, i.e., "Bar Chart," and cumulative frequency distribution curve (i.e., "S" Curve), and statistical results, such as 85th-percentile speed, 10-mph or 5-mph "Pace," average speed, median speed, standard deviation, variance, and skewness index. All of the input data and output charts and findings are presented in a one-page report for each speed survey.

Matrix or daisy wheel printer (graphics capability not required).

EVNIRONMENT — IBM PC (or compatible with MS-DOS); or Radio Shack TRS Model II or III; or KAYPRO with CPM/80 (or other microcomputers with CPM/80). 64K RAM and one disk drive are required.

STATUS — Program in use since 1980 with three different versions for different computers. The program is being used by the cities of Pasadena and Glendora, California.

AVAILABILITY — For sale at $300.

CONTACT — Steve Lau, P.E.
LAU Engineering, Inc.
17220 Newhope Street, Suite 204
Fountain Valley, CA 92708
(714) 966-1709

microcomputers in transportation

Traffic Engineering Software

Field Data Collection and Analysis

APPLICATION SPEED SURVEY ^2

DEVELOPER J.P. Clement, P.E.

SUMMARY SPEED SURVEY ^2 is a full spot engineering and traffic survey program with: road data; collision rates; percent under and over the prima facie and posted speeds; percent under, at, and over the pace speed; sample size; confidence level; variance; standard deviation; skewness; and kurtosis. The program generates graphs for which you control bar vs. line, percent vs. number, high to low vs. reverse vertical scale, graphic character, and vertical range. The program source code in Microsoft BASIC is supplied so that the user may customize the program.

SPEED SURVEY ^2 is menu-driven with full editing capability. The program inputs speed data and graphic options. The program outputs various speed plots, road data, accident rates, speed stats, and curve stats.

ENVIRONMENT IBM PC and compatibles, plus most CP/M systems. Requires 64K for 8-bit and 128K for 16-bit computers. One 5-1/4-inch floppy disk drive is required and a second floppy drive or a hard disk is desirable. An 80-column text printer is optional. Operates under MS-DOS, PC-DOS, CP/M-80 with MBASIC, BASIC 86, BASIC 80, BASICA, etc.

STATUS Operational in Thousand Oaks, California.

AVAILABILITY Disk or program listing and manual are available from the contact below.

CONTACT J.P. Clement, P.E.
350 Spindlewood Avenue
Camarillo, CA 93010

microcomputers in transportation

Traffic Engineering Software

Field Data Collection and Analysis

APPLICATION Speed Study Program

DEVELOPER John P. Reilly

SUMMARY The end result of the Speed Study Program is to produce an adjusted prevailing speed (limit) for roadways in the State of Illinois. The adjusted prevailing speed and other relevant data is then reproduced on a formal summary report.

The Speed Study Program requires the user to input field data. The data consist of items such as specific check-points' 85th percentile speed, 10-mph pace, and test runs. Other data items such as access conflicts (major streets, minor streets, residential drives, and large and small businesses), pedestrian activity, parking, and accident reduction factors are also possible inputs. The prevailing speed and an adjusted prevailing speed is then computed using a formula which produces the legal speed limit for autos in the State of Illinois.

ENVIRONMENT Operates on IBM PC MS-DOS 2.0.

STATUS This program is currently being used by the District 1 Office (Chicago area) of the Illinois Department of Transportation.

AVAILABILITY Available free with instructions from the contact.
Please send a 5-1/4 inch dual density, soft sectored diskette.

CONTACT
John P. Reilly
Illinois Department of Transportation
Bureau of Traffic
1000 Plaza Drive
Schaumburg, IL 60196
(312) 884-4472

PARATRANSIT PLANNING AND OPERATIONS SOFTWARE

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION PASS: Paratransit Automated Support System

DEVELOPER Multisystems, Inc., Cambridge, MA

SUMMARY PASS is a complete multi-user package for management of paratransit services. Modules in PASS include trip request processing, service scheduling, and management reporting for paratransit services, as well as a module for processing direct client reimbursements for transportation expense. The package maintains a client file (including travel history) for on-line verification of client eligibility. Trip request processing has extensive edit checking procedures to ensure swift and accurate data entry. Permanent or standing order trips can be prescheduled into skeleton tours. Service scheduling is a computer-assisted procedure to create vehicle tours (multiple carriers can be accommodated); unscheduled trips are listed by time and location to facilitate the scheduling process. The package produces driver manifests, operations reports for the system and by carrier, and client travel history reports. The reimbursement module accepts reimbursement vouchers, generates checks and a check register, maintains client reimbursement histories, and produces management reports.

ENVIRONMENT Up to 16 users can be supported simultaneously using a TeleVideo 816/40 microcomputer. The TeleVideo has a 40MB hard disk and built-in tape backup capability. The hardware fully supports CP/M and CP/M-86 application programs. PASS is written in DataFlex™, a relational database management system developed by Data Access Corp. In addition, it is possible to recompile the source code to produce a single-user MS-DOS version.

STATUS PASS was used by WHEELS, Inc., a contract manager for paratransit services in Philadelphia, until the demand for WHEELS' services outgrew the microcomputer (WHEELS has since upgraded to a mainframe service bureau).

AVAILABILITY Available as proprietary software from Multisystems.

CONTACT Mr. J. William Rodman
Multisystems Inc.
1050 Massachusetts Ave.
Cambridge, MA 02138
(617) 864-5810

microcomputers in transportation

Paratransit Planning and Operations Software

PROJECT — PARIS: PARatransit Information System

DEVELOPER — COMSIS Corp.

SUMMARY — PARIS is truly a full-functioned, multi-user management information system for the paratransit industry. PARIS features include: CLIENT DATA BASE -- nearly 1,024 characters of information are contained on-line for each client; TRIP ENTRY -- random or standing order trips can be easily entered for any client. Trip fares are calculated on-line. Automatic geocoding is provided; FARE CALCULATION -- up to 99 fare schedules can be entered; VEHICLE RECORDS -- on-line display and update of vehicle information (e.g., maintenance record, gas consumption, etc.); DRIVER RECORDS -- recordkeeping of driver information (e.g., trips performed, time required, hours worked, etc.); REPORTS -- daily dispatch reports for providers and agencies and many other reports are provided; SUMMARY INFORMATION -- provision to summarize number and cost of trips and other data for any time period stratified by program, agency, provider, etc.; REMOTE PROCESSING -- capability to distribute dispatch reports to remote locations over communication lines; SYSTEM SECURITY -- facility to prevent unauthorized access to PARIS.

PARIS is written using DataFlex™ -- a full-relational data base management system with a user-oriented "ad hoc" report generator. The 16-bit version of DataFlex™ can accommodate up to 16 million records per file with each record containing up to 255 fields. Programs written in DataFlex™ can run without change or even recompilation on over 25 different computers, operating systems, and Local Area Networks (LAN).

ENVIRONMENT — CP/M, CP/M-86, PC-DOS, MS-DOS, Xenix and Novell, 3-COM, and PC-Network Local Area Networks

STATUS — Operational in Washington County Transportation Program, Washington, PA, and Warren County Coordinated Transportation System, Oxford, NJ.

CONTACT —
Martin J. Fertal
Vice President
COMSIS Corp.
2275 Swallow Hill Road
Pittsburgh, PA 15220
(412) 279-9110

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION Elderly & Handicapped Mobility Module

DEVELOPER VISTA Systems, Inc.

SUMMARY VISTA's Elderly & Handicapped Mobility Module automates the process of matching specialized transportation needs with available transportation, giving specialized transportation coordinators immediate access to vehicle trip data.

Individual trip requests are booked and assigned to a vehicle. The request is entered into the system, which then ascertains which vehicles can serve the trip and displays a list of options. The dispatcher then chooses from this list and makes the assignment. The system also has a feature (vehicle servicing) which records and reports mileage, fuel, oil, and other consumables usage. Another feature (the Event Log) provides a facility to record vehicle maintenance activities on vehicles. The Events Log can be used to record the date, event type, vehicle or employee number, and up to nine lines of text description.

ENVIRONMENT Operates on UNIX-based and MS-DOS microcomputers.

STATUS In use at Pioneer Valley Transit, Springfield, MA and IPTC, Indianapolis, IN.

AVAILABILITY For sale from VISTA Systems, Inc.

CONTACT VISTA Systems, Inc.
900 State Road
Princeton, NJ 08540
(609) 921-0065

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION PAX-1: Management Information System for Paratransit Services

DEVELOPER BC Enterprises (formerly Bucher & Cope), Amherst, MA

SUMMARY Within the basic system this package provides advance reservation trip-scheduling, billing and statistics, vehicle maintenance management, and parts inventory control. Modules for schoolbus management, accounts receivable and payable, general ledger, and payroll are also available. The trip scheduling routine maintains client files, trip files, and standing trip files. Standing trips and return trips are automatically scheduled. A back-up log is provided on-line to the printer. The system is fully menu-driven.

ENVIRONMENT The entire system is written on a database management system - DATAFLEX™. Because of this, no programming or prior computer experience is necessary to use the system. The programs provide integrity on all files, and security passwords can restrict access anywhere in the system. This package runs on about a dozen microcomputer operating systems and nearly every make of microcomputer on the market. A hard disk is required. The software package will run both single user and multi-user computers and networks. Source code is available and may be purchased. The system has practically unlimited capacity to expand with appropriate hardware systems. An extremely friendly and powerful query program provides selecting, totaling, and unlimited constraints on any field in the query. Because the software is written in Dataflex, it is easily customized. This software will run on both single user IBM-PCs and multi-user systems utilizing 15 terminals and hundreds of vehicles. Training is available. A VCR demonstration tape is available for viewing upon request.

STATUS Operational at Colonial Taxi & Paratransit Services, Inc. in Pittsburgh, PA.

AVAILABILITY The cost of a basic single user system, including the software, Dataflex™, a wide carriage 200 CPS printer, and a PC with hard disk is approximately $12-15,000 plus shipping. Customization for particular sites is available. The software can also be purchased separately. Larger multi-user systems are available. Prices can be provided upon request.

CONTACT Paul McOwen, Associate
BC Enterprises
1 East Pleasant Street
Amherst, MA 01002
(413) 549-7480

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION PCMS: Paratransit Client Accounts Management System

DEVELOPER JASCoS and Outreach & Escort, Inc.

SUMMARY PCMS is a fully Interactive Client Accounts Management Information & Scheduling System.

System highpoints are as follows:

- Allows scheduler to determine client eligibility and trip cost, trip distance, and total trip cost while client is on the phone.
- Ability to schedule trips up to a year in advance.
- Ability to duplicate repetitive trips.
- Ability to search for client trips on a specific day, or all trips in a specific month.
- Print a ride log report to be distributed to carrier one day in advance...detailing rides scheduled and routes for the day.
- Print client history recap of activity for the current year.
- Includes a letter print utility to notify clients of overdue accounts.
- Detailed statistics are kept for the year and reported on a monthly basis. The reports generated are as follows...New Clients Registered, Trips Taken or Serviced, First Time Riders, Active Riders, Single Trips, Multiple Person Trips, Trip Costs, Client Trip Costs, Trip Mileage, etc.
- Monthly reports to recap activity by Carrier or Fund Source.
- Automatic grouping of trips into a multiple trip.
- Full screen edits for error checking.
- All client account functions and reporting...and more.

ENVIRONMENT The software is written in RPG for IBM PC; minimum of 20MB hard disk recommended. The software is fully upgradable to IBM's System 34 and System 36 if capacity beyond the PC is required.

STATUS PCMS has been in use over 5 years at Outreach & Escort in San Jose, CA, and has since undergone a complete state-of-the-art transformation.

AVAILABILITY Available from JASCoS.

CONTACTS

Joe Shirley
JASCoS
1720 Finch Court
Yuba City, CA 95991
(916) 671-3018

Roberta Gardella
Outreach & Escort, Inc.
186 East Gish Road
San Jose, CA 95112
(408) 292-6414

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION PARMIS: Paratransit Management Information System

DEVELOPER KETRON, Inc.

SUMMARY PARMIS is constructed from four primary service modules: client database, scheduling, reconciliation, and performance evaluation. The client database module automates all of the client-specific information necessary to appropriately authorize a client for system use and to post desired trips. Two versions for scheduling are available. One supports systems which assign vehicles to specific spatial areas along a typical corridor and allow route deviations to the pick-up locations of clients. The second supports systems which allow various vehicles to serve the same spatial areas. In both versions Scheduled Driver Trip Sheets (SDTS) are generated. The reconciliation module facilitates adjustment of SDTS to reflect such actual service delivery events as additional trips and no-shows, provides for assignment of cost values, and accomplishes a variety of data summations. The performance evaluation module generates statistical information and can calculate agency-specific performance measures.

PARMIS is constructed using nested menus, a flashing cursor, English language questions which consistently ask what the user wants to do along with allowable answers (actions), "help" files, and error messages when the user makes a mistake with client files and trip data.

ENVIRONMENT Requires dBASE II™ or dBASE III™ as the database management system. Apple II+ and IBM XT-PC versions. Hard disk useful on multi-user and larger systems.

STATUS Negotiating with several agencies for installation.

AVAILABILITY For sale from contact below.

CONTACT
John N. Balog
Associate Manager, Transportation Planning
KETRON, Inc.
Great Valley Corporate Center
350 Technology Drive, Suite 20
Malvern, PA 19355
(215) 964-3300

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION Handicapped & Elderly Mobility & Registration System

DEVELOPER Kenneth R. Roberts & Associates, Inc. (KRA)

SPONSOR CNY CENTRO, Inc., Syracuse, NY

SUMMARY Subscription trips "drive" the system - each day's service begins with previously booked subscriptions and then fills unused time slots with 24-hour advance and emergency trips. Registration of all eligible persons who regularly use the system, showing address, fare type, handicap code, and any special instructions for pick-up. Groups can be specified for purpose, e.g., shopping, nutrition, etc. Membership in a group can be permanent or temporary for up to 99 people. A group of riders can be scheduled en masse for either a subscription or a 24-hour trip. Printed manifests describe each run in terms of pick-ups and drop-offs, by time of day. Scheduler can decide which trips are assigned to which runs, within certain limits. Scheduling conflicts are shown on the CRT and a user-response is required before the trip can be scheduled. On-line inquiry routines can display contents of any given run, or display existing trips for any given passenger. Vehicle capacities are checked at the time of reservation for 24-hour advance trips, and cannot be exceeded for either regular seats or wheelchair slots. Ridership reports show numbers of one-way trips by zone, type of trip, and run number.

ENVIRONMENT Altos 68000 with 6 terminals, 1MB memory, 40MB hard disk, UNIX System III, and SMC BASIC; or IBM PC/AT with 1MB memory, 40MB hard disk, and XENIX operating system.

STATUS Operational

AVAILABILITY For sale from developer above.

CONTACT
Mr. J. Todd Plesko
Director of Service Development
CNY CENTRO, Inc.
One Centro Center
200 Cortland Ave, Drawer 820
Syracuse, NY 13205-0820
(315) 470-0206

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION — Rural Transportation User and Vehicle Utilization Record-keeping System

DEVELOPER — Tennessee DOT and the University of Tennessee

SUMMARY — The rural transportation recordkeeping program uses dBASE II™ to maintain and update a client file. Besides documenting the characteristics of the client--age, sex, address, funding sources, eligibility for travel on specific contracts, etc., the client file maintains a running total of the duplicated and unduplicated units of service for a county/site or funding source. Trips to date are summarized by client and date of last trip. Monthly reports are prepared summarizing number of trips and unduplicated persons by funding source and/or special contracts. A daily trip file which records client, van number, and trip purpose is used to update each client's travel records. Files can be maintained for up to 99 counties, and reports can be generated for a single county or combination of counties.

A vehicle utilization file maintains and updates the operating history of each revenue vehicle including: fuel/oil consumption, trips carried, miles driven, revenue collected, hours of operation, etc. Monthly summaries are reported by county of vehicle operation or by vehicle.

A simple accounting system is included to document agency expenditures (such as salaries, fuel, etc.) by object codes. Monthly, quarterly, or year-to-year data summaries are provided, as is a monthly expenditure report suitable for Section 18 reimbursement.

ENVIRONMENT — The complete program runs on an Apple III with 256K and dBASE II™. A CP/M operating system and 5MB hard disk are required. The client file and units of service program is available on an IBM PC XT.

STATUS — The program is being tested by Metro Inter-Faith Association, Memphis, TN, and Hamilton County Rural Transportation Program, Chattanooga, TN.

CONTACT — Dr. Frederick J. Wegmann
Department of Civil Engineering
Perkins Hall
The University of Tennessee
Knoxville, TN 37996-2010

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION SST: Special Service Transit System

DEVELOPER Transportation Systems Center, Taurio Associates

SPONSOR UMTA Office of Methods and Support

SUMMARY This is a public domain, dBASE II™ implementation for scheduling and recordkeeping by a small specialized service provider. It maintains a file of eligible clients, allows the scheduler to book advance reservations to vehicles, prints a driver manifest, receives mileage information, and makes monthly reports and bills.

The package is complete, although dBASE II™ is necessary to run it. It is intended as an example of a system easily customized to local needs by a person well-versed in dBASE II™ programming.

ENVIRONMENT IBM PC or compatible, dBASE II™ version 2.4, MS DOS, 2 disk drives or one hard disk and one floppy disk, 256K RAM.

STATUS In use at Upper Cumberland Area Regional Trans., Algood, TN.

CONTACT TIME Support Center
Department of Civil Engineering
Rensselaer Polytechnic Institute
Troy, NY 12180-3590
(518) 266-6227 between 9:00 A.M. and 4:00 P.M. (EST)

microcomputers in transportation

Paratransit Planning and Operations Software

PROJECT Ridesharing Management System (RMS)

DEVELOPER Micro Systems Management, Salem, VA

SUMMARY This system was created to automate the administration of ride-sharing programs. The RMS has four major sections: 1) Input Applications allows the user to add, change, display, and delete information regarding applicants, employers, car or van pools, followups, and mailings; 2) Printing Applications allows the user to print postcards, letters (unlimited, but created ahead of time), envelopes, Status Sheets, and Map Markers; 3) County/Page Match Report gives the user the ability to match applicants based on ten (10) different criteria, and 4) Flag Setting automatically prompts the user for what material should be sent to a particular applicant. This system is completely menu-driven, interactive, and allows the user to exit any section by pressing E.

ENVIRONMENT IBM-PC or any IBM compatible computer, two disk drives, printer, dBASEII™ or dBASEIII™ required.

STATUS Used by the ridesharing program for Germantown, MD (301) 972-6500.

AVAILABILITY For sale from contact below.

CONTACT Mr. Charles E. R. Bamford
Micro Systems Management
2823 Creekwood Dr.
Salem, VA 24153
(703) 387-3130

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION "CSP-25" Client Services Package

DEVELOPER Philip G. Dorcas and Associates

SUMMARY CSP-25 is a software package designed primarily for providers of nutrition and paratransit services for the elderly and handicapped. It provides management information which relates clients, volunteers, staff, and guests with their services such as vehicle rides, meals, and counseling. CSP-25 keeps information regarding the race, medicare status, handicap, age category, economic need, social need, vehicle requirements, and service units for each client.

A special feature of CSP-25 is its interface to the Paratransit Scheduling Package (PSP-25). When the Paratransit Scheduling Package and the Client Services Package are used together, they become a powerful dispatching and management tool for paratransit operations.

The client list can hold up to 32,000 clients (subject to hard disk storage) with up to 9999 units of service per year for each of the 60 available (user-defined) services and 10 funding sources (titles).

This software package is designed to provide the critical information required for titles such as III-B, III-C1, III-C2, etc. Other service organizations will also find the package useful because the services and titles are completely definable by the user. Monthly and yearly reports feature such information as service unit totals, totals by providing center, volunteer units, unduplicated volunteers, unduplicated recipients, new clients by ethnic origin, no-shows, etc.

ENVIRONMENT IBM XT/AT or compatible computer with PC-DOS. Operates in single user or multi-user (3com) mode. Needs 256K RAM, hard disk drive, and 132-column printer.

STATUS Implemented in Denton, Texas, and used by SPAN.

AVAILABILITY Object code license available for sale (IBM 360K diskette and manual). See contact below.

CONTACT
Philip G. Dorcas and Associates
4133 Hunkleberry Drive
Fort Worth, TX 76137
(817) 847-0044

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION "PSP-25" Paratransit Scheduling Package

DEVELOPER Philip G. Dorcas and Associates

SUMMARY PSP-25, the Paratransit Scheduling Package, is designed primarily for providers of paratransit services to the elderly and handicapped. The two main benefits are real-time dispatcher scheduling and end-of-period management reporting.

PSP-25 can handle a combination of fixed-route and demand-response transportation. The on-screen editor is fast and easy-to-use by a busy dispatcher. Features are included to allow for bus shuttle of many passengers, sudden schedule changes, vehicle breakdowns, etc. Regularly scheduled rides are handled specially so they do not have to be re-entered each week. Rides can be scheduled up to 7 days in advance.

New ride requests can be scheduled automatically by the computer (if the dispatcher so desires) on a vehicle which is optimum to use due to the vehicle's scheduled location in the same region as the request.

The client file is completely compatible with the file used by CSP-25, the Client Services Package (available from the same vendor). PSP-25 will handle up to 100 vehicles, 255 trips per vehicle per day, 32,000 trips per month, and 32,000 clients (subject to available hard disk storage).

Each schedule is posted to the monthly ride log, which is analyzed and reported each month. Management receives charts comparing information such as client codes, trip purposes, number of trips, mileage, billing source, no-shows, etc. Additional reports are provided by CSP-25 if it is used in conjunction with PSP-25.

ENVIRONMENT IBM XT/AT or compatible computer with PC-DOS. Operates in single user or multi-user (3com) mode. Needs 256K RAM, hard disk drive, and 132-column printer.

STATUS Implemented in Denton, Texas, and used by SPAN.

AVAILABILITY For sale from contact below.

CONTACT Philip G. Dorcas and Associates
4133 Huckleberry Drive
Fort Worth, TX 76137
(817) 847-0044

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION Ride Sharing System

DEVELOPER VISTA Systems, Inc.

SUMMARY VISTA's Ride Sharing System is a self-contained set of programs and data files which give ridesharing coordinators immediate access to carpooler data, as well as transit and vanpool services. The system allows for on-line operation as well as batch functions for bulk data processing.

The system will check matches for carpool subscribers using a database of people who have indicated they would like to carpool; for transit service using a database of transit service and its relationship to the ridesharing zone network, identifying route and service information; and for vanpools, using a database of vanpool service, and its relationship to the ridesharing zone network, identifying the vanpool driver and contact information.

The system reports primary and secondary levels of matches. Primary matching has exact matches on both the origin (home) and destination (work) zones, within a user-definable "window" around the desired start and stop times. Secondary matching has the same time-window characteristics, but is more relaxed geographically. The system includes an optional automatic geocoding facility.

ENVIRONMENT Operates on UNIX-based and MS-DOS microcomputers.

STATUS In use at the MTA in Nashville, TN, and MAX in Birmingham, AL.

AVAILABILITY For sale from VISTA Systems.

CONTACT VISTA Systems, Inc.
900 State Road
Princeton, NJ 08540
(609) 921-0065

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION — Ridesharing Data Processing - "POOLMATCH"

DEVELOPER — Jesse Glazer, Steve Kanya, and staff of Crain & Associates Systems Development Company

SUMMARY — POOLMATCH is an online data processing system that performs all of the data processing functions normally required by areawide and private-employer ridesharing organizations. These include:

- Online maintenance of a file of commuters (applicants)
- (up to 100,000 persons)
- Online or batch matching for carpools
- Online or batch matching for vanpools and buspools
- Online or batch matching for transit information
- Online (immediate) automatic geocoding of addresses
- Online maintenance of a file of employers (up to 10,000 employers)
- Vanpool driver/rider rosters and vanpool planning tools
- Evaluation statistics for performance reporting
- Other advanced features now being developed.

POOLMATCH is upward-compatible with data files from CIS, and replicates all CIS functions. It also has a number of dramatic new capabilities, such as true automatic address geocoding. The geocoding system can use many address-translation files; it is not dependent upon the DIME file.

POOLMATCH is normally installed as a turnkey package -- including hardware, software, installation, training, and maintenance. The software can also be purchased separately.

ENVIRONMENT — UNIX/XENIX (multi-user) or MS-DOS (single-user)

STATUS — First installed 1981. Operational at Ridefinders (Richmond, VA), MAG Rideshare (Phoenix, AZ), and many other public and private-sector programs.

CONTACT — Jesse Glazer
Crain & Associates Systems Development Co.
2007 Sawtelle Blvd. - Suite 4
Los Angeles, CA 90025
(213) 473-6508

microcomputers in transportation

Paratransit Planning and Operations Software

PROJECT MicroCRIS: COMSIS Rideshare Information System

DEVELOPER COMSIS Corp.

SUMMARY MicroCRIS performs carpool, vanpool, public transit, and park-n-ride matching in both a call-in and batch mode. It operates equally well in both single and multi-user operating environments. It includes an on-line geocoding capability using either a street address, street intersection, or place name dictionary -- or all three concurrently if desired.

MicroCRIS is written using DataFlex™ -- a full-relational data base management system with a user-oriented "ad hoc" report generator. The 16-bit version of DataFlex™ can accommodate up to 16 million records per file with each record containing up to 255 fields. Programs written in DataFlex™ can run without change or even recompilation on over 25 different computers, operating systems, and Local Area Networks (LAN).

MicroCRIS allows the user to match commuters using the uniform grid approach or to customize the matching algorithm using any desired areal unit, e.g., traffic zones, grids of varying size, etc. It is truly unique in the manner it searches actual routes in vanpool and transit matching. It also maintains a complete history of all agency transactions and summarizes this information in the form of an agency status report for any period. Furthermore, it can be coordinated with COMSIS Corporation's PARatransit Information System (PARIS) to provide an integrated transportation information system.

ENVIRONMENT CP/M, CP/M-86, PC-DOS, MS-DOS, Xenix and Novell, 3-COM, and PC-Network Local Area Networks

STATUS Operational at Capital Metropolitan Transportation Authority, Austin, TX, and over twenty (20) other locations.

CONTACT

Martin J. Fertal
Vice President
COMSIS Corporation
2275 Swallow Hill Road
Pittsburgh, PA 15220
(412) 279-9110

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION	Rideshare File Updating/Maintenance and Matching Program
DEVELOPER	Genesee Transportation Council
SUMMARY	The program is user-interactive and menu-driven. Rideshare files are indexed by Zip Code. In addition to entering and updating records, the program creates lists of rideshare candidates meeting arriving and departing time tolerances, sorted by Zip Code (and/or census tract).
ENVIRONMENT	Program operates on an Apple III with 64K RAM, and is written in Apple Business BASIC. Two drives and a printer are required. Program is interactive with an IBM Displaywriter for letter-generating capabilities. Plans to modify this program to operate on an IBM-PC are currently underway.
STATUS	Operational since December 1982
AVAILABILITY	Available from contact below.
CONTACT	William C. Holthoff Genesee Transportation Council 65 West Broad Street Rochester, NY 14614 (716) 232-6240

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION CAPRA: Computer Aided Personalized Ridesharing Assistance

DEVELOPER East Montgomery County SHARE-A-RIDE

SUMMARY CAPRA is an interactive matching system. The concept is based on the Silver Spring, Maryland Share-A-Ride demonstration project, documented in Transportation Research Records 823 and 914.

Some of CAPRA's key features include:

- Relational database
- Full-screen editing for data entry and updating
- Automatic look-up of employer addresses, and other redundant information to save on keystrokes in adding new applicant
- Automatically generates hard-copy applicant profiles and map labels
- Unique, interactive matching--allowing the user to call up key information on any number of potential matches, add people to the match list, and sort the match list in any desired order; unlimited matches
- Matching in many-to-few or many to-one; either home or work-based
- User can define any number of personalized letter types and contents; letters can include match and/or transit information
- Automatically generates "rematch" postcards for people matched with each new applicant
- Maintains pool and other status information based on follow-up phone calls; unlimited number of calls per applicant
- User-definable reports that select, sort, and group applicants and present the fields desired; reports can be viewed on the screen, printed, or saved to a file in text, dBASE III™, or Lotus 1-2-3™ format

ENVIRONMENT IBM PC XT, AT or compatible, with 640K RAM. High-quality printer recommended. Requires dBASE III™ and Keyworks™.

STATUS Currently in use by East Montgomery County SHARE-A-RIDE.

AVAILABILITY Available from contact below.

CONTACT Marie Anderson
East Montgomery County SHARE-A-RIDE
P.O. BOX 513
Burtonsville, MD 20866
(301) 953-2808

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION SCOOTER: Vehicle Routing and Scheduling for Special Service Providers

DEVELOPER Modeling Systems, Inc.

SUMMARY SCOOTER is one of the most comprehensive vehicle scheduling computer packages available for preplanned routing and scheduling. SCOOTER enables users to simplify and expedite the collection and storage of client and vehicle data, the generation of route schedules, and the preparation of route analysis reports and invoices.

A. Data Base Management - provides for the entry, retrieval, and modification of data on clients, vehicles, and routes.

B. Route Scheduling - provision for route construction, optimization, and manual modification.

C. Management Reporting - produces client origin/destination reports, vehicle route reports, and billing invoices.

SCOOTER provides the transportation planner or dispatcher with a menu format to edit client, route, and location site data files and to perform the vehicle routing function.

SCOOTER is a cost-effective tool for administrative recordkeeping as well as for vehicle scheduling, fleet planning, and management cost analysis. This module is also fully compatible with MSI's Vehicle Maintenance Monitoring System (VEMM) and its data base management system.

STATUS Operational at MBTA, Office of Special Needs, in Boston; Clark County School District in Las Vegas, Nevada; and Riverside County Schools in California.

AVAILABILITY Software is designed for both micro and mini Digital computers running either RSX or VMS. Both software and DEC turnkey systems are available immediately.

CONTACT Geoffrey N. Berlin
Modeling Systems, Inc.
1718 Peachtree St.
Atlanta, GA 30309
(404) 876-9977

microcomputers in transportation

Paratransit Planning and Operations Software

PROJECT	PUTNAM: Pupil Transportation Network Analysis Method
DEVELOPER	KETRON, Inc.
SUMMARY	For over four years, KETRON has provided more than a dozen school districts with a CP/M-based system for optimizing their yellow-bus routes. PUTNAM comprises 40 BASIC-language programs which accept and validate student data (name, address, destination school(s), nearest bus stop) and the local road network, then help the Transportation Director interactively plan better routes. KETRON furnishes all necessary data preparation and training assistance for first-year clients, consulting thereafter on an as-needed basis.
ENVIRONMENT	Apple IIc, IIe, III; IBM PC; and TRS-80 microcomputers which have 64K with CP/M, plus a hard disk of at least 5MB.
STATUS	PUTNAM techniques have been used by more than 12 school districts (including Cornwall-Lebanon, Upper Merion, and Line Mountain, Pennsylvania) to successfully evaluate/reduce transportation expenditures. Client references available upon request.
AVAILABILITY	Software can be purchased by individual school districts or consortia. KETRON will consider franchising reputable firms/agencies outside the Middle Atlantic States.
CONTACTS	Dr. David N. Freeman or Peter L. Vetere KETRON, Inc. Great Valley Corporate Center 350 Technology Drive, Suite 20 Malvern, PA 19355 (215) 964-3300

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION CAFES: Computer-Assisted Long-Range Forecasting of Ridership

DEVELOPER KETRON, Inc.

SUMMARY KETRON's proprietary CAFES packages will forecast enrollments of school children and yellow-bus riders up to 15 years ahead. Based on cohort survival factors and actual counts in each region of a school district, KETRON forecasts school openings and closings.

ENVIRONMENT Microcomputers such as the Apple II Plus, IIe, III. Minicomputers such as HP-3000 and DEC VAX. Mainframes such as IBM 43XX and Honeywell DPS/8.

STATUS Mainframe version in use in public schools. Microcomputer version used by Upper Moreland Township (Pennsylvania) Public Schools.

AVAILABILITY Services can be purchased.

CONTACTS

Dr. David N. Freeman or Mr. Peter L. Vetere
KETRON, Inc.
Great Valley Corporate Center
350 Technology Drive, Suite 20
Malvern, PA 19355
(215) 964-3300
(Micro- and mini-computer versions of CAFES)

Dr. Richard H. Mann
KETRON, Inc.
One Broadway
Cambridge, MA 02142
(617) 491-4963
(Mainframe version of CAFES)

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION SAM: School Bus Scheduling Assistance Model

DEVELOPER UNC Institute for Transportation Research and Education

SUMMARY The program was designed to be used in school bus transportation planning. Complete data on a set of existing routes are collected and entered into a data base. Pupil transportation supervisors specify a set of parameters including the target arrival time at each school and the allowable "time window" for early arrivals and late departures at each school. SAM generates a schedule whereby every route is assigned to a bus so that it arrives at school on time and the least number of buses is used to serve all routes. By running multiple simulations with various school times and time windows, local school administrators can determine trade-offs between school times and transportation costs. Several reports are produced for each simulation including a master schedule and a complete cost matrix of routes indicating which pairs of routes could be served by the same bus, including deadhead travel costs and early arrival costs.

ENVIRONMENT IBM PC, PC/XT, PC/AT with minimum 256K memory

STATUS Used in 8 counties in North Carolina with developer assistance. Currently being field-tested with local users; instruction manual in process.

CONTACT
Bob Martin
Derek Graham
UNC-ITRE
P.O. Box 12551
Research Triangle Park, NC 27709
(919) 549-0541

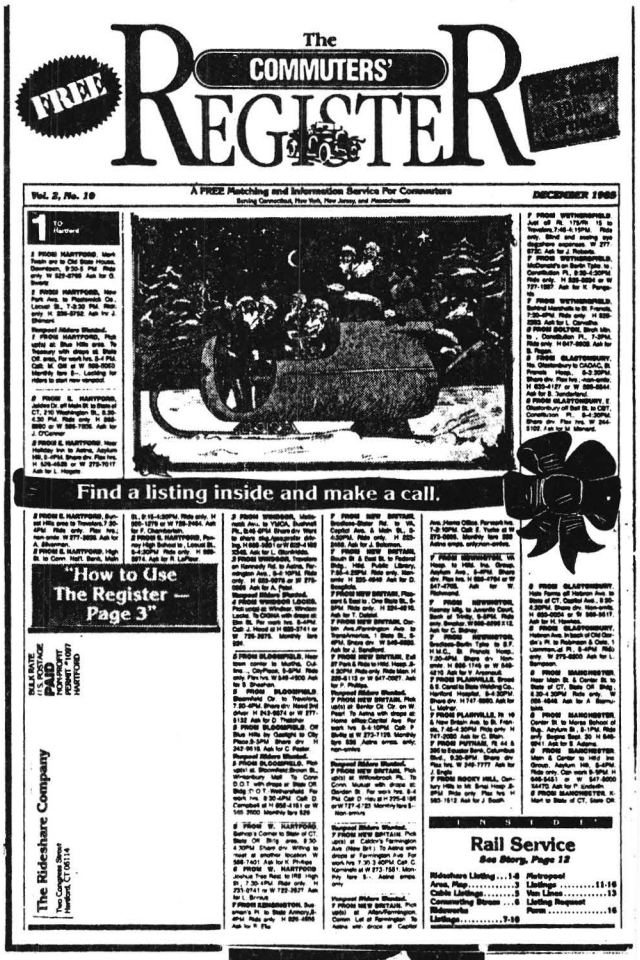
microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION — Rideshare Matching Program and Marketing Program

DEVELOPER — The Rideshare Company

SUMMARY — Programs allow sorting and printing of ridesharing data to publish a monthly tabloid of "classified ads." Readers scan by destination and origin codes to pinpoint potential matches. Grant awarded by UMTA to develop line-by-line integration of transit information. Study underway to determine feasibility of selling commercial advertising to offset operating costs.



ENVIRONMENT — Hardware: IBM PC 196K RAM with 12.5Mb hard disk
Hayes Smartcom II modem (for transmission of data for typesetting)
Software: Alpha Database Manager II
MultiMate Word Processing DOS 2.0

STATUS — Two-year operating history operated by three (3) Connecticut rideshare organizations as a statewide program.

AVAILABILITY — Estimated hardware/software costs: $11,000. Development consultation services available on request. Descriptive literature available free of charge. Manual and implementation guide available on a fee basis.

CONTACT — Linda J. Costello
Vice President-Administration
The Rideshare Company
Two Congress Street
Hartford, CT 06114
(203) 527-4472

microcomputers in transportation

Paratransit Planning and Operations Software

PROJECT New Hampshire Rural Public Transportation Microcomputer Technical Assistance Program

DEVELOPER Micro/Trans Division, CAR, Inc. and Lawrence J. Harman

SUMMARY The New Hampshire Microcomputer Technical Assistance Program initially provided a catalyst for the application of microcomputer technology to local rural public transportation projects, with positive spin-off effects for coordinated client-specific transportation programs and urban transit systems in the following areas:

1) review of local operations;
2) development of system specifications and hardware acquisition;
3) development of prototype database, spreadsheet, and graphics application from available retail software; applications include vehicle scheduling, ridership reporting, and client-file development and maintenance.
4) development of a prototype Section 18 project management system, data communications network, and microcomputer workshop for local transit operators. Microcomputer specifications for State management functions were developed in a working paper entitled, "Microcomputer Data Base Management for Small Transit systems - the New Hampshire Prototype."

ENVIRONMENT IBM PC and compatibles with a minimum of 256K RAM. A hard disk is recommended. Prototype files were developed using Rbase 4000™.

STATUS Research and development phase completed. Local microcomputer systems are operational.

AVAILABILITY All applications software are available through retail outlets. Prototype applications developed for this project will be in the public domain. The working paper, describing the project and software applications, is available.

CONTACTS

Richard P. Shine, Administrator
Public Transportation Division
NH Dept. of Public Works & Highways
John O. Morton Building
Concord, NH 03301
(603) 271-2564

Lawrence J. Harman
MA Exec. Ofc. of
Transportation and
Construction
10 Park Plaza
Boston, MA 02116
(617) 973-7000

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION Rural Transportation Needs Assessment Program

DEVELOPER Rutland Regional Commission

SUMMARY The program is based on the Transportation Research Record 936 article by Hannah Worthington entitled "Low Cost Planning Techniques for Assessing Rural Transportation Needs." The program will perform the calculations necessary to make a preliminary assessment of need by geographic area; the article discusses other aspects of assigning priorities to geographic areas based on need and for presenting information to area governing bodies.

Using readily available information, primarily from the U.S. Census, and a formula based on incidence rates in other rural areas, the program will calculate need as a function of the proportion of transit dependent in user-identified geographic areas. Transit dependent are those "most likely to rely on public transit because they are young or transportation handicapped or low income or carless."

ENVIRONMENT Runs on Apple III 256K in Business Basic.

AVAILABILITY Software within public domain. Program and documentation available from contact below. There is a charge of $15 (prepaid) for copying and mailing.

CONTACT Mark Blucher
Executive Director
Rutland Regional Commission
P.O. Box 965
Rutland, VT 05701

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION VEMM: Fleet Maintenance System

DEVELOPER Modeling Systems, Inc.

SUMMARY VEMM (Vehicle Maintenance Monitor) is one of the most comprehensive vehicle maintenance computer packages available to vehicle fleet owners today. The program maintains information on vehicles, work orders, parts inventory, purchase orders, fuel pumps, and related items. It provides multiple cross-checks for accurate data entry, a quick method of retrieving data, and a large variety of analytical reports. These reports include: vehicle status reports, exception reports, inventory catalogues, stock usage analyses, preventive maintenance and repair schedules by miles and days, labor reports, fuel usage analyses, repair cause and type reports, maintenance histories, cost distributions, and many management summary reports.

VEMM is a cost-effective tool for administrative record-keeping as well as for maintenance scheduling, fuel management, inventory planning, and management cost analysis. This module is also fully compatible with MSI's Vehicle Routing System (SCOOTER) and its database management system.

STATUS Operational at MBTA, Office of Special Needs, Boston, Massachusetts; Clark County School District, Las Vegas, Nevada.

AVAILABILITY Software is designed for both micro and mini Digital computers running either RSX or VMS. Both software and DEC turnkey systems are available immediately.

CONTACT
Geoffrey Berlin
Modeling Systems, Inc.
1718 Peachtree St.
Atlanta, GA 30309
(404) 876-9977

UTILITIES AND MISCELLANEOUS MICROCOMPUTER SOFTWARE

microcomputers in transportation

Utilities and Miscellaneous Microcomputer Software

APPLICATION SADISTIC STATISTICS: General Statistical Analysis

DEVELOPER Kenneth Cypra, Ph.D., P.E.

SUMMARY SADISTIC STATISTICS is an integrated set of statistical analysis tools which is supported by a database in which data may be edited, printed, and transformed. Among the statistical programs are:

- o Straight and cross tabulations
- o One- and two-way ANOVA
- o Scatter diagram
- o Product-moment correlation
- o Function grapher
- o Matrix operations
- o Data transformations
- o Student's t and chi-square tests

ENVIRONMENT Apple II+, IIe, IIc, and compatibles (DOS 3.3).

STATUS Operational. Used by author and others.

AVAILABILITY Available. Please send a 5 1/4-inch floppy disk and a self-addressed, stamped disk mailer. In return you will receive the program and documentation. For a nominal donation, the author will keep the recipient apprised of updates and modifications.

CONTACT Kenneth Cypra
Division Manager: Research
Regional Transportation Authority
1 North Dearborn
Chicago, IL 60602

Utilities and Miscellaneous Microcomputer Software

APPLICATION C.H.R.I.S.: County Highway Management System

DEVELOPER The MCS Group, Inc.

SUMMARY The County Highway Resource Information System (C.H.R.I.S.) is a fully integrated management system designed specifically for county highway engineers and superintendents. Its accounting modules track operations on a per project, per fund, and per phase basis. C.H.R.I.S. not only automates the department's fund accounting, but also provides the users with the data management tools needed to manage the department better through its special management templates.

The C.H.R.I.S. modules include General Ledger, Payroll, Job Cost, Equipment Management, Equipment Inventory, Fixed Assets, and C.H.R.I.S.Mate Templates. The accounting modules are fully integrated. Posting an employee's time ticket into Payroll will result in automatic posting of pertinent data to the other modules such as Job Cost, Equipment Management, and General Ledger. It is much more than an accounting system, however, in that it gives the superintendent a tool to better manage department resources and costs.

The main emphasis of the system is on providing concise management reports. It is able to generate these reports through the specially developed fund accounting and resource management modules.

ENVIRONMENT Operates on IBM PC and compatibles that use MS-DOS. Requires at least 256K RAM and a 10MB hard disk system for adequate storage.

STATUS Fully operational at the Pennington County Highway Department, Rapid City, South Dakota.

AVAILABILITY Available from contact for $10,000.

CONTACT The MCS Group
2465 West Chicago
Rapid City, SD 57702
(605) 341-6755

microcomputers in transportation

Utilities and Miscellaneous Microcomputer Software

APPLICATION — QUEUE-2: General Purpose Queueing Model

DEVELOPER — Rick Kuner and Marilyn F. Gardner, New Alternatives Software, a Division of New Alternatives, Inc., Chicago, IL

SUMMARY — QUEUE-2 is a general-purpose queueing model for any number of single-channel, single-phase facilities, such as parking gates, cashiers, toll booths, garage entrances/exits, or intersection approaches. The major inputs to QUEUE-2 are the mean arrival rate and mean service rate. The major outputs are the mean number of units in the system, mean queue length, mean time in the system, mean waiting time, percent that the facility is used, and percent that the facility is idle.

ENVIRONMENT — Tested on the IBM PC, XT, AT, and Portable, Compaq, AT&T 6300, Zenith, Corona, and ITT Xtra. The program is written in BASIC (either BASICA or GW BASIC) and requires PC-DOS or MS-DOS and one disk drive.

STATUS — The program is fully operational and has been used by New Alternatives, Inc., Wisconsin DOT; Boca Raton, Florida; South Central Regional COG, New Haven, Connecticut; California State University, Sacramento; and Edwards and Kelcey.

AVAILABILITY — The software on a 5 1/4-inch floppy disk is distributed with a User's Manual as a proprietary package for $18.
Add $10 for orders from outside the U.S.

CONTACT — Rick Kuner
President
New Alternatives, Inc.
8 South Michigan Avenue, Suite 610
Chicago, IL 60603
(312) 263-2808

microcomputers in transportation

Utilities and Miscellaneous Microcomputer Software

APPLICATION Evaluation of Alternative Proposals

DEVELOPER Rick Kuner, New Alternatives Software, A Division of New Alternatives, Inc., Chicago, IL

SUMMARY The Evaluation of Alternative Proposals Template is a fully documented spreadsheet application used to evaluate alternative policies, plans, or programs. It allows the user to enter evaluation criteria using any set of measures, the alternative proposals under consideration, and the impacts of each alternative. Then it allows the user to rank criteria and compare the alternatives.

ENVIRONMENT The Evaluation of Alternative Proposals is a Lotus 1-2-3™ spreadsheet template which runs on IBM, AT&T, Compaq, DEC, Hewlett Packard, Tandy, Texas Instruments, and Zenith microcomputers.

STATUS The template is fully operational and has been used by New Alternatives, Inc. and Cook-DuPage Transportation Co.

AVAILABILITY The template and a case example on a 5 1/4-inch floppy disk is distributed with a User's Manual for $75. The User's Manual alone, which contains full documentation, is $55 (applicable to full price). Add $10 for orders from outside the U.S.

CONTACT

Rick Kuner
President
New Alternatives, Inc.
8 South Michigan Avenue, Suite 610
Chicago, IL 60603
(312) 263-2808

microcomputers in transportation

Utilities and Miscellaneous Microcomputer Software

APPLICATION	Materials Systems (Soils)
DEVELOPER	Virginia Department of Highways and Transportation
SUMMARY	These systems are used to calculate and record test information gathered in Soils Laboratories, in the running of routine soils tests (monitors, C.B.R.'s, and compactions).
ENVIRONMENT	IBM PC with 256K RAM, two disk drives, Lotus 1-2-3, and attached printer.
STATUS	Used by Virginia Department of Highways and Transportation, Soils Laboratories - in Central Office and Districts.
AVAILABILITY	Available from contact below.
CONTACT	John Newcomer Technical Assistance Administrator Virginia Department of Highways and Transportation 1221 East Broad Street Richmond, VA 23219 (804) 786-7007

microcomputers in transportation

Utilities and Miscellaneous Microcomputer Software

APPLICATION	Materials System
DEVELOPER	Virginia Department of Highways and Transportation
SUMMARY	PRICE ADJ.BAS program calculates price adjustment percentage for bituminous concrete job control samples. Prints form letter showing adjustments to the applied contractor. GRAD.BAS calculates gradation and marshall stability for bituminous concrete control samples. Compares gradation to a mix design. Prints worksheets and test reports. Builds data file for statistical calculation in Lotus 1-2-3. DENSITY PAY FACTOR program calculates pay factor for bituminous concrete field density, based on V.D.H.T. statistical specifications. SLURRY.BAS program calculates gradation of slurry aggregates, percent asphalt, and total water. Prints worksheets and test reports. Calculates price adjustment and builds data files.
ENVIRONMENT	IBM compatible PC with 256K RAM, two disk drives, Lotus 1-2-3, basic interpreter, and printer.
STATUS	Used by Virginia Department of Highways and Transportation.
AVAILABILITY	Available from contact below.
CONTACT	John Newcomer Technical Assistance Administrator Virginia Department of Highways and Transportation 1221 East Broad Street Richmond, VA 23219 (804) 786-7007

microcomputers in transportation

Utilities and Miscellaneous Microcomputer Software

APPLICATION Unified Work Program (UWP) Scheduling System

DEVELOPER East-West Gateway Coordinating Council

SUMMARY The UWP Scheduling System is a multi-purpose scheduling process, written in dBase II™, that produces detailed information on staff and project time estimates. The input data for this system can be entered directly into a dBase™ file, or it can be created in a text file and read into a dBase II™ file using an option of the system.

Reports generated by this system include:

1) Staff days budgeted by project or project and task;

2) Staff assignments by project and task;

3) Schedule of completion dates by project, task, and milestone; and

4) In-house progress reports to each lead staff person listing uncompleted projects.

ENVIRONMENT This system was written in dBase II™ under the CP/M-80 operating system.

STATUS Currently being tested by East-West Gateway Coordinating Council

AVAILABILITY Negotiable after January 1986 - contact below.

CONTACT Al Boudreaux
East-West Gateway Coordinating Council
100 South Tucker Blvd.
St. Louis, MO 63102
(314) 421-4220

microcomputers in transportation

Utilities and Miscellaneous Microcomputer Software

PROJECT Consolidated Project Management System

DEVELOPER Lawrence J. Harman, Joy S. Hearn, Howard Olsher, Russell T. Thatcher

SPONSOR Executive Office of Transportation and Construction, Commonwealth of Massachusetts

SUMMARY A multi-user microcomputer-based program budgeting and management system is under development to administer a consolidated program for Sections 8, 9A, 16(b)(2), and 18 of the Urban Mass Transportation Act, Federal Railroad Administration, and Amtrak, State Transit Assistance and related programs for a state department of transportation. This system includes: project scheduling, recording, and retrieval of labor hours; project accounting; and project reporting. In addition, the Consolidated Program Management System will include data communications within the Local Area Network, to the State Transportation Data Center, other State agency mainframes, and external data bases.

ENVIRONMENT IBM PC XT and compatible workstations on an IBM PC Network (Local Area Network). Program budgeting software applications developed on Lotus 1-2-3™.

AVAILABILITY All applications software are available through retail outlets. Prototype applications developed for this project will be in the public domain.

STATUS Program budget model has been developed and implemented for FY86 and FY87. Database applications are being designed and the Local Area Network is being expanded from 4 workstations to approximately 20 workstations.

CONTACTS

Lawrence J. Harman
Assistant Secretary
Executive Office of Transportation and Construction
10 Park Plaza
Boston, MA 02115
(617) 973-7000

Joy S. Hearn
Assistant Transit Planner
Executive Office of Transportation and Construction
10 Park Plaza
Boston, MA 02115
(617) 973-7000

TRADEMARKS

TMCondor 3 is a trademark of Condor Computer Corporation

TMDataFlex is a trademark of Data Access Corp.

TMdBASE II is a trademark of Ashton-Tate.

TMdBASE III is a trademark of Ashton-Tate.

TMDB Master is a trademark of Stoneware Microcomputer Products

TMFleet Controller is a trademark of Fleet Computing International, Inc.

TMINFORMIX is a trademark of Relational Database Systems, Inc.

TMKeyWorks is a trademark of Alpha Software Corporation

TMKnowledgeMan is a trademark of Micro Data Base Systems, Inc.

TMLotus 1-2-3 is a trademark of Lotus Development Corporation

TMLotus Symphony is a trademark of Lotus Development Corporation

TMMDBS is a trademark of Micro Data Base Systems, Inc.

TMMDBS III is a trademark of Micro Data Base Systems, Inc.

TMMicrotrans is a trademark of Microtrans Corporation

TMRbase 4000 is a trademark of Microrim Corporation

TMSuperCalc 3 is a trademark of Sorcim Corporation

TMTransPro is a trademark of Transware Systems

TMUnify is a trademark of Unify Corporation

TMVisiCalc is a trademark of VisiCorp.

DIRECTORY OF SOFTWARE SOURCES

ATE Management & Service Co., Inc.
617 Vine Street, Suite 800
Cincinnati, OH 45202
(800) 543-1944
(513) 381-7424
pages 18, 19, 24, 30, 36

R.L. Banks & Associates, Inc.
Steven Grandits
900 17th Street N.W., Suite 724
Washington, DC 20006
page 22

Bather Belrose Boje, Inc.
William M. Belrose
7101 York Avenue South
Minneapolis, MN 55435
(612) 921-3303
pages 122, 151, 160

BC Enterprises
Paul McOwen, Associate
1 East Pleasant Street
Amherst, MA 01002
(413) 549-7480
pages 49, 167

Bechtel Civil & Minerals, Inc.
Chris Ronald
777 East Eisenhower Pkwy.
Ann Arbor, MI 48106
page 22

Bernardin, Lochmueller & Associates, Inc.
Vincent L. Bernardin, AICP or David L. Isley
Hulman Building, Suite 606
20-24 N.W. 4th Street
Evansville, IN 47708
(812) 426-1737
pages 62, 74, 150

Binghamton Metropolitan Transportation Study
Steven Gayle
P.O. Box 1766
Binghamton, NY 13902
(607) 772-2443
page 110

BISPAC Systems
Gary Coverdale
4095 Bridge Street, Suite A
Fair Oaks, CA 95628
(916) 967-5555
pages 6, 9, 53

Broward County Transportation Planning Division
Scott P. Seeburger or Jeff Weidner
115 S. Andrews Avenue
Fort Lauderdale, FL 33301
(305) 357-6608
pages 84, 111

Greg Bullock
11 Dublin Ct.
Pleasant Hill, CA 94523
page 129

Byrd, Tallamy, MacDonald & Lewis
Consulting Engineers
2921 Telestar Court
Falls Church, VA 22042
(703) 698-9780
page 12

Capital Dist. Transportation Committee
Glenn Posca
5 Computer Drive West
Albany, NY 12205
page 95

John R. Caswell, P.E., Consultant
P.O. Box 98
Lincoln Center, MA 01773
(617) 259-0830
page 80

Center for Urban Analysis, Santa Clara County
Frank Lockfeld, Director
70 West Hedding Street
San Jose, CA 95110
(408) 299-3285
pages 76, 88, 91

Michael J. Cestaro
107 Hampton Drive
Colonial Heights, VA 23834
(804) 526-5676
page 146

City of Lakewood
Lowell Bender or Robert Kochevar
Traffic Engineering Division
445 South Allison Parkway
Lakewood, CO 80226-3105
(303) 987-7980
pages 126, 128, 156

Clackamas County
Shari Gilevich/Gary Spanovich
Department of Transportation
& Development
902 Abernethy Road
Oregon City, OR 97045
(503) 655-8521
page 103

Claritas Partners, L.P.
Lisa Tracy
201 N. Union St.
Alexandria, VA 22314
(703) 683-8300
page 87

J.P. Clement, P.E.
350 Spindlewood Avenue
Camarillo, CA 93010
page 162

CNY CENTRO, Inc.
Mr. J. Todd Plesko
Director of Service Development
One Centro Center
200 Cortland Ave., Drawer 820
Syracuse, NY 13205-0820
(315) 470-0260
page 170

COMSIS Corporation
Larry Seiders
The 1200 Building
2685 Marine Way, #1208
Mountain View, CA 94043
(415) 964-5911
page 69

COMSIS Corporation
Mark Roskin
11501 Georgia Avenue
Wheaton, MD 20902
(301) 933-9211
page 107

COMSIS Corporation
Martin J. Fertal
Vice President
2275 Swallow Hill Road
Pittsburgh, PA 15220
(412) 279-9110
pages 165, 178

Crain & Associates Systems Development Co.
Jesse Glazer
2007 Sawtelle Blvd., Suite 4
Los Angeles, CA 90025
(213) 473-6508
page 177

Roger Creighton Associates, Inc.
Douglas M. Hamlin or Charles W. Manning
Delmar, NY 12054
(518) 439-4991
pages 5, 7, 118

Criterion Incorporated
Bob S. Evatt, Jr.
11100 Roselle Street, Suite A
San Diego, CA 92121
(619) 455-0162
pages 37, 86, 89, 92

DeShazo, Starek & Tang, Inc.
Douglas Allen or Brian Jahn
330 Union Station
Dallas, TX 75202-4802
(214) 748-6740
pages 66, 117

M.M. Dillon Ltd.
Bob Lewis
47 Sheppard Avenue East
Toronto, Ontario
Canada M2N 6H5
(416) 229-4646
pages 70, 108

Display Data Corp.
Susan Bates
Executive Plaza IV
Hunt Valley, MD 21031
(301) 667-9211
page 17

DKS Associates
James Fennessy or Warren Tighe
1419 Broadway, Suite 700
Oakland, CA 94612
(415) 763-2061
pages 71, 134

Philip G. Dorcas & Associates
4133 Hunkleberry Drive
Fort Worth, TX 76137
(817) 847-0044
pages 174, 175

East Montgomery County SHARE-A-RIDE
Marie Anderson
P.O. Box 513
Burtonsville, MD 20866
(301) 953-2808
page 180

East-West Gateway Coordinating Council
Al Boudreaux
100 South Tucker Blvd.
St. Louis, MO 63102
(314) 421-4220
page 195

Ernst & Whinney
Paul T. Lauria
1225 Connecticut Avenue, N.W.
Washington, DC 20036
(202) 862-6013
page 11

Executive Office of Transportation & Construction
Lawrence J. Harman or Joy S. Hearn
10 Park Plaza
Boston, MA 02115
(617) 973-7000
page 196

Fleet Computing International, Inc.
Paul M. Setne
P.O. Box 1070
Minnetonka, MN 55345
(612) 938-8861
page 15

Mark Flinner
Room 820, Transportation Bldg.
John Ireland Blvd.
St. Paul, MN 55155
(612) 296-8526
page 101

Fulton County Police Department
Officer R.A. Nixon
Crime Analysis Unit
183 Central Avenue
Atlanta, GA 30303
(404) 572-3311
page 123

Genesee Transportation Council
William C. Holthoff
65 West Broad Street
Rochester, NY 14614
(716) 232-6240
page 179

Ron Giguere
FHWA/HTO-23
Washington, DC 20590
(202) 426-0411
pages 109, 127

GIRO, Inc.
Mr. Jean-Yves Blais
5450 Cotes-Des Neiges, Off. 502
Montreal, Quebec H3T 1Y6
(514) 731-3651
page 1

Golden Gate Bridge, Highway & Transportation District
Alan Zahradnik
1011 Andersen Drive
San Rafael, CA 94901
(415) 457-3110, ext. 411
page 33

Henningson, Durham & Richardson, Inc.
James A. Bonneson
8404 Indian Hills Drive
Omaha, NE 68114
(402) 399-1074
page 115

Indiana Dept. of Highways
James R. Gulick, P.E./David Pluckebaum
Rm. 1204 - 1205, State Office Bldg.
100 North Senate Avenue
Indianapolis, IN 46204
(317) 232-5468 or 5460
pages 62, 74, 150

Indiana University
Kent McDaniel
Institute for Urban Transportation
825 East Eighth Street
Bloomington, IN 47405
(812) 335-8143
page 57

Infocomp Systems, Inc.
Kenneth M. Kennard
2340 Robinson, Suite 110
Colorado Springs, CO 80904
(303) 630-8345
page 97

INFOTAP Bulletin Board
University of California-Berkeley
Have your modem call:
(415) 642-7088
page 4

Illinois DOT
John P. Reilly
Bureau of Traffic
1000 Plaza Drive
Schaumburg, IL 60196
(312) 884-4472
page 163

INRO Consultants, Inc.
83 Dufferin Road
Hampstead, Quebec
Canada H3X 2X8
page 67

JASCoS
Joe Shirley
1720 Finch Court
Yuba City, CA 95991
(916) 671-3018
page 168

KETRON, Inc.
Dr. Richard H. Mann
One Broadway
Cambridge, MA 02142
(617) 491-4963
page 183

KETRON, Inc.
Great Valley Corporate Center
350 Technology Drive, Suite 20
Malvern, PA 19355
(215) 964-3300
pages 169, 182, 183

LAU Engineering, Inc.
Steven Lau, P.E.
17220 Newhope Street, Suite 204
Fountain Valley, CA 92708
(714) 966-1709
pages 113, 131, 148, 149, 161

La Urbina
T. de la Barra or B. Perez
Apartado Postal 78198
Caracas 1074
Venezuela
page 104

LTK Management Services, Inc.
George N. Dorshimer, P.E.
Pennsylvania Building, Suite 1300
1500 Chestnut Street
Philadelphia, PA 19102
(215) 563-2579
pages 20, 21, 44

Massachusetts Executive Office of Transportation & Construction
Lawrence J. Harman
10 Park Plaza
Boston, MA 02116
(617) 973-7000
page 186

The MCS Group, Inc.
2465 West Chicago
Rapid City, SD 57702
(605) 341-6755
pages 16, 190

Metropolitan Transit Commission
Dana H. Harris
Director of Security
560 6th Avenue North
Minneapolis, MN 55411-4398
page 51

MGA
Albert L. Grover
Executive Vice-President
901 E. Imperial Highway, Suite A
La Habra, CA 90631
(714) 738-3471
page 121

MHM Associates, Inc.
1920 Ridgedale Road
South Bend, IN 46614
(219) 291-4793
pages 142, 144, 145

Microcomputers in Transportation
FHWA HPN-22
400 7th Street S.W.
Washington, DC 20590
pages 59, 64, 65, 78, 81, 94

Microcomputers in Transportation Support Center
Toni Wilbur
FHWA/HTO-23
Washington, DC 20590
(202) 426-0411
pages 125, 130, 132, 154, 158, 159

Micro Systems Management
Charles E. R. Bamford
2823 Creekwood Dr.
Salem, VA 24153
(703) 387-3130
page 173

Microtrans Corporation
Penny L. Buttke, President
P.O. Box 636
Portland, OR 97207
(503) 223-4728
pages 61, 63

Midwest System Sciences
325 Sheridan Road
Wilmette, IL 60091
pages 83, 124

MITRON Systems, Inc.
Bob Tyburski
2000 Century Plaza
Columbia, MD 21044
(800) 638-9665
page 152

Modeling Systems, Inc.
Geoffrey N. Berlin
1718 Peachtree St.
Atlanta, GA 30309
(404) 876-9977
pages 181, 188

Multisystems, Inc.
1050 Massachusetts Avenue
Cambridge, MA 02138
(617) 864-5810
pages 1, 8, 29, 43, 164

MVA Systematica
MVA House
Victoria Way
Woking, Surrey GU21 1DD
UK (44) 4862-28051
page 68

New Alternatives, Inc.
Rick Kuner, President
8 S. Michigan Ave., Suite 610
Chicago, IL 60603
(312) 263-2808
pages 23, 191, 192

New Hampshire Dept. of Public Works & Highways
Richard P. Shine, Administrator
Public Transportation Division
John O. Morton Building
Concord, NH 03301
(603) 271-2564
page 186

New Mexico State Highway Department
Richard Boyce
Planning Bureau
P.O. Box 1149
Santa Fe, NM 87504-1149
(505) 982-0955, ext. 294
page 106

New York State DOT
David T. Hartgen or Nathan Erlbaum
Data Services Bureau
1220 Washington Avenue
State Campus, Building 4
Albany, NY 12232
(518) 457-2967
pages 82, 96, 100

NVTC
Ben Lin
2009 N. 14th St., Suite 300
Arlington, VA 22201
(703) 524-3322
page 34

Old Colony Planning Council
Pasquale Ciaramella
47 West Elm Street
Brockton, MA 02401
(617) 583-1833
pages 31, 32, 114

Outreach & Escort, Inc.
Roberta Gardella
186 East Gish Road
San Jose, CA 95112
(408) 292-6414
page 168

Peat, Marwick, Mitchell & Co.
Dr. Robert L. Peskin
1990 K Street, N.W.
Washington, DC 20006
(202) 223-9525
page 27

PRC Engineering
Gene Lucas
1500 Planning Research Drive
McLean, VA 22102
(703) 556-2487/2489
(800) 336-3772, ext. 2487
page 68

Professional Solutions, Inc.
Robert M. Shull or Dave Larrabee
Route 3, Box 182
Vashon, WA 98070
(206) 463-3768
pages 73, 112

Regional Transportation Authority
Kenneth Cypra
Division Manager: Research
1 North Dearborn
Chicago, IL 60602
page 189

The Rideshare Company
Linda J. Costello
Vice President-Administration
Two Congress Street
Hartford, CT 06114
(203) 527-4472
page 185

Rutland Regional Commission
Mark Blucher
Executive Director
P.O. Box 965
Rutland, VT 05701
page 187

RVA Ltd.
Art Read
160 Duncan Mill Road
Don Mills
Ontario M3B 1Z5
(416) 445-4360
page 68

SAGE Management Systems Corp.
Jeff Proudfoot
Marketing Representative
156 Front Street W., Suite 500
Toronto, Ontario M5J 2L6
pages 2, 48

Sammamish Data Systems, Inc.
Richard Schweitzer
P.O. Box 70382
Bellevue, WA 98007
(206) 644-2442
pages 85, 90

SamTrans
Gregory L. Kipp
Data Analyst
945 California Drive
Burlingame, CA 94010
(415) 872-6748
page 46

San Francisco Municipal Railway
K.L. (Dan) Wong, Transit Planner II
Planning Division
949 Presidio Avenue, #204
San Francisco, CA 94115
(415) 558-5441
page 58

SEMCOG
Anne Nolan or Jeff Moyer
800 Book Building
Detroit, MI 48226
(313) 961-4266
page 50

SEPTA
Bob Sellman
200 W. Wyoming Avenue
Philadelphia, PA 19140
(215) 456-4513
page 25

Brian Smith, P.E.
Director, TEAS
P.O. Box 629
Newhall, CA 91322
(805) 253-1131
page 120

Texas A&M University
Dave Davis
Texas Trans. Technology Transfer
Texas Engineering Ext. Service
College Station, TX 77843-8000
Texas Watts 1-800-824-7303
Outside Texas 1-409-845-4369
pages 133, 143

Texas SDHPT
Blair G. Marsden
Division 18 Traffic
11th & Brazos Streets
Austin, TX 78701
pages 133, 143

Timelapse, Inc.
Jim Corbett or Roy M. White
9025B 131st Place N.
Largo, FL 33543
(813) 585-4230
pages 153, 155, 157

TIME Support Center
Department of Civil Engineering
Rensselaer Polytechnic Institute
Troy, NY 12180-3590
(518) 266-6227, between 9:00 AM and 4:00 PM (EST)
pages 4, 10, 14, 26, 28, 35, 38, 39, 40, 41, 45, 54, 55, 172

Traffic Data Service
Keith Manley
6177 Cecala Drive
San Jose, CA 95120
(408) 997-0131
page 152

Traffic Management & Engineering Office
Phil Masters or S.W. Erwin
1201 Wilson Avenue
Room 236, Central Building
Downsview, Ontario M3M 1J8
page 141

Transportation Systems Center
Nancy Cooney or David Heimann
Safety & Security Systems Division
55 Broadway
Cambridge, MA 02142
(617) 494-2206 or 494-2577
pages 51, 52

Transportation Systems Planning
David L. Phipps
1032 South Shores Rd.
Jacksonville, FL 32207
(904) 399-4066
page 79

TransWare
P.O. Box 6896
McLean, VA 22106-6896
pages 116, 135, 136, 137, 138

Transware Systems
John M. Kain, AICP
42 Sequoia Tree Lane
Irvine, CA 92715
(714) 559-4599
(714) 786-9266
page 72

Tulare County Public Works Department
Allen Wilson or Philip Slitor
Room 10, County Civic Center
Visalia, CA 93291
(209) 733-6645
(209) 733-6557
page 93

UMTA/URT-41
Ron Jensen-Fisher (UMTA Contact)
400 7th Street S.W.
Washington, DC 20590
(202) 426-9271
page 26

UNC-ITRE
Bob Martin or Derek Graham
P.O. Box 12551
Research Triangle Park, NC 27709
(919) 549-0541
page 184

University of California
ITS Systems Unit
107 McLaughlin Hall
Berkeley, CA 94720
(415) 642-1008
pages 77, 119

University of Illinois
IlliNET
Cooperative Extension Service
College of Agriculture
1301 West Gregory Drive
Urbana, IL 61801
page 98

University of Kansas
Carl Thor
Transportation Center
2011 Learned Hall
Lawrence, KS 66045
(913) 864-5658
pages 139,140, 147

University of North Florida
Raymond Nash
Microcomputer Specialist
Institute of Police Technology & Management
4567 St. Johns Bluff Rd., South
Jacksonville, FL 32216
(904) 646-2722
page 13

University of Tennessee
Dr. Frederick J. Wegmann
Dept. of Civil Engineering
Perkins Hall
Knoxville, TN 37996-2010
page 171

University of Wisconsin--Milwaukee
Center for Urban Transportation Studies
P.O. Box 784
Milwaukee, WI 53201
(414) 963-5787
pages 42, 56, 60, 75

Virginia Dept. of Highways & Transportation
John Newcomer
Technical Assistance Administrator
1221 East Broad Street
Richmond, VA 23219
(804) 786-7007
pages 193, 194

Virginia Tech
Dr. Antoine G. Hobeika, Head
Transportation Division
Civil Engineering Department
Blacksburg, VA 24061
(703) 961-7404
page 105

VISTA Systems, Inc.
900 State Road
Princeton, NJ 08540
(609) 921-0065
pages 47, 166, 176

West Virginia University
Ronald W. Eck, P.E.
Department of Civil Engineering
P.O. Box 6101
Morgantown, WV 26506-6101
(304) 293-5580
pages 99, 102

Wilson-Hill Associates
Ron Hirschhorn
1220 L Street N.W.
Washington, DC 20005
(800) 638-8747
(202) 842-7799
pages 3, 26

INDEX

☆ U.S. GOVERNMENT PRINTING OFFICE: 1986-491-810/20703

HHP-22/4-84(6.4M)EW
HHP-23/4-84(1M)EW
HPN-22/3-86(6M)QE