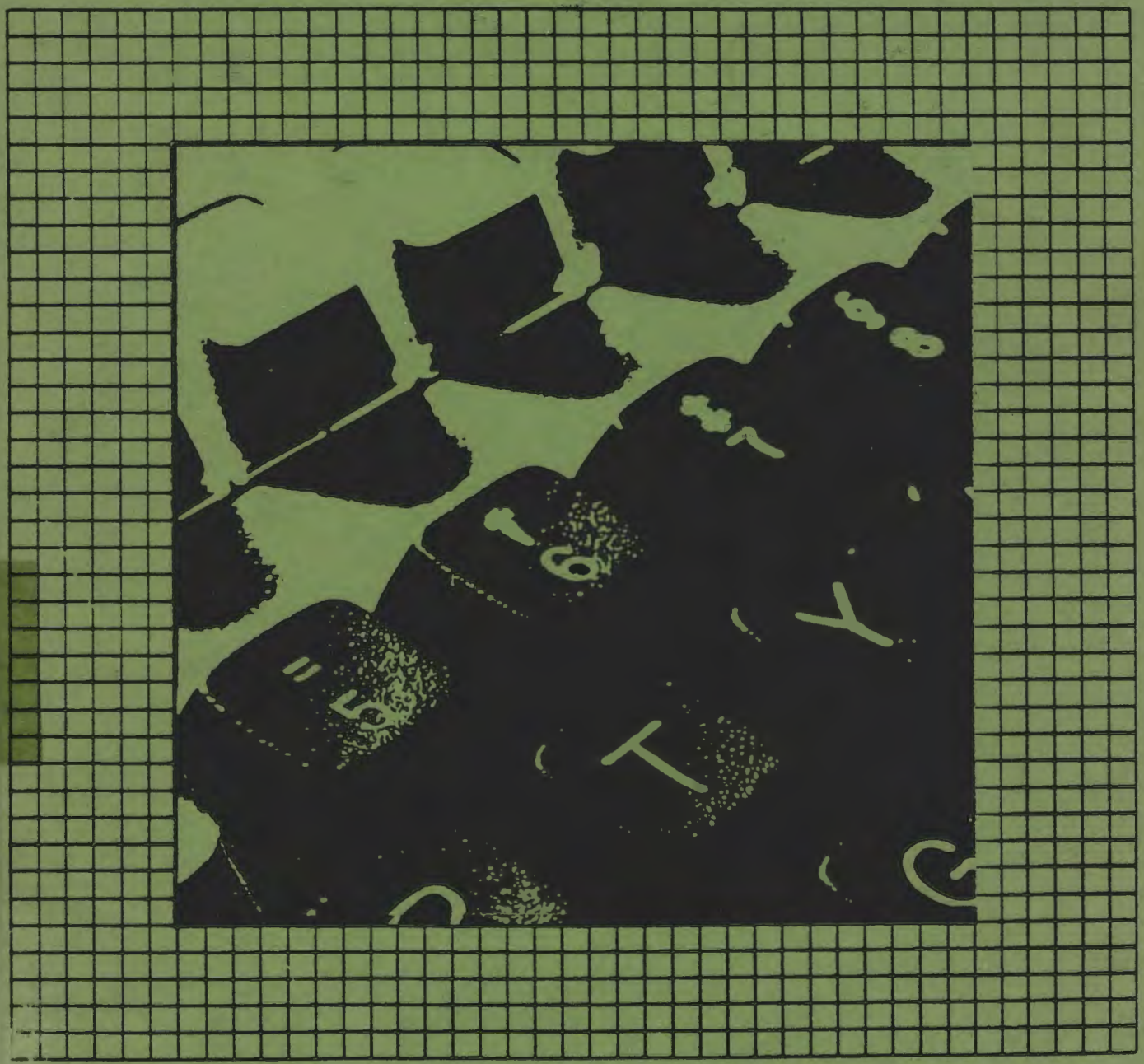
U.S. Department of Transportation

Microcomputers in transportation

Software and Source Book

Revised June 1987



UMTA and FHWA Technical Assistance Program

Technical Report Documentation Page

1. Report No.	2. Government Accession No. (NTIS)	3. Recipient's Catalog No.
UMTA-URT-41-87-1		

4. Title and Subtitle	5. Report Date
Microcomputers in Transportation Software and Source Book, June 1987	June 1987
	6. Performing Organization Code
7. Author(s)	8. Performing Organization Report No.

9. Performing Organization Name and Address	10. Work Unit No. (TRAIS)
U.S. Department of Transportation Urban Mass Transportation Administration Methods Division, URT-41 Washington, D.C. 20590	URT-41
	11. Contract or Grant No.
	13. Type of Report and Period Covered
12. Sponsoring Agency Name and Address U.S. Department of Transportation Urban Mass Transportation Administration 400 Seventh Street, S.W. Washington, D.C. 20590	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 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 user groups and bulletin board systems for transportation 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	Document available to the Public through National Technical Information Service (NTIS), 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 information on national transportation user groups and bulletin board systems for transportation professionals. 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) 366-9271

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

There are three national user groups for transportation professionals. Each has a working center which publishes periodic newsletters, provides telephone assistance, and distributes software and documents developed by users and government agencies.

The TIME Support Center is for those interested in transit and paratransit operations and planning. It has been in existence for five years and is funded by the Urban Mass Transportation Administration. If you wish to become a member, contact:

TIME Support Center
Rensselaer Polytechnic Institute
Civil Engineering Department
Troy, NY 12180-3590
(518) 276-6227

The McTrans Center has a highway emphasis in the areas of safety, traffic engineering, urban and statewide planning, and highway engineering. It has been operating for one year and is funded by the Federal Highway Administration. If you want to become a member, contact:

McTrans Center
512 Weil Hall
Department of Civil Engineering
University of Florida
Gainesville, FL 32611
(904) 392-0378

PC-TRANS is for those interested in highway engineering, regional and rural transportation planning, traffic engineering and safety, and paratransit. It has been in operation for a year. If you want to become a member, contact:

Transportation Center
2011 Learned Hall
The University of Kansas
Lawrence, KS 66045
(913) 864-5655

Transportation Bulletin Board Systems

The following electronic bulletin boards are oriented to transportation professionals.

PC-TRANSport

The PC-TRANSport electronic bulletin board is operated as one of the services of the PC-TRANS microcomputing resource and information center at the University of Kansas. It includes a variety of software packages of transportation and general

interest, the latest edition of the PC-TRANSmission newsletter in electronic form, bulletins on various subjects, and message transfer among users and between users and staff. Although anyone can log on, the primary purpose of PC-TRANSport is to enhance the services available to PC-TRANS subscribers and to foster information exchange; therefore, downloading and uploading of files can only be performed by PC-TRANS subscribers.

To log on to PC-TRANSport, dial (913) 864-5058, using 8 data bits, 1 stop bit, no parity, and either 300 or 1200 baud. If the BBS does not respond right away, press <RETURN> key two or three times slowly to activate. To minimize phone costs involved to read bulletins, we recommend opening a file or setting the printer on to capture the session for later review. For more information, contact Carl Thor, (913) 864-5655.

THE MILWAUKEE SHUTTLE

The Milwaukee Shuttle is a computerized bulletin board dedicated to transit related topics. Anyone can log on to the system and place messages or read information from other users. Topics span all aspects of transit management, planning, and operations. Included are the transit trivia section, the transit management quiz, abstracts of all important microcomputer software that concerns transit, sources of technical information at UMTA, abstracts of numerous free reports from DOT, and training opportunities.

To use the bulletin board, you need a computer or a terminal with a modem (300 or 1200 baud). Call the Milwaukee Shuttle at (414) 963-5235. The bulletin board operates all the time. After you make the connection, hit return several times, then the board will provide additional instructions. You can read anything, write your own messages, and "upload" text files for other users. The board has only one phone line, so if you get a busy signal, call back later. (IBM PC users have had the best success with the following settings for their modems: data bits = 7; stop bits = 2; no parity.) There is no charge.

INFOTAP

The Institute for Transportation Studies at the University of California at Berkeley has developed an electronic bulletin board system that is available to transportation and public works professionals across California. The electronic bulletin board, accessible to any professional or agency equipped with a terminal or microcomputer and a modem, has been created to support information exchange and integration within the State's transportation and public works community.

The INFOTAP electronic bulletin board is designed to provide the following services:

- software library with current transportation, public works, and general software that can be downloaded;

- current listing of conferences, courses, seminars, and other events of interest;

- current listing of microcomputer support services, including user groups and software catalogs;

- bulletin system, where professionals may electronically post or read public notices from other professionals;

- electronic message system, where users may send and read mail to or from another user or groups of users;

- direct electronic contact to Tech Transfer facilities, where on-line communication and consultation can be transacted.

The INFOTAP electronic bulletin board is in full service operation 24 hours a day. The phone number for electronic connection through a modem to INFOTAP is (415) 642-7088. INFOTAP will automatically connect at either 300 or 1200 baud. There is no charge for use of INFOTAP or any of its functions, including the downloading of software programs. Users will, however, be restricted to one hour of use per session. For more information, call Christine Lorenz (Systems Operator) at (415) 642-1008.

FHWA

The Federal Highway Administration's Office of Planning has established an electronic bulletin board for the sharing of information related to transportation planning. The board contains topical information such as recent issues of The Highway Planning Notes, course offerings, conference announcements, and information for FHWA field office personnel. The message section enables planners to ask questions and share information. Special sections have been created, including ones for UTPS and QRS users. The board is open to the entire transportation planning community. It can be accessed at any time during the day or night (except weekends) by dialing (202) 426-2961.

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. Savings have recently been demonstrated at the New York City Transit Authority where runcuts are produced on a line-by-line basis.

ENVIRONMENT The system can run on a wide range of computers. It is currently running on an IBM 370, Prime and Digital VAX minicomputers, a Digital MicroVAX II, a (UNIX-based, multi-user) Plexus supermicrocomputer, and the IBM PC/AT. The software is virtually identical as implemented in each of these environments; as such, smaller properties receive the exact scheduling and optimization capabilities on an IBM PC/AT as would the largest bus and rail systems.

STATUS In production use at transit systems in Seattle, New York City (NYCTA), Boston, Santa Cruz, CA, Tacoma, WA, Montreal, South Montreal, Quebec City, Sherbrooke and Hull, Quebec, Calgary, and in Singapore. Being installed at PACE in suburban Chicago and at Community Transit in Snohomish County, WA.

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 QUIK/PAC

DEVELOPERS SAGE Management Systems Corp.

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

Runcutting: Quick/Cutter, 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: Quick/Scheduler, 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: Quik/Roster Weekday, Saturday, and Sunday runcut data are input to this module for the generation of weekly rosters to be posted and bid by operators, reducing the time for daily extra-board 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; Des Moines Iowa; Ann Arbor, MI; Long Beach, CA; and Torrance, CA.

CONTACT

Jeff Proudfoot
Marketing Representative
SAGE Management Systems Corp.
156 Front Street West, Suite 600
Toronto, Ontario M5J 2L6
(1-800) 268-9118

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 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 program 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.

Inputs: Timepoints (up to 24 per route), layover points, travel times between timepoints, layover times.

ENVIRONMENT IBM PC or compatible, 192Kb RAM (128Kb RAM under PC-DOS or MS-DOS 1.1) and a printer. Also runs on Apple II or compatible, 64Kb RAM, 2 floppy disk drives recommended, 80 column printer, and UCSD p-System.

AVAILABILITY Public domain.

CONTACTS

Disk

TIME Support Center
Department of Civil Engineering
Rensselaer Polytechnic Institute
Troy, NY 12180-3590
(518) 276-6227, between 9:00 AM and 4:00 PM (EST)

Modem

INFOTAP Bulletin Board, Berkeley, CA (can download software but not documentation). Have your modem call (415) 642-7088

Disk

Carl Thor
PC-TRANS
University of Kansas Transportation Center
2011 Learned Hall
Lawrence, KS 66045
(913) 864-5658

microcomputers in transportation

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 14698
Albuquerque, NM 87191
(505) 275-0626

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 with single or multiple maintenance facilities.

Vehicle maintenance management functions include user-specified codes and level of detail 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. Optional modules include a fuel module and a tire module. Parts inventory control functions include reorder prompting, inclusion of part issues in vehicle histories, FIFO or average costing, usage analysis of parts, and posting of cost and quantity adjustments.

Sample maintenance reports include daily servicing reports and work order listings, 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. On-line queries and ad hoc maintenance reports are available via INFORMIX™ DBMS (which comes with FLEET*MATE). 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 of FLEET*MATE runs on IBM PC/XT, PC/AT or compatible; hard disk required. Multi-user versions run under XENIX 3.0 (e.g., Altos 586), SCO XENIX System V (e.g., on an IBM PC/AT to which terminals can be attached), and UNIX System V (e.g., on a Plexus P-55).

STATUS Twenty-four properties currently use FLEET*MATE, including thirteen properties in Wisconsin and properties in York and Scranton, PA, Elgin and Joliet, IL, and others.

CONTACT

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

microcomputers in transportation

Transit Operations Software

Maintenance

APPLICATION TIMS: Transportation Information Management System (Vehicle Maintenance and Inventory)

DEVELOPER BISPAC Systems, Sacramento, CA

SUMMARY This package is a fully integrated transportation information processing system. Reports and analysis are derived from shop work orders and fuel usage. The system maintains a full perpetual inventory accounting of parts and produces parts and labor usage analysis. Preventative maintenance alerts can be established using calendar or miles parameters.

The user can command information for any time parameter, any vehicle, or groups of vehicles by any outside agency and/or internal departments. For "outside" agencies, the system allows you to bill or invoice at any percent mark-up over actual costs of parts and labor, and provides inter-budgetary costing on a monthly and yearly basis.

The work order and fuel loads histories provide maintenance management with a variety of operational reports. These include the Work Order History, Vehicle History with CPM analysis, Fuels Loads analysis, Stock Status by suppliers and groups, Items Used by Dates, and the Mechanic's Productivity analysis.

BISPAC's system maintains complete audit trails and built-in automatic backup processes for user protection.

ENVIRONMENT BISPAC's TIMS system is available for the IBM System/36, System/38, System/23, IBM PC/AT, PC/XT, and PC compatibles such as Compaq, Leading Edge, Epson, Tandy 1000, 3000, etc. (hard disk only).

STATUS In use at many school transportation and private transportation facilities throughout the United States including El Dorado Unified Schools, Stockton Unified, Sacramento/Yolo Mosquito Abatement District, Delaware Turnpike Authority, Antelope Valley JPA, and Lodi Unified School District.

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

CONTACT Gary Coverdale or Bill Cook
BISPAC Systems
P.O. Box 580
9256 Madison Ave.
Orangevale, CA 95662
(916) 988-1111

microcomputers in transportation

Transit Operations Software

Maintenance

APPLICATION FMS: Fleet Maintenance System

DEVELOPERS Vector Solutions Systems Analysis Group,
University of Southern Colorado, Department of Computer Science Technology

SUMMARY This menu-driven system provides complete fleet reporting, and is intended for small to mid-size transportation operations. It covers six main service areas, including work order, tire use, part use, fluid (fuel, oil, coolant, ATF, PSF) use, preventive maintenance, and mechanic labor services.

Extensive and flexibly acquired (by date or a range of dates, or by vehicle, etc.) printed reports and terminal inquiries are provided within each service. Sample reports/inquiries include work order, part use, tire use, fluid use, fluid performance, preventive maintenance status, fleet operational status, and mechanic staff reports.

ENVIRONMENT Operates on the IBM PC family of computers and compatibles, requiring 256K RAM, PC/MS-DOS 2.1 or higher, and a hard disk.

STATUS Operational at the Pueblo Transportation Company, Pueblo, Colorado.

AVAILABILITY May be available for purchase from the first contact below, after discussing your needs (customization will be necessary). User Manual and demo diskettes available in the U.S. for $25.

CONTACT For discussing purchase or technical questions:

Mr. Trenton A. Scott
Vector Solutions Group Leader
1355 Terra Vista Lane
Colorado Springs, CO 80911
(303) 392-8746

For discussing the Pueblo FMS installation:

Mr. Eric L. Bracke
Pueblo Transportation Company
South Elizabeth Street
Pueblo, CO 81003
(303) 543-6006

microcomputers in transportation

Transit Operations Software

Maintenance

APPLICATION "VMP-25" Vehicle Maintenance Package

DEVELOPER Philip G. Dorcas and Associates

SUMMARY The Vehicle Maintenance Package is designed to provide management information and preventive maintenance reports for paratransit operations and other transportation firms. It can also be used for other types of industrial equipment which require regular maintenance.

Maintenance types and categories may be modified by the user to fit the particular types of vehicles or equipment. Preventive maintenance schedules may be defined by the user and can be set by season, date, miles, hours, units of production, or other run unit parameters.

VMP-25 keeps track of fuel, maintenance performed, P.M. schedules, warranty information and vehicle miles. It will provide reports on maintenance vendors, required preventive maintenance, vehicles, drivers, maintenance categories, and annual costs including a distribution of administrative overhead, dispatcher cost, and depreciation to each vehicle or piece of equipment.

The operation of VMP-25 is similar to that of CSP-25 (the Client Services Package) and PSP-25 (the Paratransit Scheduling Package) which are available from the same contact below.

VMP-25 is designed to handle up to 255 vehicles with available disk storage also being a limiting factor.

ENVIRONMENT IBM XT/AT or compatible computer with PC-DOS. Single-user or multi-user (Novell) versions. 256K RAM, hard disk drive, and 132-column printer. No other software licenses for interpreters, data base systems, or utilities are required.

STATUS Used by SPAN in Denton, TX.

AVAILABILITY Object code license available for sale (IBM 360K diskettes and manual). See contact below. Demo available for a small fee.

CONTACT Philip G. Dorcas and Associates
4133 Huckleberry Drive
Fort Worth, TX 76137
(817) 847-0044

microcomputers in transportation

Transit Operations Software

Maintenance

APPLICATION CFAVMRS: Fleet Maintenance Management System

DEVELOPER Computerized Fleet Analysis, Inc. (CFA)

SUMMARY CFAVMRS software tracks equipment maintenance and operating costs, analyzes repair detail, controls part inventory costs and analyzes parts usage. The software comes in four Phases or modules.

PHASE 1 reports include costs detailed by unit, by fleet or cost center, by class or equipment type, PM scheduling, cost summaries, exception reporting and equipment inventory listings.

PHASE 2 provides more in-depth maintenance reporting with the tracking of detailed repair history. Labor productivity, warranty claims, and repair inquiry are areas that Phase 2 can isolate.

PHASE 3 creates parts inventory detail listings, cross-reference lists by manufacturer and/or part description, inventory activity reports, obsolete part lists, part requisition lists, bin labels and physical inventory lists.

PHASE 4 provides more in-depth inventory reporting with the tracking of part usage by vehicle and purchases by vendor. Vendor analysis, part life cycles, parts warranty and other vehicle and part usage statistics can be generated.

All Phases use CFA's SORT/SELECT feature allowing you to "build" your own reports. Report creation can be as simple or as sophisticated as desired.

CFAVMRS comes in both single and multi-user versions and can interface to most automated fuel entry systems. A Work Order creation module is available.

ENVIRONMENT IBM PC family and PC-compatibles.

STATUS Operational in over 300 fleets including NORTRAN in DesPlaines, Illinois.

CONTACT Mike Ohlinger
CFA
205 W. North Ave.
Villa Park, IL 60181
(800) 437-6001 or (312) 279-0880

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) workflow 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 IBM PC/XT, PC/AT or compatibles with 128K RAM minimum and 132-column, "parallel" matrix printer.

STATUS Fully operational at Ravena Coeymans Central School District, Ravena, 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

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.

Inputs: Data on parts including quantitites ordered, purchase price, part numbers, part locations, etc., vendor information.

ENVIRONMENT IBM PC or compatible, 256 Kb RAM, 80-column printer and dBASE II™ version 2.4 or later. A hard disk drive is highly preferred.

STATUS Operational at LANTA, Allentown, PA.

AVAILABILITY Public domain.

CONTACT TIME Support Center
Department of Civil Engineering
Rensselaer Polytechnic Institute
Troy, NY 12180-3590
(518) 276-6227, between 9:00 AM and 4:00 PM (EST)

Carl Thor
PC-TRANS
University of Kansas Transportation Center
2011 Learned Hall
Lawrence, KS 66045
(913) 864-5658

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, Compaq, AT&T 6300, Zenith, Corona, ITT, and Leading Edge. 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 10 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

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

Transit Operations Software

Financial Management

APPLICATION Cost Allocation Applications

DEVELOPER Los Angeles County Transportation Commission, Tri-Met, BC Transit

SUMMARY This set of spreadsheet applications is geared toward determining the costs of operating specific routes and services. The first of the three spreadsheets, Los Angeles County Transportation Commission's TPMBONUS, calculates various statistics for comparing local, express, and paratransit services. The Special Transportation Monitoring Program (STMP), from Tri-Met of Portland, Oregon, is an extensive spreadsheet providing a method to monitor paratransit services. The Route Evaluation-Cost Model (RECM), from BC Transit of Victoria, British Columbia, calculates for a specific transit route: cost, performance statistics, and expected revenue by time period for each day of the week.

Inputs: TPMBONUS: Financial data including labor costs; costs for services; costs for materials and supplies, utilities, insurance; interest payments; leases and rentals; etc. Performance data including revenue and deadhead vehicle miles and hours by operating period (e.g., weekday); and number of peak vehicles. STMP: Number of rides by category (e.g., Agency on Aging, Nutrition, etc.), revenues, labor costs, vehicle expenses, vehicle miles, vehicle hours, operating days. RECM: Service data such as bus hours, total trips, and rides/trip. Cost data including labor rate, labor benefits and cost per mile.

ENVIRONMENT IBM PC or compatible, 512 Kb RAM, 2 floppy disk drives or one floppy disk drive and one hard disk drive, a printer, Lotus 1-2-3 version 1A for TPMBONUS and RECM, Lotus Symphony for STMP.

STATUS Operational.

AVAILABILITY Public domain.

CONTACT TIME Support Center
Department of Civil Engineering
Rensselaer Polytechnic Institute
Troy, NY 12180-3590
(518) 276-6227, between 9:00 AM and 4:00 PM (EST)

microcomputers in transportation

Transit Operations Software

Financial Management

APPLICATION Service Planning Case Studies

DEVELOPER Multisystems, Inc., for the U.S. Department of Transportation

SUMMARY A series of service modifications are analyzed using A) cost allocation and B) a supply versus cost model. Part A takes total system costs in each of several expense categories, allocates them to three supply variables and computes unit costs for each variable. Part B uses the unit costs computed in Part A to calculate bus requirements and costs by time period. Very useful for the novice spreadsheet user and as a basis from which to tailor your own custom applications.

Inputs: Cost Allocation Spreadsheet: direct labor costs, fringe benefits, materials and supplies costs, bus hours, bus miles, peak number of buses, weekdays of service. Supply/Cost Spreadsheet: headway, route length and run time data by time period and segment of route.

ENVIRONMENT IBM PC or compatible, 192 Kb RAM, 2 floppy disk drives or one hard disk drive and one floppy disk drive, a printer, and Lotus 1-2-3™.

STATUS Operational.

AVAILABILITY Public domain.

CONTACT
TIME Support Center
Department of Civil Engineering
Rensselaer Polytechnic Institute
Troy, NY 12180-3590
(518) 276-6227, between 9:00 AM and 4:00 PM (EST)

microcomputers in transportation

Transit Operations Software

Financial Management

APPLICATION General Ledger, Accounts Payable, Accounts Receivable, Payroll, Purchasing, Fixed Assets, Ridership/Revenue, Report Writer

DEVELOPER Multisystems, Inc./American Business Systems, Inc.

SUMMARY The General Ledger module features a flexible, user-specified account numbering structure (14 characters) and can accommodate a 12- or 13-period fiscal year. The G/L system interfaces with most of the other financial management modules, i.e., all accounting transactions from these modules automatically update the G/L system. The Accounts Payable module maintains vendor purchase histories, automatically pays standard (recurring) expenses and computes and deducts vendor discounts. The A/P system also accommodates multiple-bank/multiple-account payments, manual and/or computer-generated checks, partial payments, and invoices-on-hold. The Accounts Receivable module supports open items and balance forward accounts, accommodates a broad array of payment entries, and maintains complete account profiles. In addition, both the A/P and A/R systems support multiple, user-defined aging categories. The Payroll module processes a wide range of pay periods, accommodates multiple unions, provides a complete and detailed audit trail, prints payroll checks and direct deposits, and maintains a detailed employee data base. The Purchasing module accommodates normal and blanket purchase orders, supports multiple vendors and multiple receipts, includes extensive performance reporting for vendors, generates all accounting transaction data, and also interfaces with FLEET*MATE (see Maintenance section). The Fixed Assets module maintains an asset inventory and generates extensive depreciation reports. The Revenue/Ridership module maintains daily and monthly ridership and revenue for small properties which normally process driver "day" cards.

ENVIRONMENT IBM PC/XT, PC/AT or compatibles; multi-user versions run under XENIX 3.0, SCO XENIX System V, and UNIX™ System V.

STATUS Installed in York and Scranton, PA, Santa Cruz, CA, Manchester, NH, and Knoxville, TN.

CONTACT

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

Transit Operations Software

Financial Management

APPLICATION Route Costing

DEVELOPER San Diego Metropolitan Transit Development Board, San Diego, California

SUMMARY This Lotus 1-2-3™ template performs the following tasks:

- Using five factors and 36 budget line items, allocates costs to each of San Diego Transit's 29 regular routes and eight special services.
- Using specific cost determination bases in addition to the five factors and 36 budget line items, forecasts operating cost changes resulting from individual or groups of service changes.

Line items changes are considered to be either linear or step in nature. A linear item, such as driver pay hours, would change in direct relation to the change in service. A step item, such as mechanics' wages, would have a fixed cost for a certain range of vehicle miles. The model accounts for cost changes from both linear and step line items.

ENVIRONMENT This program currently runs on an IBM compatible Xerox 8086 with 512K of RAM and a 10-megabyte hard disk using DOS 2.10.

STATUS This model was developed to assist in determining whether a service change should be provided by the existing public operator or through a competitive bid process. Both the cost allocation and the financial forecast process will be used in developing cost estimates for the annual update of the Short Range Transit Plan.

AVAILABILITY Copies available. Has not been fully documented. May require some modification to match available input data.

CONTACT Dennis Wahl
Senior Transportation Planner
San Diego Metropolitan Transit Board
620 "C" Street, Suite 400
San Diego, CA 92101
(619) 231-1466

microcomputers in transportation

Transit Operations Software

Financial Management

APPLICATION Estimation of Cost and Subsidy Requirements

DEVELOPER San Diego Metropolitan Transit Development Board, San Diego, California

SUMMARY This Lotus 1-2-3™ template performs the following tasks:

- o Estimates operating expenses, fare revenue and annual subsidy for individual service improvements using the following input data: length of each vehicle trip, number of trips per day, number of days operated per year, percentage of revenue miles that are total miles (1.00 or more), total passengers per mile, percentage of total passengers who are revenue passengers, operating cost per mile and average fare.
- o Calculates performance indicators for each improvement and sorts them for priority analysis.
- o Compiles summary five-year program tables including number of miles of service, number of passengers, operating cost and subsidy required for financial plan analysis.

ENVIRONMENT This program currently runs on an IBM-compatible Xerox 8086 with 512K of RAM and a 10-megabyte hard disk using DOS 2.10.

STATUS This template is being used in developing the annual revision of the MTDB Short Range Transit Plan and special study cost estimation.

AVAILABILITY Copies available. Has not been fully documented. May require some modification to match available input data.

CONTACT

Dennis Wahl
Senior Transportation Planner
San Diego Metropolitan Transit Board
620 "C" Street, Suite 400
San Diego, CA 92101
(619) 231-1466

microcomputers in transportation

Transit Operations Software

Financial Management

APPLICATION Budgeting Model

DEVELOPER Dobbins, DeGuire & Tucker, P.C.

SUMMARY This Lotus 1-2-3™ template is a comprehensive budgeting model for small to medium-sized fixed route transit systems. It contains over 40 detailed sub-schedules which allow the user to input specific modeling data for both revenue and expense factors. Fare revenue estimates are derived from passenger-revenue mile data and estimated fare rates. Operator, maintenance and administrative wages are derived from platform hours data and other standardized input. All formula cells are protected. The summary budget that is produced conforms to Section 15 required level presentations. The template develops both monthly and annual budget data.

ENVIRONMENT IBM PC or compatibles under MS or PC-DOS with Lotus 1-2-3™ and at least 512K RAM (640K preferred).

STATUS This application was developed specifically for the Missoula Urban Transportation District and has been operational for approximately two years. Because the application was developed specifically for MUTD, it may require modifications to fit the needs of other users.

AVAILABILITY Public domain. Available from contact below for cost of diskettes and reproduction of manual ($5). Modifications to suit individual needs of users are available at standard hourly rates.

CONTACT Mr. Paul Sepp, CPA
Dobbins, DeGuire & Tucker, P.C.
3819 Stephens
P.O. Box 5026
Missoula, MT 59806-5026
(406) 721-4550

microcomputers in transportation

Transit Operations Software

Financial Management

APPLICATION Farebox Reporting System

DEVELOPER Dobbins, DeGuire & Tucker, P.C.

SUMMARY The user inputs revenue and passenger count data from daily registering farebox reports. The system produces a balance and edit report so the user can make corrections to the data before further processing. A daily farebox revenue report is produced which shows passenger and revenue details for each bus and in total, and a reconciliation of expected revenue based on passenger counts to actual cash collected. A monthly report is generated which shows each day's totals for passengers and revenue, weather conditions and transfers. Up to five different passenger fare types can be used. A detailed history file is maintained for special analysis if desired. User manual includes complete operating instructions.

ENVIRONMENT IBM PC or compatibles under MS or PC-DOS with dBASE III™ and hard disk.

STATUS This application was developed specifically for the Missoula Urban Transportation District and has been operational for approximately two years. Because the application was developed specifically for MUTD, it may require modifications to fit the needs of other users.

AVAILABILITY Public domain. Available from contact below for cost of diskettes and reproduction of manual ($5). Modifications to suit individual needs of users are available at standard hourly rates.

CONTACT Mr. Paul Sepp, CPA
Dobbins, DeGuire & Tucker, P.C.
3819 Stephens
P.O. Box 5026
Missoula, MT 59806-5026
(406) 721-4550

microcomputers in transportation

Transit Operations Software

Ridership Reporting

APPLICATION TIM: Transit Information Manager
CHECK*MATE: Ridership Data Collection

DEVELOPER Multisystems, Inc., Cambridge, MA

SUMMARY TIM is a comprehensive transit service planning system which analyzes commonly collected passenger and service data and reports transit route performance indicators. The system is designed to process point check, ride check (i.e., on and off counts), and electronic farebox data collected on a trip-by-trip basis through various manual and automated means. The package enables public transit managers to evaluate system productivity and performance on an on-going basis by maintaining a current and historical database for the entire system's routes and schedules. The (multi-user) VAX version of TIM is also fully integrated with the VAX version of HASTUS scheduling package (see Scheduling and Runcutting).

CHECK*MATE is an automated public transit data collection system for use in conjunction with TIM. The system enables the collection/entry of point and ride check information using hand-held computers; the data can then be transferred automatically to another computer to be used as input for TIM. CHECK*MATE is menu-driven with prompts for all inputs; all time measurements are done automatically.

ENVIRONMENT Multi-user versions of TIM run on Digital VAX and MicroVAX II computers. TIM is also available for small transit properties on (single-user, PC DOS-based) IBM PC/XT, PC/AT, or compatible microcomputers (hard-disk required).

CHECK*MATE runs on an Epson 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 additional coding or keypunching.

STATUS TIM has been installed in San Antonio (VIA), Dallas (DART), and Boston (MBTA). CHECK*MATE has been used in Baltimore by the Maryland MTA and is being installed in Boston by the MBTA.

AVAILABILITY The multi-user Digital VAX and MicroVAX II versions of TIM are 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. CHECK*MATE is proprietary software available from Multisystems.

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

microcomputers in transportation

Transit Operations Software

Ridership Reporting

APPLICATION Lotus 1-2-3™ Template for Route Evaluation

DEVELOPER Metropolitan Transit Authority, Houston, Texas

SUMMARY This spreadsheet template is a single file used to process route ride check information into boardings, alightings, and loads for each stop on each trip. Boardings and alightings are summarized for each stop. Max load points will be readily apparent.

A separate section allows determination of passengers per revenue mile by route segment. This can easily be adjusted to add other indicators. Separate files can be created to separate trips by time period. Names ranges are supplied to combine time period files into grand totals.

This template is very handy to help determine where extra vehicle trips are needed, where trips (and blocks) can be removed, where routing changes and/or intensive marketing campaigns should occur, and where turnbacks should be created (or removed).

ENVIRONMENT IBM-compatible PC, which will run Lotus 1-2-3™ Release 2; 640K RAM required and INTEL 80287 Microprocessor or equivalent and hard disk recommended.

STATUS Used since fall 1985 to analyze performance of METRO bus routes.

AVAILABILITY A template file on diskette, documentation for data entry and a partial sample are available.

CONTACT
Steve Yaffe
Service Planning
Metropolitan Transit Authority
P.O. Box 61429
Houston, TX 77208

microcomputers in transportation

Transit Operations Software

Ridership Reporting

APPLICATION Service Monitoring Package (SMP)

DEVELOPER Capital District Transportation Authority, Albany, NY

SUMMARY The SMP is a series of programs intended to keep track of route performance data and passenger counts for a fixed route transit agency. From these data a series of performance indicators are generated. As configured, the package will handle one year's data at any given time. Up to 99 routes may be defined for weekday, Saturday, and Sunday service each; any number of driver runs and daycards (paddles) can be accommodated with sufficient disk storage space.

Four reports are predefined. A passenger count report displays data by run and route for a one-month period. A block report provides a list of the runs serving each route and the passenger count for each run. A route report provides performance statistics for each route for any contiguous set of months in the year. A summary report provides performance comparisons between routes.

The SMP is an application of KnowledgeMan™, a database management system. All source code is provided. SMP programs are menu driven with extensive operational error checking. Data and password security features are incorporated. Program output can be directed to a disk file, a printer, or both, as well as a computer monitor. Disk file output may be exported to Lotus 1-2-3™. The User's Guide may be obtained separately, and it is suggested that you review this document before acquiring the program.

Inputs: Route performance section: Route-by-route service and revenue descriptions including mileage, vehicle hours, number of vehicles, trip duration and revenue per passenger. Overall cost per vehicle hour, cost per vehicle mile, cost per pullout and fuel economy are also needed. Passenger counting section: Farebox counts from driver's daycard, vehicle blocking information.

ENVIRONMENT IBM PC or compatible, 512 Kb RAM, 10 Mb hard disk storage and an 80-column printer, and KnowledgeMan™ version 2.01 or later.

AVAILABILITY Public domain, Source Code provided.

CONTACT
TIME Support Center
Department of Civil Engineering
Rensselaer Polytechnic Institute
Troy, NY 12180-3590
(518) 276-6227, between 9:00 AM and 4:00 PM (EST)

microcomputers in transportation

Transit Operations Software

Ridership Reporting

APPLICATION Ridership Analysis System

DEVELOPER Dobbins, DeGuire & Tucker, P.C.

SUMMARY The user inputs passenger count data from input sheets prepared by count-takers. The count data is accumulated for each selected bus and route, for both inbound and outbound directions. An edit routine permits easy correction of input errors. Detailed trip reports show passenger counts in- and outbound, bus number and departure/arrival times. Route analysis reports are produced which show for each route the inbound and outbound passenger counts, passengers per one-way trip and passengers per hour. This application was intended to be used for quarterly ridership analysis, but could be run on whatever frequency is desired. Complete user manual available.

ENVIRONMENT IBM PC or compatibles under MS or PC-DOS with dBASE III™ and hard disk.

STATUS This application was developed specifically for the Missoula Urban Transportation District and has been operational for approximately two years. Because the application was developed specifically for MUTD, it may require modifications to fit the needs of other users.

AVAILABILITY Public domain. Available from contact below for cost of diskettes and reproduction of manual ($5). Modifications to suit individual needs of users are available at standard hourly rates.

CONTACT Mr. Paul Sepp, CPA
Dobbins, DeGuire & Tucker, P.C.
3819 Stephens
P.O. Box 5026
Missoula, MT 59806-5026
(406) 721-4550

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.

Inputs: Market survey data, elasticities to determine new ridership levels, the fare policy, types of reports to be generated.

ENVIRONMENT IBM PC or compatible, 128 Kb RAM, 2 floppy disk drives, a printer and 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) 276-6227, 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.

Inputs: Number of trips per service unit, elasticities (included), fare phase in factors, service phase in factors, pass penetration curve data (if a pass is to be introduced for the first time), annual growth factors, seasonal factors, and inflation index.

ENVIRONMENT IBM PC or compatible, 320Kb RAM for a one-year forecast (384Kb RAM for a two-year forcast), a printer, and Lotus 1-2-3™.

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) 276-6227, 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 FRACAS - Fare and Route Analysis Computer Aided System

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

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

SUMMARY This program was designed to optimize fares, routings, and headways for radial routes. Running interactively, FRACAS allows the user to develop a good understanding of the sensitivities of service characteristics on ridership and net revenue. It both generates and evaluates service and fare options, and is useful in addressing service design issues such as peak/offpeak service mixes, the most appropriate vehicle size and the tradeoffs between express and local service.

Inputs: System operating objectives, service parameters and existing service and market sensitivities.

ENVIRONMENT Apple II+ or compatible, 64 Kb RAM, an 80-column display board, and 2 floppy disk drives. A printer is highly recommended, and UCSD p-System.

STATUS Operational.

AVAILABILITY Public domain.

CONTACT TIME Support Center
Department of Civil Engineering
Rensselaer Polytechnic Institute
Troy, NY 12180-3590
(518) 267-6227, 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
PERSONNEL: Personnel Management System

DEVELOPER Multisystems, Inc.

SUMMARY OPETS enables managers to monitor the performance of up to several hundred public transit drivers and other employees. Tracked indicators include attendance, accidents, passenger complaints and commendations. OPETS is menu-driven and was designed for use by clerical staff with no prior computer training. The system was developed using the INFORMIX™ database management system, which permits on-line queries and ad hoc reports. OPETS tabulates a series of 15 performance measures for each operator and group of operators. Summary reports compare performance to target levels. The system also generates a personal summary for those employees due to be conferenced (counseled) in the upcoming month.

PERSONNEL enables managers to maintain files for all employees and for recruitment activities, job assignments, and commendations/disciplinary actions. Like OPETS, PERSONNEL is menu-driven and is based on the INFORMIX™ DBMS. The system generates a series of reports that can be used to monitor workforce composition, assignments, pay rates, individual job and benefit status, personnel activity, applicant flow and affirmative action programs.

ENVIRONMENT The single-user versions of OPETS and PERSONNEL runs under PC-DOS (e.g., on an IBM PC/XT, PC/AT or compatible; hard disk required). The multi-user versions run under UNIX™ System V (e.g., on a Plexus P-55).

STATUS The single-user version of OPETS is installed at the San Francisco Municipal Railway (MUNI). The multi-user version of OPETS is installed at the Manchester (NH) Transit Authority. The multi-user version of PERSONNEL is installed at the Santa Cruz (CA) Metropolitan Transit Authority.

AVAILABILITY Available as proprietary software from Multisystems.

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

Transit Operations Software

Personnel Recording

APPLICATION Sun-Tran Personnel Management System (PMS)

SUMMARY This dBASE II™ application is intended to generate leave and payroll reports for a small transit property. It will also maintain up-to-date leave and labor hour profiles for each employee. The system is menu-driven, and the creation of biweekly system archives is automated.

Since PMS conforms to Sun-Tran's particular requirements, modifications may be necessary for use elsewhere. The source code is provided to facilitate adaptations by a dBASE programmer. The user's manual is available separately, and it is suggested that you review this document before acquiring the program.

Inputs: Employee information including labor rates, work schedule, vacation and leave days and daily time records.

ENVIRONMENT IBM PC or compatible, 256 Kb RAM. Hard disk drive highly preferred. 80-column printer and dBASE II™ version 2.4 or later.

STATUS Operational at SunTran, Albuquerque, NM.

AVAILABILITY Public domain.

CONTACT TIME Support Center
Department of Civil Engineering
Rensselaer Polytechnic Institute
Troy, NY 12180-3590
(518) 276-6227, 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, processing, and output of a wide range of personnel information, including personal data and salary history. Printouts include personnel and payroll history, 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 easily 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 since 1984. This program is designed to SamTrans specifications and includes some features which may be unique to SamTrans. Documentation is still in draft form.

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

CONTACT

Gregory L. Kipp
Associate Planner
SamTrans
945 California Drive
Burlingame, CA 94010
(415) 872-6748

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

DEVELOPER BC Enterprises and UMTA

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: Runs under the UNIX V operating system using the UNIFY™ database management system. The system will support multiple terminals simultaneously (multi-user). In addition, all automatic record update processing and reports are written in SQL. 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, although other computers using UNIX V System may also run the software.

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 Advanced Transit Accident and Crime Information System (ATACS)

DEVELOPER Southeast Michigan Council of Governments (SEMCOG)

SUMMARY This multipurpose 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;
- o time series analysis, and multiple mathematical functions.

Full color computer maps of transit data are available for:

- o specific site locations (pin dot maps)
- o shaded conformant maps at specified geographic levels.

ENVIRONMENT IBM PC or compatible with 512K and RBASE 5000™ or R:BASE System V™. For computer mapping, Hewlett-Packard 7470A, 7475A, or 7580 plotters. For larger transit systems, a 10MB hard disk is recommended. R:BASE System V™ requires a hard disk.

STATUS ATACS has been successfully implemented by CTA in Chicago, Calgary Department of Transportation, and MTC in Minneapolis.

AVAILABILITY ATACS Software and Documentation costs including technical assistance is $1000. Demonstration workshops are planned in conjunction with PTN.

CONTACTS Ms. Anne Nolan
Mr. Tom Mullin
SEMCOG
800 Book Building
Detroit, MI 48226
(313) 961-4266

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 graphical-display 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. An improved version has recently been developed which uses a database management system and which displays the emergency information in graphical schematic-map form. This version allows AERS to be quickly installed and used at any transit system, as well as, once installed, to be quickly adapted to modifications in the system or its emergency procedures.

ENVIRONMENT Any IBM PC/XT or compatible; dBASE III™.

STATUS Generic version completed and available. User documentation in preparation, preliminary documentation available.

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

AVAILABILITY Documentation and source code available from contact.

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 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.

Inputs: Route Planner: 1) scheduled hours and miles of service by day, fuel economy, weekdays with and without school, labor hours, bus hours, wage rates, fuel prices; 2) cash on hand, passenger revenues and system expenses by time period, public aid by time period, loan and repayment schedules; 3) list of bus stops, distances to each stop, boardings and alightings by stop, dwell times; 4) peak and base vehicles, vehicle hours, vehicle miles and headways.

ENVIRONMENT IBM PC or compatible, 192 Kb RAM with 2 floppy disk drives and printer supported by Lotus 1-2-3, or 128 Kb RAM with a printer supported by VisiCalc™, and Lotus 1-2-3™, and/or VisiCalc™ version 1.10

AVAILABILITY Public domain.

CONTACTS

TIME Support Center
Department of Civil Engineering
Rensselaer Polytechnic Institute
Troy, NY 12180-3590
(518) 267-6227 between 9:00 AM and 4:00 PM (EST)

Carl Thor
PC-TRANS
University of Kansas Transportation Center
2011 Learned Hall
Lawrence, KS 66045
(913) 864-5658

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 Public domain.

CONTACT TIME Support Center
Rensselaer Polytechnic Institute
Department of Civil Engineering
Troy, NY 12180-3590
(518) 276-6227, 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 5- to 6-hour course of instruction about principles of route evaluation, route location and ridership estimation. 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. The third module, "Ridership Forecasting," explains simple methods of estimating changes in ridership after there has been a change in service. All modules make extensive use of problems and reinforcement of previously covered material.

ENVIRONMENT IBM-PC or compatible.

AVAILABILITY Free loan for a period of two weeks to transit systems, planning agencies, departments of transportation, and educational institutions. Specify 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 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 IBM PC or compatible 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
Service Planning Department
949 Presidio Avenue, #204
San Francisco, CA 94115
(415) 923-6100

microcomputers in transportation

Transit Operations Software

APPLICATION UMTA Section 15 Transit Agency Performance Data

DEVELOPER Transportation Systems Center

SUMMARY Data as collected through the UMTA Section 15 program, from 1981 through 1984, are available for microcomputer use. These tables provide performance indicators for over 400 transit agencies in the United States. Data sets include fiscal, ridership, safety, vehicle, mileage, labor reports. All data is available in Lotus 1-2-3™ format for IBM PCs and compatibles.

ENVIRONMENT IBM PC or compatible, 512 Kb RAM, an 80-column display board, and 2 floppy disk drives and Lotus 1-2-3™ version 1A or later, PC-DOS or MS-DOS. A printer is highly recommended. (Memory requirements may vary with the version of Lotus.)

STATUS Operational.

AVAILABILITY Public domain.

CONTACT TIME Support Center
Department of Civil Engineering
Rensselaer Polytechnic Institute
Troy, NY 12180-3590
(518) 276-6227, between 9:00 AM and 4:00 PM (EST)

TRANSPORTATION PLANNING SOFTWARE

microcomputers in transportation

Transportation Planning Software

Demand Modeling

APPLICATION TDC: Transportation Data Cruncher

DEVELOPER SCY Burlington, MA

SUMMARY TDC performs functions similar to the mainframe UTPS programs, UMATRIX, MBUILD, UMCON, and USQUEX on a PC. TDC supports zonal, node, and link records (LAVs in UTPS jargon) from 1 to 8192 cells; matrices from 1 row by 1 column up to 512 rows by 512 columns; and lookup tables.

TDC, former TIPS, has been rewritten into a fast, easy-to-use, menu-driven program with an assignment statement interface for entry processing.

With TDC's interactive directory display, any entry can be computed, built, viewed (with statistics), renamed, deleted, copied, printed, filed, etc. For batch processing, an Overnight option can process up to 63 requests. TDC now includes an option to compress matrices for disk space optimization.

You can also purchase the TDC database library, written in Assembler, callable from FORTRAN, to write your own TDC utilities. The database library performs all the TDC I/O functions, and supports Boolean, Integer, Real, and character formats in 1, 2, and 4 byte words, with automatic numerical conversion (Real to Integer; Integer to Real).

ENVIRONMENT IBM PC or compatible, DOS 2.x and above, 320K minimum, hard disk desirable.

STATUS TDC is fully operational and documented. TIPS is currently used by agencies throughout the world.

AVAILABILITY

Demo Disk	$25	Information disk	$10
TDC Program	$150*	TDC Source Code	$25,000
Database library	$150*	Library Source Code	$5,000
Program & library	$200*	Both for	$25,000

All money is in U.S. currency.
*Outside of USA, add $15 (shipping & handling).

CONTACT
SCY
7 Moss Street
Burlington, MA 01803
(617) 273-0015

microcomputers in transportation

Transportation Planning Software

Demand Modeling

APPLICATION Trip Generation

DEVELOPER Microtrans Corp.

SUMMARY TRIP GENERATION BY MICROTRANS, VERSION 2, uses the entire database from ITE's 1987 Trip Generation, Fourth Edition. It calculates traffic generated by 100 different land uses or building types. New features include:

- o Adjustment factors for each type of trip
- o 50% larger database and 20 more land uses
- o Improved screen displays and printouts
- o Capability to add your own trip rates

Trip Generation is completely menu-operated and eliminates user lookup of terminology, land use types, or data. The user's guide gives step-by-step instructions. Version 2 has been improved so you can get results faster and easier. It is designed to be used in connection with:

- o Traffic Impact Analyses
- o Transportation Corridor Analyses
- o Traffic Circulation Systems
- o Quick Response Planning Techniques

Trip Generation Version 2 is flexible. It can be used for single or mixed use developments. You can add trip adjustment factors for each type of trip (21 in all) and your own data to reflect local conditions. It is compatible with Lotus 1-2-3™ or Symphony for spreadsheet analysis.

ENVIRONMENT IBM PC and compatibles. 256K RAM, 80-column printer.

STATUS Operational. Version 2 sold widely throughout the U.S. and Canada to DOTs, consulting engineers, and planners.

AVAILABILITY Available from contact for $395. Upgrades for $39.

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

microcomputer in transportation

Transportation Planning Software

Demand Modeling

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/zonal regression trip generation model with disk output readable by PLANPAC. The program makes use of seven household/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. 1107, St. Ofc. Bldg.
100 North Senate Avenue
Indianapolis, IN 46204
(317) 232-5305

microcomputer in transportation

Transportation Planning Software

Demand Modeling

APPLICATION Quick Procedure to Project Trips in O/D Format

DEVELOPER Orange County Transit District

SUMMARY This program was developed to forecast person trip distribution in O/D format. Two primary databases are applied in the process. One is the base-year trip distribution in proper O/D zone format. For instance, UTPP data can be aggregated to the desirable zone level. The other database is the projected growth factors for trip production and attraction usage at the individual zone level. In this case, population growth ratios can be used for trip production analysis and employment growth ratios can be used for trip attraction analysis. The forecasting process contains an equilibrium procedure to balance the O/D trip pattern for up to three iterations. Another option for forecasting emerging employment center travel characteristics is to reallocate a portion of the O/D trips based upon identical employment center trip distribution patterns without impacting the overall trip projections. The output O/D matrix can be used in a Lotus 1-2-3™ worksheet for further analysis.

ENVIRONMENT Written in BASIC. Operates on IBM PC, XT, or compatible under the DOS operation system.

STATUS Used by the Orange County Transit District on the Transitway Concept Design Project.

AVAILABILITY Available from contract.

CONTACT Advanced Planning Section
Planning Department
Orange County Transit District
11222 Acacia Parkway
Garden Grove, CA 92640-5208

microcomputers in transportation

Transportation Planning Software

Demand Modeling

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 contacts below.

CONTACTS

Carl Thor
PC-TRANS
University of Kansas
Transportation Center
2011 Learned Hall
Lawrence, KS 66045
(913) 864-5658

McTrans Center
University Florida
512 Weil Hall
Gainesville, FL 32611
(904) 392-0378

microcomputers in transportation

Transportation Planning Software

Demand Modeling

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, including a property market with equilibrium 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, generalized costs calculations, elastic trip generation, modal split, probabilistic assignment with turn prohibitions, and capacity restriction. It can accommodate a variable number of modes, from cargo to passengers. Public transport capacities, waiting times, and transfer costs with possible integrated fares are made explicit. The land use and transport models iterate internally to achieve supply/demand equilibrium, and are related to each other in a dynamic fashion. Most of the formulation throughout the models is based on random utility concepts, and consistent user-benefit indicators are calculated. Complementary programs perform functions like output enhancements, interactive input, dynamic cost/benefit evaluation, and calibration. Interfaces with SIT, an information system for transport planning. Reference: De la Barra, Perez, Environment and Planning B, Vol. 11, pp. 87-101, Vol. 12, pp. 293-304.

ENVIRONMENT MS-DOS versions in Spanish and English with extensive documentation. Hard disk required.

STATUS Successfully applied to several cities and regions, mostly in Venezuela. Installations in several agencies: MINDUR (Av.Lecuna, Caracas); Comision de Transporte de Maracaibo (Calle 78/Av.18, Ed. Lieja, Maracaibo); OMPU (Torre Capriles, Pza.Venezuela, Caracas); TRANSPLAN (Ed.Freites, Avda. Libertador, Caracas); Open University (Walton Hall, Milton Keynes, UK).

AVAILABILITY MS-DOS diskettes, including user manual.

CONTACTS T. de la Barra or B. Perez
Apartado Postal 47709
Caracas 1041-A
Venezuela

microcomputer in transportation

Transportation Planning Software

Demand Modeling

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

microcomputer in transportation

Transportation Planning Software

Network-Based Highway and Transit Planning

APPLICATION UTPS for Microcomputers

DEVELOPER Urban Mass Transportation Administration, Federal Highway Administration

SUMMARY UTPS has been the standard for conducting urban transportation planning in the United States for the last decade. Recent developments in computer technology have allowed the complete UTPS system to be ported to an IBM microcomputer family which can emulate IBM 370/43XX system computers. All current UTPS programs are included in the package.

ENVIRONMENT IBM XT/370 and AT/370 Microcomputers. Requires at least one 20 Mb or larger hard disk, operates better on a larger disk or with multiple hard disks. Standard IBM XT and AT computers can be upgraded to the PC/370 configuration through the purchase of an AT/370 or XT/370 option kit. (Costs of an option kit start at $3000 and can be greater depending on the features desired). This configuration runs under the CMS operating system, not MS-DOS.

STATUS The mainframe version of UTPS is currently in use throughout the United States. This version is identical, with the exception that it runs on a microcomputer under a version of the CMS operating system.

AVAILABILITY Available for $80 copying and handling cost from the contact below.

CONTACT
Mark E. Hallenbeck
Washington State Transportation Center (TRAC)
135 More Hall, FX-10
University of Washington
Seattle, WA 98195
(206) 543-6261

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. The path building algorithm is a vine builder which guarantees the minimum path with turn prohibitors and penalties. The selected link feature is available for most assignment options, including equilibrium assignment, for user assessments and subarea analyses. Transit network representation utilizes the UTPS link/line concept but with up to 30 modes (8, if UTPS INET is used). TRANPLAN's suite of programs encompasses the following categories:

- o Trip Distribution/Mode Choice
- o Matrix Utilities
- o Reporting
- o Plotting
- o Subarea Analysis
- o NEDS: Network Editing/Display
- o UTPS/INET Capability
- o Highway Networks
- o Transit Networks
- o Network Loading
- o Trip Generation
- o Selected Link Analysis
- o Menu-Driven Environment
- o Equilibrium Assignment

[Fully integrated with NEDS -- See "Network Encoding and Plotting".

ENVIRONMENT Operates on IBM PC/XT's and PC/AT's under DOS operating system (512K RAM required) and DEC Micro-VAX computers, 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.

CONTACTS James Fennessy or Edward Granzow
The Urban Analysis Group
145 North Hartz Avenue
Danville, CA 94526
(415) 838-1363

microcomputers in transportation

Transportation Planning Software

Network-Based Highway and Transit Planning

APPLICATION MicroTRIPS

DEVELOPER 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 (Matrix and Network)
- Selected Link Analysis
- Network Plots: With Automatic or User-Defined Windows, Node & Link Annotation, Bandwidths, up to 10 colors
- NEW - Interactive Network Graphics
- NEW - Highway Assignment with Dynamic Intersection Delays

MicroTRIPS programs are menu-driven, can be operated interactively or in batch mode, and can be interfaced with UTPS and Database Management programs.

ENVIRONMENT IBM PC-DOS, MS-DOS, and most other computers, including mainframes.

STATUS Over 200 installations in 30 countries worldwide, including 70 in the USA and Canada. User group meetings, newsletters, and full maintenance service.

AVAILABILITY For sale from contacts below.

Callow Assoc., 11868-D Sunrise Valley Drive, P.O. Box 2893, Reston, VA 22090, Telephone: (703) 476-0001

PAWA-Winkelmann & Assoc., 12660 Coit Road, Suite 200, Dallas, TX 75251, Telephone: (214) 661-9406

Kittleson & Assoc., 512 SW Broadway, Portland, OR 97205, Telephone: (503) 228-5230

Kimley-Horn, 1200 E. Hillcrest Street, Suite 301, Orlando, FL 32803, Telephone: (305) 898-1511

Fehr & Peers Assoc., 3685 Mt. Diablo Blvd., Suite 200, Lafayette, CA 94549, Telephone: (415) 284-3200

Kaku Assoc., 1427 Santa Monica Mall, Suite 201, Santa Monica, CA 90401, Telephone: (213) 458-9916

EBASCO Services, 91st Floor, 2 World Trade Center, New York, NY 10048, Telephone: (212) 839-1422

RVA Ltd., 160 Duncan Mill Road, Don Mills, Ontario M3B 1Z5, Telephone: (416) 445-4360

<u>OVERSEAS</u>

MVA Systematica, MVA House, Victoria Way, Woking, Surrey GU21 1DD, UK, Telephone: (+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 consisting 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/Fratar)
- Interactive Network Graphics
- Plotter Displays
- Data Base Converter for Subarea Modeling
- Transit Network Routing/Skimming/Assignment
- Matrix Manipulations (User Equations, Replace, Modify, Factor, Format, Sum, Print, Trip-Length, Modal Choice, Row-Col-Value Selection, Nested IF Conditional Operations)
- Matrix Conversion (Transpose, Expand/Compress, Renumber)
- Traffic Assignment (All-or-Nothing, Stochastic, Equilibration, Select-Link, Capacity Restraint, Turn Volumes, Subarea Extraction, Intersection Restraint)
- Network Manipulation and Analysis Report Generator with complete mathematical capabilities and nested IF..ELSE processing

ENVIRONMENT Personal computer with PC-DOS/MS-DOS.
32,000 Links, 8200 Nodes, 2000+ Zones

STATUS In use at City of Indianapolis; Colorado Department of Highways; Palm Beach County; and over 120 other agencies and consultants.

AVAILABILITY
MINUTP as described (w/training, test data).....$5000
Network Graphics (Screen and Plotter).....$ 500
Full Capacity Demo System (19 zones, 50 nodes).....$ 100

CONTACT
Mr. Larry Seiders
COMSIS Corporation
2131 Landings Drive
Mountain View, CA 94043
(415) 964-5911

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 and INRO Consultants Inc.

SUMMARY EMME/2 is a multi-modal urban and regional transportation planning system designed for interactive-graphics use. It contains about 50 modules which are subdivided into the following groups: 1) Utilities, 2) Network Editor, 3) Matrix Editor, 4) Function Editor, 5) Assign-ment Procedures, 6) Results.

Demand modeling, including trip generation, trip distribution, and mode choice, are carried out within the Matrix Editor. The assignment procedures include the following features: 1) Equilibrium Road Assignment, 2) Multipath Transit Assignment, 3) Multimodal Equilibrium Assignment.

The Network Editor contains a Network Calculator which provides the capability of performing calculations with the network data and the results of assignments.

The microcomputer version handles problems of up to 800 zones, 10,000 nodes, 32,000 links, and 600 transit lines.

ENVIRONMENT EMME/2 is implemented on the following microcomputers: Under MS-DOS: IBM PC/XT and AT (or any true compatible) equipped with Definicon DSI-32 or DSI-780 coprocessor boards; under VMS: MICROVAX II station and MICROVAX II; under UNIX: AT&T UNIX PC, SUN workstations, Masscomp.

The minimum configuration recommended is a PC with a 40Mb hard disk. EMME/2 supports over 20 graphics terminals including all the Tektronix monochrome and color terminals, Seiko GR-1104, Lexidata, the PC monitor equipped with Hercules monochrome card (720 x 345 resolution), EGA and the NEC Multisync/EVA480 combination (640 x 480 resolution); cursor control with a mouse is supported as well.

STATUS Over 40 installations worldwide, including Metro Portland, the City of Portland, Metro Seattle, Snohomish County, AC Transit, Contra Costa County, and Kern County, among others.

AVAILABILITY Binary code. Software Support Agreements in effect, quarterly EMME/2 News published since November 1986 and EMME/2 Users' Group organized in 1986.

CONTACT

In Canada
INRO Consultants, Inc.
4950 Queen Mary Road
Suite 436
Montreal, Quebec
Canada H3W 1X3
(514) 738-8336

U.S. Distributor
Ray Rebeiro
Barton-Aschman Associates, Inc.
180 South Lake Avenue
Pasadena, CA 91101
(818) 449-3917
or
Gordon Schultz
Barton-Aschman Associates, Inc.
1400 K Street N.W.
Washington, D.C. 20005
(202) 289-0519

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
- o Network Graphics - network and assignment (bandwidth) plots on a standard dot matrix printer

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 America. User list available. Spanish and French versions 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 Planning

APPLICATION CARS

DEVELOPER Roger Creighton Associates, Incorporated (RCAI)

SUMMARY CARS simulates traffic flows over small and large road networks. It was built to enable traffic engineers/transportation planners to deal with the widest possible range of traffic/transportation problems, from the smallest development projects up through regional shopping centers and CBD's to and including studies of highway corridors, bridge crossings, and metropolitan networks.

CARS can handle road networks of up to 1000 nodes (4000 directional links) including up to 500 load-nodes (zones), and 250 detail nodes (intersections).

Existing volumes and turning movements can be entered into the network; assigned volumes can be added to existing volumes to obtain estimates of total future traffic. Multiple networks representing different alternative improvement plans encourages comparison of alternative solutions.

As many as four separate zone-to-zone trip tables can be entered manually or can be simulated by a gravity model.

CARS lets the user define alternative paths in seconds; up to three alternative paths can be specified, in addition to the minimum path, between up to 1000 origin-destination pairs.

Traffic assignments can be iterated or not at the choice of the user. Speed- and cost-to-volume relationships can be selected by the user for 71 functional classes of roads, defined by area type, geometrics, and signed speed.

Turning movement volumes for detail nodes can be downloaded by CARS into RCAI's CAPCALC 85 intersection capacity analysis program to compute levels of service.

ENVIRONMENT IBM PC/XT, PC/AT, and compatibles, with 256K RAM, operating under PC/MS-DOS.

STATUS Operational at Konheim & Ketcha, Greiner Engineering Sciences, Stragar-Roscoe, and other private consultants, and Maryland National Capitol Park & Planning Commission, Upper Marlboro, MD.

AVAILABILITY For sale at $1995; Extended Warranty Support is $175 annually.

CONTACT Charles W. Manning
Roger Creighton Associates, Incorporated
274 Delaware Avenue
Delmar, NY 12054
(518) 439-4991; 1-800-433-5530 (outside NY)

microcomputers in transportation

Transportation Planning Software

Network-Based Highway Planning

APPLICATION Quick Response System II, Version 1.1

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

SUMMARY QRS II is a complete package for highway traffic forecasting. It is intended for small area analysis--either small cities taken as a whole or smaller parts of large cities. QRS is easier to use than other methods because it comes with a comprehensive set of default parameters and it uses interactive graphics for data input and retrieval of results.

QRS II is an entirely new implementation of the theory and philosophy of NCHRP Report 187. QRS II differs from the earlier version of QRS by requiring that users provide a network. QRS II reads the network to obtain trip impedances and to perform traffic assignment. QRS II may be used for sketch planning or for rigorous analysis comparable to that done with mainframe programs, such as UTPS.

QRS II can handle networks with up to 1750 nodes and up to 2500 links. Version 2.0 of QRS II, to be available in the summer of 1987, does transit ridership forecasting with a logit model and multipath trip assignment.

ENVIRONMENT Implemented under MS-DOS. Requires an IBM-PC (or compatible) with 256K of RAM, two disk drives, and a color graphics adapter (or equivalent).

AVAILABILITY Available from contact below.

CONTACT McTrans
University of Florida
512 Weil Hall
Gainesville, FL 32611
(904) 392-0378

microcomputers in transportation

Transportation Planning Software

Network-Based Highway Planning

APPLICATION THE: Transware's Highway Emulator

DEVELOPER Transware, Auburn Massachusetts

SUMMARY THE is a menu-driven traffic simulation model which employs a maximum entropy trip table estimation algorithm to estimate an origin/destination matrix from observed traffic counts, or to calibrate a gravity model derived origin/destination matrix to counts. With a coded highway network and a set of traffic counts, THE can estimate the most likely origin/destination matrix based on the constraints of a capacity restraint assignment. Then network capacities can be changed and the resulting change in traffic assignment can be assessed.

THE was designed for use on microcomputers for both small area analysis, corridor analysis of major routes, and site impact analysis.

THE is currently configured to accommodate networks of up to 100 traffic analysis zones, 500 nodes, and 950 links.

THE model programs include the following features:

Network Building/Editing	Trip Table Estimation
Travel Time Matrix Construction	Capacity Restraint Assignment
TRB Report #187 Trip Generation	Select Link Analysis
Gravity Model Trip Distribution	Link Volume Reporting
Matrix Manipulation	Turning Movement Reporting

ENVIRONMENT Operates on IBM PC and compatibles running MS-DOS 2.0 or greater. Written with Turbo Pascal and requires a minimum of 512K RAM and two disk drives.

STATUS In use by the Central Transportation Planning Staff, Boston, MA, and the Central Massachusetts Regional Planning Commission, Worcester, MA.

AVAILABILITY For sale through contact below for $995. Demonstration version with limited capabilities available for $10.

CONTACT Edward J. Bromage
Transware
P.O. Box 190
Auburn, MA 01501
(617) 797-3470

microcomputers in transportation

Transportation Planning Software

Network-Based Highway Planning

APPLICATION TMODEL™/TMODEL-EX™ & TMODEL:UTILITY™ Transportation Modeling System

DEVELOPER Professional Solutions, Inc., Vashon, WA

SUMMARY For regional, subregional, and site impact analysis, the PC/XT/AT package will model up to 300 zones, 2200 links, and 800 node systems. Features include user-friendly, menu-driven, step-by-step entry/edit routines, support utilities and services, and recently added Interactive Screen Graphics.

TMODEL™ dynamically models node (intersection) and link delays, and uses iterative or incremental network loading. Trip distribution is recalculated on each increment using conventional Gravity Model or, via the UTILITY package programs, the IMS Gravity Model which accounts for reduced auto travel at shorter trip distances such as downtown areas and malls.

The user may elect to input local trip generation values or to use default, nationally accepted values, For "windowed" or focused, small area analysis, link pre-loading of background and through trips is possible. Turning movement information can be passed to capacity analysis routines also available from PSI.

UTILITY routines provide pen plotter interface, select link, select zone and screen line analyses, as well as user-definable functions for mode split analysis or calculation of measures of effectiveness. Interactive graphics have been added as an optional feature allowing rapid screen-mouse network editing or reporting of results.

ENVIRONMENT TMODEL-EX™ operates on IBM PC, PC/XT, PC/AT or compatibles with 512K and math coprocessor. TMODEL™ is available for other systems.

STATUS First available in 1981, there are over 150 user sites in 7 countries. List of users available for your local area.

AVAILABILITY Available from contact. Demo/sample versions from $10.

CONTACT Professional Solutions, Inc.
Route 3, Box 182
Vashon, WA 98070
(206) 463-3768

microcomputers in transportation

Transportation Planning Software

Network-Based Highway Planning

APPLICATION TransPro™

DEVELOPERS Transware Systems®

SUMMARY TransPro™ is an integrated package of computer programs designed for regional or subarea analysis of highway networks. It performs transportation planning functions which parallel UTPS or PLANPAC, but operates from program menus and prompts, with optional full-command batch mode operation. 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 maintain through use of non-column oriented free-format and may contain user comments for documentation and tabular organization. The system may be configured for either floppy disk or hard disk operation with use of sub-directories. New network plotting and intersection analysis programs are available.

The TransPro™ system includes the following features:

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

ENVIRONMENT System: PC-MS DOS (8087 version available)
RAM: 128KB (minimum configuration)
Disks: Two 360KB floppies or one hard disk

STATUS Currently being used by the North Dakota Highway Department, Des Moines Area Transportation Planning Agency, Minnesota DOT and MPOs, several universities, city planning departments in Oklahoma and Texas, and by consultants in Minnesota and Southern California.

AVAILABILITY For sale at $995 from contact below. Information packet available on request. User manual and demonstration disks for sale at $50 with credit at purchase.

CONTACT John M. Kain, AICP
Transware Systems
42 Canyon Ridge
Irvine, CA 92715
(714) 559-4599, (714) 854-4689

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 for the entry of link-node network data into a disk file which can be uploaded and used by the PLANPAC library of programs. The links are described by the following input variables: A-node, B-node, link distance, link speed, directional intersection approach capacities, a one-way street indicator, and a pre-established peak-hour factor. These factors may subsequently be edited for select links in the View/Edit Module of this program. All network data are automatically saved on disk in a random access file. Data entry may be interrupted at any time and then re-initiated at a later date. The program keeps track of the last record number entered and then reminds the user of this number when data entry is re-initiated. Links are identified by record number instead of A-node/B-node combinations. An opportunity for editing miskeyed values is provided during data entry.

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 sequential 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 disk. Source code in BASICA.

STATUS In use by the Indiana Department of Highways.

AVAILABILITY Public domain.

CONTACTS

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 1107, State Ofc. Bldg.
100 North Senate Avenue
Indianapolis, IN 46204
(317) 232-5305

microcomputers in transportation

Transportation Planning Software

Network Encoding and Plotting

APPLICATION GNE: General Network Editor

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

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

SUMMARY The General Network Editor allows users to draw networks for nearly any transportation application in high-resolution graphics. Once the network has been drawn, GNE produces an ASCII text file of network data. 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 have up to 1800 nodes and 2500 links.

ENVIRONMENT IBM-PC's and compatibles. GNE is written in Turbo Pascal. GNE also comes packaged with the Quick Response System II (See "Network-Based Highway Planning.")

AVAILABILITY Available at $15 for copying and handling.

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 the Urban Analysis Group

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, and 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 by coordinate-defined specifications. Descriptive data about nodes and links may be displayed and changed. Editing features include adding a zone centroid; adding, moving, or deleting a node; adding, breaking, or removing a link; or shaping a link (transit only).

A menu provides for selecting up to 16 colors or patterns defining the range of a variable attribute and selecting bandwidths for user-defined ranges. This combination enables the display of loaded networks where color illustrates volume/capacity ratio and width illustrates assigned volume; volume and capacity can also be displayed as superimposed bandwidths. Link attributes can be displayed in user-selected colors.

NEDS is integrated with the TRANPLAN suite of transportation planning programs also described in this report. (See "Network-Based Highway and Transit Planning.") Network changes made interactively with NEDS may be processed with TRANPLAN.

ENVIRONMENT NEDS is written in FORTRAN 77. Implemented on IBM PC/XT and AT under DOS, MICROVAX II, and MC 68000 Xenix-based systems. Seiko GR-1104/5 color terminal with tablet and puck interface is used as the display and interacting device; or an IBM EGA compatible monitor and graphics card with a Microsoft compatible mouse (IBM PC environment only).

STATUS Version 2.2 is being used by Santa Clara County, Detroit SEMCOG, Pima Association of Governments (Tucson), and other agencies.

AVAILABILITY Available on a license basis.

CONTACTS

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

Edward F. Granzow or James Fennessy
The Urban Analysis Group
145 N. Hartz Ave.
Danville, CA 94526
(415) 838-1363

microcomputers in transportation

Transportation Planning Software

Network Encoding and Plotting

APPLICATION TIGER™ - Interactive Graphics Editor and Reporter

DEVELOPER Professional Solutions, Inc., Vashon, WA

SUMMARY TIGER™ expedites network coding, editing, and graphic report preparation of transportation networks and data. Speed and accuracy are maximized through the use of color graphics and a mouse.

Entering, modifying, posting, and checking of networks is rapidly done on the screen. You can quickly add/edit network links and nodes and their attributes for evaluating alternatives. Entries are easily and quickly edited using the mouse to identify the link or node before changing data. The need to look up numbers from listings is eliminated.

Windowing to subareas is fast and easy. It is as easy as making two mouse clicks to select the lower left and upper right. TIGER™ allows easy windowing and scaling from your base map. You can zoom in and out or slide to other parts of the map.

TIGER™ works with any IBM standard CGA or EGA color system. Network links and nodes can be displayed with user-specified colors, bandwidths, or text. TIGER™ screens can be printed on a dot-matrix printer or data can be used to drive TMODEL™ color plotter routines. (See "Network-Based Highway Planning.")

TIGER™ is configured for use with the TMODEL™ Transportation Planning System of software. However, it can be adapted to serve as an editor for inventory data bases, facilitating rapid and accurate location and retrieval of field information.

ENVIRONMENT For IBM PC/XT/AT and compatibles. Mouse, Color Graphics required.

STATUS In use by Snohomish County, Washington, and other locations.

AVAILABILITY $495 from contact. Sample versions available for $10.

CONTACT Professional Solutions, Inc.
Route 3, Box 182
Vashon, WA 98070
(206) 463-3768

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 their community but may be in a nearby town. The CASWELL MODEL also allows for simulations, or "what-if games," including the capability to add or close roads, to add or delete stop lights or signs, to scale existing traffic levels into the future, thus allowing the user to determine the effects of various traffic control ideas both now and into the future. The CASWELL MODEL treats one-way streets as well. It may be implemented to predict traffic behavior at problem intersections, including left turns, cloverleafs, etc. 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 higher as an operating system. An earlier version operates on a PDP-11 with RSTS.

STATUS In use in Lincoln, MA; Anchorage, AK; Oakland City, MI; Calgary, Alberta, Canada.

AVAILABILITY License, program, user's manual, and demonstration disk 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

Site and Subarea Planning

APPLICATION PathPro™

DEVELOPER Transware Systems®

SUMMARY PathPro™ is a package of computer programs designed for site impact analysis or analysis of intersection turning movements derived from the TransPro™ network modeling system.

When used for site impact analysis, traffic may be generated for a proposed project and other developments and manually routed through a roadway network using a simple input format. The programs are designed for maximum operational flexibility. Intersections and traffic generation levels are selected from menus. Existing intersection volume and geometric data may be updated with minimum disruption to previous work. When turning counts are derived from the TransPro™ model, they are treated as "existing" volumes; site-generated traffic may then be superimposed.

Intersection service level analysis is performed at an interactive display screen where alternate lane configurations and lane capacities may be evaluated before printing results. Network daily roadway volumes are calculated and traffic signal warrants are evaluated for future conditions.

All PathPro™ programs are written in the "C" language for maximum efficiency and speed. The system may be configured for either floppy disk or hard disk operation with use of sub-directories.

ENVIRONMENT
System: PC/MS-DOS (8087 version available)
RAM: 128KB (minimum configuration)
Disks: Two 360KB floppies or one hard disk

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

AVAILABILITY For sale at $495 from contact below. Information packet available on request. User manual and demonstration disks for sale at $50 with credit at purchase.

CONTACT
John M. Kain, AICP
Transware Systems
47 Canyon Ridge
Irvine, CA 92715
(714) 559-4599, (714) 854-4689

microcomputers in transportation

Transportation Planning Software

Site and Subarea Planning

APPLICATION SITE/TEAPAC - Generation, Distribution and Assignment

DEVELOPER Barton-Aschman Associates, Inc.

SUMMARY SITE is a computerized technique for doing site traffic generation, distribution, and assignment analyses. The traffic assignment paths are user specified, not computer selected, thus allowing professional judgment in how traffic will approach and depart a development.

Traffic generation rates, distribution percentages, and development size are user specified. This allows changes in size, rates, or distribution percentages to be easily accomplished because each is maintained independently. The assignment volumes can be output into files to be used by other TEAPAC programs such as SIGNAL85, COERP, and PRETRANSYT.

The program has the advantage of accurately assigning traffic volumes using user-specified rounding. This can be done quickly, and is reproducible. The user can combine the results of several runs for large developments, multi-use developments, or alternative land-use plans with a built-in cumulation process. Re-running the program for changing scenario conditions or sensitivity analysis is quite simple and quick due to the independence of the input variables.

ENVIRONMENT Any computer running standard MS/PC-DOS versions 2.x or 3.x with a minimum of 512K RAM. The '87 family of math coprocessors is supported and recommended. Not copy protected.

STATUS Used by hundreds of engineers and planners in cities, planning agencies, consultancies, and educational institutions worldwide, including TAMS Consultants, Inc., and the Village of Schaumburg, IL. List available from contact on request.

AVAILABILITY License arrangements made by contact below.

CONTACT Dennis W. Strong, P.E.
Barton-Aschman Associates, Inc.
820 Davis Street
Evanston, IL 60201
(312) 491-1000

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, Florida Department of Transportation, and Georgia Department of Transportation.

AVAILABILITY For sale from contact below; $250.

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

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 spreadsheet 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 IBM PC, Apple II+, and Victor microcomputers. One disk drive, 64K RAM, and the LOTUS 1-2-3™ or VisiCalc™ spreadsheet software are required.

AVAILABILITY — Available from the contacts below.

CONTACTS

Carl Thor
PC-TRANS
University of Kansas
Transportation Center
2011 Learned Hall
Lawrence, KS 66045
(913) 864-5658

McTrans Center
University of Florida
512 Weil Hall
Gainesville, FL 32611
(904) 392-0378

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 EXTRA: Express Transit Analysis

DEVELOPER William G. Barker

SUMMARY EXTRA is a planning tool which can be utilized to estimate environmental, energy, and cost impacts of park-and-ride, commuter rail, or similar transit services. Expected performance measures are also calculated. Specific outputs include:

- o number of vehicles required in peak and off-peak periods
- o one-way fare
- o transit vehicle miles and hours
- o operating costs
- o modal splits and total passengers
- o auto VMT
- o parking space needs
- o hydrocarbon emissions
- o energy use
- o revenues and deficits
- o cost per passenger and passenger mile

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

STATUS In use by the North Central Texas Council of Governments.

AVAILABILITY Available from the contact for $100.

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

microcomputers in transportation

Transportation Planning Software

Geographic Data Processing and Display

APPLICATION CeDAR: Census Data Analysis and Retrieval System

DEVELOPER Association of Bay Area Governments (ABAG)

SUMMARY The CeDAR system allows the user to retrieve and display interactively all of the data in Census Bureau's STF3 files, analyze the data, and create new variables. The user can specify the output format and redirect the output to screen, printer, or various out-put-files (LOTUS™, ASCII, Print-file, dBASE III™-file). CeDAR data is stored in dBASE III™ files and is currently available for the San Francisco Bay Area.

The user can simply retrieve and display existing data, display only the data that meets conditions defined by the user, aggregate data (including medians and means), calculate ratios of data between different areas, or create new variables from existing ones (user-defined cross tabulations). CeDAR has context-sensitive help on every command prompt with multiple help screens and examples, "Review" command to list data or areas selected so far, and easy-to-use, interactive data and area dictionaries. CeDAR has consistent English language commands throughout the entire program and extensive error-trapping for validating input. CeDAR can retrieve data on county, place, or census tract level using area names and census tract numbers rather than census codes.

ENVIRONMENT Operates on the IBM PC and compatibles. Requires a hard disk and 448K. Program is written in dBASE III™ command language and compiled with CLIPPER™.

AVAILABILITY The program and the data for the San Francisco area are available from the contact below. Adaptation of the program for other areas can be done on a cost basis.

CONTACTS Poulicos Prastacos or Pertti Karjalainen
Association of Bay Area Governments
P.O. Box 2050
Oakland, CA 94604
(415) 464-7923

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 principal funding by UMTA, Office of Methods and Support

SUMMARY The 2-D provides capabilities to display, query, and maintain a DIME-type map. Street addresses and street intersections may be matched to the map, retrieving geographic data such as coordinates, Census tract, city, and Zip Code.

The 2-D uses 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. Built-in verification procedures detect and report topological errors. 2-D may be initialized from Census Bureau GBF/DIME records.

Map retrieval is based on coordinates or descriptive data, such as street address/intersection, tract, Zip Code, or city. Graphic edit functions include adding and deleting segments and nodes, and shaping of curved features; descriptive data, such as address ranges, may be added or changed. Address matching routines provide user control of input and output formats; data retrieval options include interpolated state plane or latitude-longitude coordinates.

The display sub-programs use a generic terminal description which may be adapted to other graphics terminals without recompilation.

ENVIRONMENT Programs are written in Pascal. 2-D is implemented on a MC68000 Xenix-based system and an HP9000 model 40. A Seiko GR-1104/5 color terminal with tablet and puck interface are the preferred display and interacting devices; HP2627A color graphics terminals have also been used.

STATUS Version 4.3 is being used by Santa Clara County, the Maryland-National Capital Park and Planning Commission, and the Baltimore Regional Planning Council. Previous versions were transferred to the Statistical Research Division of the Census Bureau. A "C" version of 2-D using the UNIFY™ database management system is under development.

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

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 "superzones" by interacting with the displayed map image. GADS maintains the association and summarization of zone data to the superzones. Data pertinent to superzones or constituent zones may be displayed. A GADS database may be prepared by spreadsheets or system utilities and programs, such as "awk" in Unix-based systems.

Graphic functions, including zoom and pan, provide display control. Superzone configurations are defined by cursor operations; superzones may be saved and re-called. The position where zone data is displayed is user controlled.

GADS-EDIT functions enable arbitrary polygons to be created with respect to the DIME database maintained in the 2-D system also described in this report. GADS zone boundaries may be aligned with features in the 2-D database. Supporting "point-in-polygon" procedures enable x-y coordinate-coded data to be associated with zones.

A color menu permits selection of up to six colors or patterns for display of a variable. The display sub-programs use a generic terminal description which may be adapted to other graphics terminals without recompilation.

ENVIRONMENT GADS is written in Pascal, and has been implemented on a 16/32-bit MC68000 multi-user Xenix-based system, the AT&T Unix PC7300, and the HP9000 model 40. A "C" version is under development. Seiko GR-1104/5 color terminals (1024 x 780) with tablet and puck interface are the preferred display and interacting device. HP2627A color graphics terminals have also been used.

STATUS GADS is being used by Santa Clara County and Maryland National Capital Park and Planning Commission.

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

Geographic Data Processing and Display

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 the IBM PC and compatibles under MS-DOS 2.0.

AVAILABILITY Available from the contact below.

CONTACT McTrans Center
University of Florida
512 Weil Hall
Gainesville, Fl 32611
(904) 392-0378

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_ITRE (Pavement Management System)

DEVELOPER Institute for Transportation Research and Education (ITRE)

SUMMARY The program was designed to analyze data gathered from ITRE's Pavement Condition Survey for Flexible Pavements. A series of menus allow the user to enter and edit data, change maintenance criteria and costs, print out reports, index files, and access historical files.

Analysis of data results in various reports is available. A pavement condition rating, estimated total cost, cost per mile, estimated square yards of full-depth patching, and recommended maintenance are calculated for each street segment. Streets may be listed in alphabetical order or in priority order. Summary reports may be listed for types of maintenance costs and pavement distresses.

ENVIRONMENT Operates on IBM PC, PC/XT, PC/AT with 512K RAM (hard disk preferable).

STATUS ITRE has developed Pavement Management Systems for over 80 municipalities within North Carolina. Ten municipalities have acquired the program and user manual for in-house use.

AVAILABILITY Available on cost basis along with training in survey methodology and program use.

CONTACT James Martin, P.E.
ITRE
P.O. Box 12551
Research Triangle Park, NC 27709-2551
(919) 549-0541

microcomputers in transportation

Transportation Planning Software

Highway Maintenance Planning

APPLICATION RIGID Pavement Management System

DEVELOPER Zen Jao and Joe Massucco
FHWA Region 9

SUMMARY RIGID PMS (PAVEMENT MANAGEMENT SYSTEM) is a microcomputer system to determine the condition of rigid pavements and to provide a manner to formulate decisions on which type of reconstruction or rehabilitation is required. While the system was developed for California, the user is permitted to adjust distress levels, costs, and priorities to tailor the program for local conditions. The program features user-friendly, full-screen editors to simplify its use.

ENVIRONMENT IBM PC/MS-DOS 2.0

AVAILABILITY Available from contact below.

CONTACT McTrans Center
University of Florida
512 Weil Hall
Gainesville, FL 32611
(904) 392-0378

microcomputers in transportation

Transportation Planning Software

Highway Maintenance Planning

APPLICATION Local Road Maintenance Needs Forecasting Model

DEVELOPER Metropolitan Area Planning Council, Boston, MA

SUMMARY The Local Road Maintenance Needs Forecasting Model is an easy-to-use, quick-response forecasting model. Developed to estimate the shortfall of funds for maintenance of locally maintained roads, the model assumes simple relationships to simulate the contest between pavement deterioration and roadway maintenance. Adaptable for any size of street network, it requires input of road maintenance and construction costs, deterioration rates, annual expenditures on maintenance, and current road conditions, but default values based on best estimates from various expert sources are included.

The model produces 10-year forecasts of road conditions and calculates the maintenance backlog of the network. It returns summaries of both the input and output, as well as yearly results including road conditions, maintenance backlog, and annual work plan. It also returns graphs of road conditions and maintenance backlog over the 10-year period.

The model is expandable for longer forecasts and is also easily modified for more detailed input.

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

STATUS The model is currently being utilized by MAPC. A fully user-interactive version is under development.

AVAILABILITY Available from contact below.

CONTACT
Carol W. Blair
Chief Transportation Planner
Metropolitan Area Planning Council
110 Tremont Street
Boston, MA 02108

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 contact agency.

AVAILABILITY Source code is available free of charge via telephone hook-up from the contact 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 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

Transportation Planning Software

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 Lotus 1-2-3™, and two disk drives.

AVAILABILITY Available from contacts below.

CONTACTS

Carl Thor
PC-TRANS
University of Kansas
Transportation Center
2011 Learned Hall
Lawrence, KS 66045
(913) 864-5658

McTrans Center
University of Florida
512 Weil Hall
Gainesville, FL 32611

Transportation Planning Software

APPLICATION TIP REPORTER

DEVELOPER Regional Planning Council
Baltimore, Maryland

SUMMARY TIP REPORTER is a series of dBASE III PLUS™ files and R&R Relational Report Writer™ templates designed to produce the regional Transportation Improvement Program document. The dBASE™ files include data entry screens customized for use by local jurisdictions and Maryland Department of Transportation modal administrations and a database structure dictated by federal TIP data requirements (e.g., fields for funding information by project phase and source of funds). Working interactively with the dBASE™ file, the R&R™ templates generate the three-year TIP, the annual element, and various cost summary tables. The R&R™ templates, which compensate for dBASE's™ limited report generation capabilities, use calculated fields to total costs by project/record and interpret project identification numbers as page titles. These fields reduce the number of keystrokes required to input TIP data in dBASE III PLUS™. The files and templates are designed to be used from year to year with minimal heading changes, while the database structure remains the same.

ENVIRONMENT IBM PC/XT or PC/AT with 512K and either two disk drives. Requires dBASE III Plus™ and R&R Relational Report Writer™ (R&R is produced by Concentric Data Systems, retail price $99).

STATUS In use by Maryland DOT and Baltimore Regional Planning Council.

AVAILABILITY Available with modification instructions for $20 from contact below. Cost covers shipping, handling, and disk preparation.

CONTACT Susan Glenn
Regional Planning Council
2225 North Charles Street
Baltimore, MD 21218
(301) 554-5633

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, XT, or AT with a hard disk or two floppy disks and 512K 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 Building a Database of Available Traffic Counts

DEVELOPER Metropolitan Area Planning Council (MAPC)

SUMMARY The program is used to inventory all locations with available traffic counts in 101 cities and towns comprising the Boston metropolitan region. The data base includes mechanical recorder counts and turning movements for various years. A central database such as this one consolidates the vast amount of data available from a variety of sources including the state DPW, cities and towns, environmental impact reports, transportation studies, and transportation consultants.

Promotion of the database as a public resource has brought requests from public and private sectors, and via data exchanges has resulted in further expansion of the database.

Mechanical recorder counts are included in the computerized directory of count data. An inventory of locations with turning movements is also computerized. All count data is kept on paper, as well, for detail and for copying.

ENVIRONMENT Operates on IBM PC and compatibles under dBASE III PLUS™ (Ashton-Tate).

STATUS Operational since August 1986 at Metropolitan Area Planning Council, Boston.

AVAILABILITY Available from contact below.

CONTACT Catherine Meyers, Transportation Planner
Metropolitan Area Planning Council
110 Tremont Street
Boston, MA 02108

Transportation Planning Software

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

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

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.

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 Hazardous Highway Location Identification

DEVELOPER Northwestern Indiana Regional Planning Commission (NIRPC)

SUMMARY The first series of programs identifies hazardous highway locations based on accident history using the "Critical Rate Methodology." These programs work for both intersections or road segments. All rates are based on a 95% confidence level. The methodology has been approved for justification of Hazard Elimination Funding.

The second set of programs records and maintains information necessary for applying for rail crossing improvement funding. The crossing safety analysis programs calculate New Hampshire and Indiana indices. Reports are given for geographic area, roadway classification, crossing location, or hazardous index rating.

ENVIRONMENT UNIX™ microcomputer environment with a relational database manager. Code is transferable to MS-DOS or other UNIX™-based computers.

STATUS Programs have been used for 4 years in northwest Indiana.

AVAILABILITY Program available at cost. Modifications and conversion to other hardware/software configuration is possible at cost.

CONTACT John Molinaro
Northwestern Indiana Regional Planning Commission
Computer Services Dept.
8149 Kennedy Ave.
Highland, IN 46322
(219) 923-1060

microcomputers in transportation

Transportation Planning Software

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 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

APPLICATION PERT: Program Evaluation and Review Technique

DEVELOPER New Mexico State Highway Department, Santa Fe, NM

SPONSOR U.S. Department of Transportation

SUMMARY This program, written in IBM PC BASICA, helps the user to enter the activity, node, and time data for a PERT network. Input can be interrupted and you can resume later without re-entering what you put in before. Also, you can add activities to a network. The program is only 9919 bytes, and the data file for a 33 activity network only took 1521 bytes.

Program output on both screen and printer includes listing of the activity name, node number, expected duration, standard deviation, early start, late start, early finish, late finish, slack time, and note of critical start and finish times for activities on the critical path.

ENVIRONMENT IBM PC/XT with minimum core should be adequate.

STATUS Used by New Mexico State Highway Department

AVAILABILITY Please send a 5.25 in. floppy disk and a self-addressed, stamped disk mailer for program. Documentation and BASICA source program listing--free for the asking.

CONTACT
Richard Boyce
Planning Bureau
New Mexico State Highway Department
P.O. Box 1149
Santa Fe, NM 87504-1149
(505) 827-5523

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

In addition, optimization runs can be undertaken to determine the "best" locations for facilities.

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) and the towns of Whitby, Pickering, and Vaughan (Ontario) 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

Transportation Planning Software

APPLICATION TEDSS: Transportation Evacuation Decision Support System

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

SUMMARY The Transportation Evacuation Decision Support System (TEDSS) is a computer system developed to aid an emergency manager in the decision-making about evacuation planning and operation for natural or man-made disasters. The system, during the planning phase, could assist the user to prepare, under different emergency scenarios, a detailed evacuation master plan including such components as the evacuation times and the allocation of evacuees to different shelters. The system, under real-time simulation, could assist its user in making decisions in response to the changing nature of disasters during an evacuation operation.

The developed TEDSS comprises four modules: 1) the system control module, 2) the data-base module, 3) the simulation-model module, and 4) the graphic-display module. Input to the TEDSS includes: 1) the area and population characteristics, 2) the highway network topology and traffic control strategies, 3) the safe areas to which the evacuees should be withdrawn, and 4) the vehicle-loading curves on a highway network which represent the public response to evacuation. Output from the TEDSS includes: 1) origin-destination trip table, 2) evacuation paths, 3) congested links and general network performance, and 4) network clearance time.

ENVIRONMENT The programs are written in BASIC and FORTRAN-77. It can be implemented on all kinds of IBM personal computers and compatible machines. TEDSS needs a memory size not less than 320K RAM.

STATUS TEDSS was used in the development of hurricane/flood emergency evacuation study for the City of Virginia Beach. It was used by Oak Ridge National Laboratories in developing evacuation plans around dams for the U.S. Corps of Engineers. It is used by Federal Emergency Management Agency as part of IEMIS.

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

TRAFFIC ENGINEERING SOFTWARE

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION HCS - Highway Capacity Software

DEVELOPER SRA Technologies

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 chapters 3-5 and 7-13 of the 1985 Highway Capacity Manual. The software has been designed to faithfully and accurately replicate the manual procedures found in the HCM. It also reflects the approved changes (Errata 1) resulting from the mid-year meeting of the TRB Committee on Highway Capacity and Quality of Service. 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 384K RAM. Two floppy disk drives or one floppy drive and one hard disk are also needed.

STATUS Fully operational.

AVAILABILITY The program and documentation are available for a nominal charge through the McTrans Center. All registered users of the software will receive technical assistance and free updates to the software from the McTrans Center. The 1985 Highway Capacity Manual can be ordered from the Transportation Research Board for $40.

CONTACT
McTrans
512 Weil Hall
University of Florida
Gainesville, FL 32611
(904) 392-0378

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION Capacity and Level-of Service Analysis - based on the 1985 Highway Capacity Manual Planning Level Analysis

DEVELOPER Gary Sokolow

SUMMARY This is a package of four Lotus™ (ver.2.0) "template" spreadsheets. These spreadsheets perform "planning level" analyses in the 1985 Highway Capacity Manual.

DESCRIPTION OF WORKSHEETS:

ARTERIAL.WK1 - In this worksheet you can determine the Level-of Service on an arterial.

FREELANE.WK1 - This worksheet allows you to find the number of freeway lanes needed when you provide AADT, Peak to Daily Ratio, Trucks, and Terrain Factors.

INTERSEC.WK1 - In this worksheet you will be told if an intersection (with left-turn bays) is under, near, or over capacity.

LOSCAP.WK1 - This worksheet allows you to enter information on K factor, Peak Hour Factor, and number of freeway lanes. What you get in the output section is a table of daily volumes and their Level of Service thresholds.

There is a README.DOC file on disk.

ENVIRONMENT MS or PC-DOS/LOTUS™ (version 2 or greater)

STATUS Operational.

AVAILABILITY Available for free downloading.

1) Now (2/24)
   PSI Bulletin Board NCAP/Capacity Directory
   (206) 463-2133

2) By April 87
   INFOTAP Bulletin Board (415) 642-7088

or send one formatted disk to Gary Sokolow with a return mailing package and label.

CONTACT
Gary Sokolow
Florida Department of Transportation
605 Suwannee Street
M.S. 19
Tallahassee, FL 32399-0450

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION SICA

DEVELOPER Steven Gayle and James Papaleo
Binghamton Metropolitan Transportation Study

SUMMARY SIGNALIZED INTERSECTION CAPACITY ANALYSIS (SICA) is a program which analyzes signalized intersections to determine average stopped delay per vehicle and level of service. Actual or estimated signal timing is a required input to SICA. The methodology used is Chapter 9 of the 1985 Highway Capacity Manual. SICA was donated by Steven Gayle and James Papaleo of the Binghamton Metropolitan Transportation Study.

ENVIRONMENT IBM PC/MS-DOS

AVAILABILITY Available from contact below.

CONTACT McTrans Center
University of Florida
512 Weil Hall
Gainesville, FL 32611
(904) 392-0378

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION — NCAP™ - Intersection Capacity Analysis Package

DEVELOPER — Professional Solutions, Inc., Vashon, Washington

SUMMARY — NCAP™ provides 1985 Highway Capacity Signalized and Unsignalized procedures as well as Circular 212 techniques. Operational and planning methods are included.

All tabular values from the Capacity Manual are internal to the program. No look-up is required and worksheets for input and output match those of the manual for ease of understanding and rapid learning. Little time is required to begin use for those already familiar with the Capacity Manual procedures.

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.

Users report the following application times for a typical four-way intersection: manual procedure--2 to 3 hrs.; nomographic procedure--30 min. to 1 hour; NCAP™--15 to 20 min.

See ITE's "Analysis of Signalized Intersection Capacity Using Microcomputers" for comparison to other software and example screens and output.

ENVIRONMENT — Versions are available for IBM PC, PC/XT, PC/AT and compatibles.

STATUS — First available in 1985. Now in use at over 100 sites. Your local area users listed on request.

AVAILABILITY — $295 from contact. Demo/sample versions from $10.

CONTACTS — 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 - A program for calculating signalized intersection capacity utilization ratios and level of service (planning applications for site traffic impact analysis)

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 BASICA, 256K RAM, one disk drive.
Matrix or daisy wheel printer (graphics capability not required).

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, and many counties in Los Angeles.

AVAILABILITY For sale at $400 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) 968-4772

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION SICAP - Signalized Intersection Capacity Analysis Program

DEVELOPER James A. Bonneson

SUMMARY SICAP is a program that automates the analysis of signalized intersections with respect to capacity and level of service. 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 automatically calculate phase times based on critical flow ratios. In addition, this program has the capability 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.

Included with the software is an 80-page user's manual. This manual contains many helpful features including a functional description of the program, appropriate illustrations and flow charts, helpful analysis hints, six example intersections, and one example intersection solved manually with accompanying worksheets and discussion.

ENVIRONMENT IBM and Apple II with a minimum of 64K memory (256K IBM) and one hard disk drive. Program is written in the BASIC language.

STATUS Program is currently being used by over 30 individuals and agencies including the Traffic Engineering Division, City of Lincoln, Nebraska.

AVAILABILITY Available from contact for $200 (Apple or IBM version).

CONTACT James A. Bonneson
Transportation Engineer
8960 Underwood Ave., #315
Omaha, NE 68114
(402) 399-1074

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION EZ-ICAP

DEVELOPER Engineering Directions International, Inc. (ENDI)

SUMMARY EZ-ICAP (Intersection Capacity Analysis Program) is an interactive implementation of the 1985 Highway Capacity Manual (TRB Special Report 209) procedures on signalized intersections (chapter 9). The program uses familiar conventions for keyboard definitions, commands, and procedures. User input and presentation of results have been further eased by close conformity to the HCM worksheets for both input and output. Also featured are unique graphical displays for inputting traffic volumes and intersection geometry. The multi-window, full-screen editor makes EZ-ICAP very easy to learn and easy to use.

Major features of EZ-ICAP are: 1) comprehensive error checking of all input data; 2) full-screen graphics-enhanced input editor; 3) automatic display of both intermediate and final calculations; 4) complete file management capabilities; 5) report-quality printed output; 6) fast execution; and 7) signal timing estimation included.

EZ-ICAP is licensed with ENDI's unique set of client service and support features, including a money-back policy, 100% price protection, the ENDI newsletter, free automatic updates, and other full-range customer support features.

ENVIRONMENT IBM PC or compatibles with 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 and other agencies in the United States and abroad.

AVAILABILITY May be licensed from contact. Multiple-copy discounts, site licenses, and other discounts are available.

CONTACT

ENDI
P.O. Box 1686
Leesburg, VA 22075
(703) 777-8414

or call PC-Trans
(913) 864-5655
for orders or information

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 chapter 9 of the 1985 Highway Capacity Manual. 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 384K, PC DOS, and Lotus 1-2-3™ (Version 1A, 2.0, or 2.1)

STATUS The SCA software is currently being used by municipalities, institutions, and private consultants in the following locations:

Municipalities

Grand Prairie, Texas
Dallas, Texas
Fort Worth, Texas
Farmers Branch, Texas
Brookhaven, New York

Institutions

Arizona State University, Tempe
Texas State Department of Highways and Public Transportation (District 2, Fort Worth, and District 15, San Antonio)

Consultants

Washington, Illinois
Dallas, Texas
Boston, Massachusetts
Fort Worth, Texas
Toronto, Canada
Edmonton, Canada
Babylon, New York
Anglewood, Colorado
Clifton, New Jersey
New York, New York
Pasadena, California
Thornwood, New York
Redwood City, California
Chicago, Illinois

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 IBM PC, PC/XT, PC/AT or compatibles with 128K RAM minimum.

STATUS Operational at Virginia Dept. of Highways and Transportation, many local governments and private consultants, and universities.

AVAILABILITY For sale at $295; Extended Warranty Support is $175 (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 governmentagencies 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

Capacity Analysis

APPLICATION SIGCAP - Signalized Intersection Capacity Analysis Program

DEVELOPER System Studies Unit, Planning Section, Oregon Highway Division

SUMMARY SIGCAP is a simple-to-operate capacity analysis program intended to assist the engineer in analyzing traffic conditions and design alternatives at isolated signalized intersections. Based upon traffic demand, the program calculates volume to capacity values for each traffic movement. The critical v/c values are then selected and summed according to the signal phasing conditions defined by the user. Finally, the program determines the overall saturation value and service level for the intersection, and outputs the results in a printed format.

The program calculations are consistent with the Highway Capacity Manual's volume to capacity ratio methodology for determining level of service. However, some modifications to the HCM theory were made to incorporate Oregon Highway Division techniques and procedures acquired from extensive field observations.

ENVIRONMENT IBM-PC, XT, AT, or compatible computer with 256K of RAM and running under MS-DOS 1.0 or greater. Requires an 80-column or larger printer.

STATUS Currently being used by the System Studies Unit of the Oregon Highway Division Planning Section, and other local governmental agencies.

AVAILABILITY The program and documentation are available for a nominal charge through the McTrans Center.

CONTACT
McTrans Center
512 Weil Hall
University of Florida
Gainesville, FL 32611
(904) 392-0378

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION Freeway Operations, Weaving Analysis, and Ramps and Ramp Junctions Capacity and Level of Service

DEVELOPER Kenneth Hausman, Bellomo-McGee, Inc. (BMI) and William McCombs, Parsons, Brinckerhoff, Quade and Douglas

SUMMARY The procedures of the 1985 Highway Capacity Manual (Ch. 3-Freeway Operations; Ch. 4-Weaving areas; and Ch. 5-Ramps and Ramp Junctions) are presented in a computerized worksheet format. The user is required to input the geometric and traffic information only. All intermediate factors and calculations are presented and each worksheet is contained on a single screen.

ENVIRONMENT IBM or compatible, one disk drive, 256K memory.

STATUS The program is currently being used by Parsons, Brinckerhoff, Quade and Douglas in Atlanta, GA; Bellomo-McGee, Inc. (BMI) in Vienna, VA; and the University of Maryland in College Park, MD.

AVAILABILITY Programs are written in IBM BASIC. Programs are available for $5 to cover the diskette and shipping costs. A user's guide is currently under development.

CONTACT Kenneth Hausman
c/o Bellomo-McGee, Inc.
901 Follin Lane
Suite 220
Vienna, VA 22180

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION CINCH

DEVELOPER Central Transportation Planning Staff
Boston, MA

SUMMARY CINCH is a capacity analysis program that applies methods outlined in chapters 9 and 10 of the 1985 Highway Capacity Manual. CINCH was donated by the Central Transportation Planning Staff, Boston, MA.

ENVIRONMENT IBM PC/MS-DOS 2.0

AVAILABILITY Available from contact below.

CONTACT McTrans Center
University of Florida
512 Weil Hall
Gainesville, FL 32611
(904) 392-0378

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION Capacity Analyses for Entrance Ramps and Exit Ramps by the 1985 HIGHWAY CAPACITY MANUAL Procedures

DEVELOPER Watt & Estes, Inc.

SUMMARY RAMPEN and RAMPEX are spreadsheet programs developed for use with LOTUS 1-2-3™ that perform capacity analyses of freeway ramps that cannot be analyzed with the FHWA's Highway Capacity Software (HCS). These macro-driven programs are applicable to ramps on freeways with 4 to 10 lanes in each direction and emphasize the effect of upstream and downstream ramps (with and without auxiliary lanes) on the ramp being analyzed. These programs provide analyses beyond the solutions provided by the HCS and are intended to supplement the HCS. The program output report presents the input data and a diagram of the ramp configuration with the capacity analyses results for the freeway, ramp, ramp checkpoint, and lane 1. The programs are intended as a highway designer's tool that permits rapid retrieval of input data for modification and recalculation of the level of service of alternative configurations. The results are compatible with the HCS Programs except where the HCS Programs do not consider the effect of upstream or downstream ramps with auxiliary lanes. For analysis of two-lane ramps, the program considers the effect of both upstream and downstream ramps and provides output of volumes in the lanes being analyzed that can be used in further analysis, if necessary.

ENVIRONMENT RAMPEN and RAMPEX operate on the IBM PC XT, AT, and compatibles. LOTUS 1-2-3™, Version 2.0, with 512K are required.

STATUS Programs are fully operational and have been used for analysis of five alternatives for the reconstruction of 20 miles of I-65 and I-59 in Birmingham, Alabama, for the Alabama Highway Department.

AVAILABILITY RAMPEN and RAMPEX, enhanced versions, are available from the contact for $200. RAMPENB and RAMPEXB, basic versions which generate input data for HCS Programs, are available for $50. Sample output reports and user instructions are available free from contact.

CONTACT Harold N. Estes, Jr., P.E.
Watt & Estes, Inc.
4926 Adams Road
Chattanooga, TN 37343
(615) 842-3335

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION Capacity Analyses for Weaving Sections by the 1985 HIGHWAY CAPACITY MANUAL Procedures

DEVELOPER Watt & Estes, Inc.

SUMMARY HCMWEAVE is a user-friendly spreadsheet program that calculates the Level of Service for Type A, B, and/or C weaving configurations. The program is very interactive, permitting the user to evaluate a large number of alternatives. Once an alternative is selected, a report with a diagram of the weaving section showing input and analysis data can be printed for all type weaving movements or for any specific (A, B, or C) type weaving movement. Calculated values of limiting variables are listed and flagged if the minimum or maximum value is exceeded. The results are consistent with the HCS Program, however, the results are shown on the screen, which permits rapid evaluation of a large number of alternatives by the highway designer without generating a report for each alternative investigated.

ENVIRONMENT HCMWEAVE operates on the IBM PC XT, AT, and compatibles. LOTUS 1-2-3™, Version 2.0, with 512K are required.

STATUS Program is fully operational and has been used for analysis of five alternatives for the reconstruction of 20 miles of I-65 and I-59 in Birmingham, Alabama, for the Alabama Highway Department.

AVAILABILITY HCMWEAVE is available from the contact for $50. Sample output reports and user instructions are available free from contact.

CONTACT Harold N. Estes, Jr., P.E.
Watt & Estes, Inc.
4926 Adams Road
Chattanooga, TN 37343
(615) 842-3335

microcomputers in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION UNSIG10 - Unsignalized Intersection Capacity Analysis Program

DEVELOPER Systems Studies Unit, Planning Section, Oregon Highway Division

SUMMARY UNSIG10 is a simple to operate capacity analysis program intended to assist the engineer in analyzing Two-way Stop-, Four-way Stop-, and Yield-controlled intersections. The program will calculate the approach level of service by movement for the intersection legs that are controlled and the approach level of service for the left turn movements on the uncontrolled approaches.

The program was designed to duplicate the procedures outlined in Chapter 10, "Unsignalized Intersections," of the 1985 Highway Capacity Manual.

ENVIRONMENT IBM-PC, XT, AT, or compatible computer with 256K of RAM and running under MS-DOS 1.0 or greater. Requires an 80-column or larger printer.

STATUS Currently being used by the System Studies Unit of the Oregon Highway Division, Planning Section, and other local governmental agencies.

AVAILABILITY The program and documentation are available for a nominal charge through the Microcomputers in Transportation Support Center.

CONTACT
McTrans Center
512 Weil Hall
University of Florida
Gainesville, FL 32611
(904) 392-0378

microcomputer in transportation

Traffic Engineering Software

Capacity Analysis

APPLICATION FAZWEAVE: Free Weaving Area Design and Analysis Procedures

DEVELOPER Joseph Fazio, Urban Transportation Center, University of Illinois at Chicago.

SPONSOR FHWA, Traffic Systems Division

SUMMARY The FAZWEAVE program contains four weaving operational analysis and design procedures. These four procedures are the most current weaving procedures available to highway and traffic engineers/ planners. The program is intended for use by those planners and engineers familiar with weaving area terminology and concepts. The four weaving procedures incorporated into the program are: 1) Jack E. Leisch (March 1985, 2) JHK & Associates (November 1985), 3) Joe Fazio (June 1985), and 4) 1985 Highway Capacity Manual (January 1985).

ENVIRONMENT The FAZWEAVE program is an interactive program written in BASIC language. Operates on IBM PC, XT, AT, and compatibles under MS-DOS version 2.0 or higher. Requires at least 64K RAM and one DSDD 5-1/4" diskette drive.

STATUS The program is operational and has been used by Jack E. Leisch & Associates, CALTRANS, and researchers at various universities.

AVAILABILITY The software and documentation are within the public domain. Available from contact below, and it is planned in the near future to be available from McTrans.

CONTACTS

Mr. Joseph Fazio
Urban Transportation Center (M/C 357)
University of Illinois at Chicago
Box 4348
Chicago, IL 60680
(312) 996-4820

McTrans
The Center for Microcomputers in Transportation
University of Florida
512 Weil Hall
Gainesville, FL 32611
(904) 392-0378

microcomputers in transportation

Traffic Engineering Software

General Traffic Operations

APPLICATION TRAFCON: Traffic Management Operating System

DEVELOPERS TEAS-Traffic Engineering Application Software

SUMMARY The TRAFCON operating system (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; street name spelling checking; and high-speed sorting and record selection. Specific modules include the following:

WEBSAT - Webster delay analysis and signal timing optimization 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.
CON - Traffic count data base manager.
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.
PVM - Pavement marking inventory program.
STR - Striping inventory program.

ENVIRONMENT CP/M or MS-DOS operating systems. Operates in color for IBM PC compatible equipment with graphics capabilities.

STATUS Selected modules are operating in the Town of McCandless, Pennsylvania, and the Cities of Martinez, Montebello, Oxnard, Colton, and Simi Valley, California; Ada County, Idaho; Fort Worth and Beaumont, Texas; and Sioux Falls, South Dakota.

AVAILABILITY Available on license agreement basis.

CONTACT

Western U.S.
Brian Smith
KaWES and Associates
2804 Beverly Boulevard
Los Angeles, CA 90057
(213) 384-7418

Eastern U.S.
John Trant
Classic Development Consultants
4136 Stanley St.
Pittsburgh, PA 15207
(412) 621-2220

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. Software is furnished under license agreement. The ATEMS programs include:

- CAPSSI-85 (Comprehensive Analysis Program for a Single Signalized Intersection) 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 MS-DOS operating systems, dual floppy disk drives and 256K of RAM minimum. A hard disk is desirable.

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, Vernon, West Covina, Whittier and Yuba City, California; Anchorage, Alaska; Arizona State University, Tempe, Arizona; Fort Collins and Lakewood, Colorado; Shreveport, Louisiana; Jersey City, New Jersey; Dallas, Texas; Wickliffe, Ohio; Norfolk, Virginia; 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 time space diagram plotting program.
CMA - An interactive, TRB 212-based, signalized intersection evaluation program.
TRAVELTIME - An interactive set of special-purpose programs designed to collect, reduce, analyze, and manage large amounts of vehicle-collected data.
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 Operational at Traffic Division, City of Minneapolis, MN; Sioux Falls, SD; and Lakewood, CO. SPEEDPLOT used by Traffic Division, City of San Diego; Stockton, CA.

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 McTrans Center
512 Weil Hall
University of Florida
Gainesville, FL 32611
(904) 392-0378

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
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

General Traffic Operations

APPLICATION TEAPAC - Traffic Engineering Application Package

DEVELOPER Barton-Aschman Associates, Inc.

SUMMARY TEAPAC is a comprehensive, fully integrated system of traffic engineering programs as follows:

Traffic Operations

SIGNAL85	Signalized Intersection Analysis and Design
NOSTOP	Bandwidth Progression
PRETRANSYT	Easy Input and Time Space Plot for TRANSYT
RAMP	Ramp Capacity
WEAVE	Weaving Capacity

Site Traffic

TUBES	Machine Counts
TURNS	Turning Count Analysis
SITE	Generation, Distribution, and Assignment

Data Management and Analysis

TED	TEAPAC Editor and Data Manager
DTABS	Dynamic Tabulation of Survey Data
PLOT	Curve/Histograms
SURVEY	Real Time Data Collection and Analysis

Air Quality

COERP	CO Emission Rates Estimation
HIWAY I/II	Dispersions Modeling
CALINE3	California Dispersion Model

ENVIRONMENT Any computer running standard MS/PC-DOS versions 2.x or 3.x with a minimum of 512K RAM. The '87 family of math coprocessors is supported and recommended. Not copy protected.

STATUS Used by hundreds of engineers and planners in cities, planning agencies, consultancies, and educational institutions worldwide, including Illinois DOT and the City of Chicago, Illinois. List available from contact on request.

AVAILABILITY License arrangements made by contact below.

CONTACT Dennis W. Strong, P.E.
Barton-Aschman Associates, Inc.
820 Davis Street
Evanston, IL 60201
(312) 491-1000

microcomputers in transportation

Traffic Engineering Software

General Traffic Operations

APPLICATION Parking Citation Management System

DEVELOPER Timelapse, Inc.

SUMMARY The system provides a user friendly atmosphere for managing, filing, processing, and tracking parking citations. It utilizes portable hand-held computers to issue the citation, eliminating the problems associated with hand-written citations and keypunch or filing errors.

The system automatically compiles the citation data into aged ticket records and prints delinquent notices and summonses when applicable. Updates to the citation records are recorded automatically and by user input at the system keyboard. Automatic access to Department of Motor Vehicle files to locate owner name and address is available.

The system also provides management capabilities presently not available in most cities. Managers may evaluate officer productivity, analyze geographic distribution of citations, and redefine officer routes.

Realistic projections of cash flow may be developed using the daily, weekly, and monthly transaction reports to evaluate trends. Historical files are updated daily to provide accurate accounting of completed transactions for years to come. Accurate accounting of cash receivables and disbursements are performed automatically to assure responsible handling of money.

The system software is easy to use, concise, and comprehensive. The software is configured to meet the needs of each agency. Custom software provides specified report formats, mainframe interface, and special requirements.

ENVIRONMENT The program operates on a standard IBM-PC microcomputer with dot matrix printer and RS232 interface to field unit. Hard disk drives and color monitors are recommended but not required.

STATUS The system has been operational since early 1986 and is presently being used by five agencies. Contact vendor for current list of agencies.

AVAILABILITY The system can be purchased from Timelapse, Inc.

CONTACT Roy M. White
Timelapse, Inc.
9025B 131 Place N.
Largo, FL 33543
(813) 585-4230

Traffic Engineering Software

General Traffic Operations

APPLICATION SALLIE (Ver. 1.0.4) Roadway Lighting Design Program

DEVELOPER Shreve Area Council of Governments

SUMMARY SALLIE is a menu-driven program to aid in the design of roadway lighting configurations. Features include: lumen and dirt depreciation, ability to search for wildest spacing by holding mounting height constant and allowing overhang to change; by holding overhang constant and letting mounting height change; or by letting both mounting height and overhang change, three-dimensional plot of horizontal footcandle values between two poles on screen or on Houston Instruments DMP-29 plotter, computes poles required, average maintained horizontal footcandles, and uniformity ratio, 182-page example oriented user guide.

ENVIRONMENT PC-DOS/MS-DOS 2.0 or greater, one floppy disk drive, and 256K RAM. Color Graphics Adapter required for screen graphics.

STATUS Operational in Shreveport, LA.

AVAILABILITY For sale by contact for $35.

CONTACT Shreve Area Council of Governments
627 Spring Street
Shreveport, LA 71101
(318) 226-6488

microcomputers in transportation

Traffic Engineering Software

General Traffic Operations

APPLICATION DELAY

DEVELOPER Federal Highway Administration
Traffic Safety Research Division - HSR-30

SUMMARY Delay is a LOTUS 1-2-3™ interactive template which computes the delay, time-to-normal-flow, and the length of queue caused by freeway incidents. It uses the procedures described in articles which have appeared in the September 1986 issue of Public Roads and in the January 1987 issue of the ITE Journal. The program calculates the effects of sudden or planned freeway incidents based on traffic flow volumes and incident durations. The delay condition being studied is printed and graphed.

ENVIRONMENT LOTUS 1-2-3™ on an IBM-PC or compatible, 128K of user RAM, graphics capability.

AVAILABILITY Available from the McTrans Center.

CONTACTS McTrans
The University of Florida
512 Weil Hall
Gainesville, FL 32611
(904) 392-0378

Juan M. Morales, P.E.
Highway Research Engineer
Federal Highway Administration, HSR-30
6300 Georgetown Pike
McLean, VA 22101
(703) 285-2499

microcomputers in transportation

Traffic Engineering Software

General Traffic Operations

APPLICATION REGMATCH

DEVELOPER M.M. Dillon Limited

SUMMARY REGMATCH is an integrated package of programs designed to analyze license-plate traffic surveys. Its applications would include site parking surveys, central area parking surveys, routing studies, and traffic operations studies.

Surveys may include data from up to 30 stations. The system can analyze up to 65,000 combinations of observed vehicle registration and vehicle class. Registrations are alphanumeric.

REGMATCH allows great flexibility in input format, and contains extensive error detection/reporting facilities for input data.

Reports produce comprehensive data on the survey travel characteristics. Included are:

- lists of matched observations with departure and journey times
- lists of unmatched observations with departure and journey times
- journey time distributions
- journey speed distributions
- tables of mean and standard deviation of journey times and speeds, by departure time
- origin-destination matrices

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

STATUS Used on studies in Markham (Ont.) and Hamilton (Ont.).

AVAILABILITY For sale from contact below.

CONTACT

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

APPLICATION Signal Utility Package

DEVELOPER Charlie Wallace and Ken Courage
McTrans Center

SUMMARY SIGNAL UTILITY PACKAGE (SIGPAK) is a collection of traffic signal timing utilities. One program, SIGUTIL, can be used to:

1. "Delink" selected TRANSYT-7F nodes to simulate isolated operation.
2. Convert selected TRANSYT-7F nodes to unsignalized nodes.
3. Increase all TRANSYT-7F node end link numbers by a constant amount.
4. Convert signal "resets" to "offsets" in a TRANSYT-7F data set.
5. Convert AAP simulation runs to optimization with either PASSER or TRANSYT.
6. Convert old PASSERII-80 (and early 84) files to PASSERII-84's current NEMA movement convention.

These utilities are not elegant, but they are useful. SIGUTIL was donated by Charlie Wallace and Ken Courage.

A second program, TIMACT, accepts pretimed signal settings and produces actuated controller settings. TIMACT was developed by Ken Courage for the Florida DOT and was donated to McTrans by Ken.

Brief user instructions are on the disk.

ENVIRONMENT IBM PC/MS DOS 2.0

AVAILABILITY Available from contact below.

CONTACT McTrans Center
University of Florida
512 Weil Hall
Gainesville, FL 32611
(904) 392-0378

microcomputers in transportation

Traffic Engineering Software

General Traffic Operations

APPLICATION Street Light Calculation Program (AVEMIN)

DEVELOPER Steve Davis, City of Tacoma, WA

SUMMARY AVEMIN (STREET LIGHT CALCULATION PROGRAM) is a program which uses a stored library of photometric curves to calculate the light levels on a street for a given layout. New data can be entered using the iso-footcandle curves published by the manufacturers. An Epson RX-80 compatible printer is required. The documentation is on the disk. AVEMIN was written by Steve Davis, City of Tacoma, WA.

ENVIRONMENT Same as Operating System. BASICA required.

AVAILABILITY Available from contact below.

CONTACT McTrans Center
University of Florida
512 Weil Hall
Gainesville, FL 32611
(904) 392-0378

microcomputers in transportation

Traffic Engineering Software

General Traffic Operations

APPLICATION TESS-Traffic Engineering System Software

DEVELOPER Transport and Road Research Laboratory

SUMMARY TESS is the collective name for five internationally successful programs from the UK TRRL. These are:

- o TRANSYT/9 - The latest release of this established method of signal coordination. TRANSYT/9 includes many improvements in modeling, interactive processing, and a stage sequence optimization procedure.
- o CONTRAM - A dynamic traffic assignment model for design of traffic management schemes in congested urban areas. The model simulates "packets" of vehicles traveling through a network, and predicts vehicle routes, flows, queues, delays, and turning movements in a network of streets and intersections. It models time variation in traffic conditions and, in particular, the growth and decay of congestion during peak periods.
- o ARCADY2/PICADY2/OSCADY - Isolated intersection capacity and delay model programs for traffic circles, unsignalized, and signal controlled intersections, respectively.

ENVIRONMENT IBM PC-DOS, MS-DOS, and most other computers, including mainframes.

STATUS Internationally established as standard methods.

AVAILABILITY Exclusively from:

Callow Assoc., 11868-D Sunrise Valley Drive, P.O. Box 2893, Reston, VA 22090, Telephone: (703) 476-0001

PAWA-Winkelmann & Assoc., 12660 Coit Road, Suite 200, Dallas, TX 75251, Telephone: (214) 661-9406

Kittelson & Assoc., 512 SW Broadway, Portland, OR 97205, Telephone: (503) 228-5230

Kimley-Horn, 1200 E. Hillcrest Street, Suite 301, Orlando, FL 32803, Telephone: (305) 898-1511

Fehr & Peers Assoc., 3685 Mt. Diablo Blvd., Suite 200, Lafayette, CA 94549, Telephone: (415) 284-3200

Kaku Assoc., 1427 Santa Monica Mall, Suite 201, Santa Monica, CA 90401, Telephone: (213) 458-9916

EBASCO Services, 91st Floor, 2 World Trade Center, New York, NY 10048, Telephone: (212) 839-1422

RVA Ltd., 160 Duncan Mill Road, Don Mills, Ontario M3B 1Z5, Telephone: (416) 445-4360

<u>OVERSEAS</u>

MVA Systematica, MVA House, Victoria Way, Woking, Surrey GU21 1DD, UK, Telephone: (+44) 4862-28051

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. Apple II+/CPM and 64K RAM.

STATUS Fully operational. In use by over 200 cities, States, and consultants nationwide.

AVAILABILITY The program and documentation are available through the contacts below.

CONTACTS

McTrans Center
512 Weil Hall
University of Florida
Gainesville, FL 32611
(904) 392-0378

Carl Thor
PC-TRANS
University of Kansas Transportation Center
2011 Learned Hall
Lawrence, KS 66045
(913) 864-5658

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

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 version 2.0 is a worksheet for drafting time-space diagrams.

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 performs no optimization of its own. It was developed with the idea that some decisions in signal timing are based on factors that cannot be quantified easily for a computer (e.g., driver perception, politics, citizen complaints, queue length, etc.) and therefore must be made by a human. TSDRAFT allows the user to see a time-space diagram, easily modify any parameter (phase sequence, offset, cycle length, splits, etc.) as often as desired, and immediately see the effects of the change. It automatically adjusts the green bands to show the traffic flow. Thus, the user can quickly perform his own optimization. The strength of TSDRAFT is in its speed and ease of use. TSDRAFT accommodates up to 40 intersections and all phase sequences: two-phase, leading-left turns, lagging-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 compatible, 192K, one disk drive, MS-DOS version 2.0 or greater, and a graphics card: IBM Color Graphics Adaptor (CGA), IBM Enhanced Graphics Adaptor (EGA), or Hercules Graphics Card (HGC). An IBM/Epson-compatible dot-matrix printer is recommended.

STATUS Currently used by the City of Concord, CA, the City of Richmond, CA, the City of Littleton, CO, the City of Boca Raton, FL, and the city of Daytona Beach, FL.

AVAILABILITY TSDRAFT version 2.0 comes with a detailed instructions manual for $395.

CONTACT Greg Bullock
11 Dublin Ct.
Pleasant Hill, CA 94523
(415) 933-1830

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION

TRANSYT-7F: Traffic Signal Timing Optimization
PPD: Platoon Progression Diagrams
T7FDIM: DATA INPUT MANAGER

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.

The T7FDIM program is a user-friendly data input manager that makes it easy for you to create data decks for input into TRANSYT-7F.

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 contacts below. TRANSYT-7F, PPD, and T7FDIM are distributed together on the same diskette.

CONTACTS

McTrans Center
512 Weil Hall
University of Florida
Gainesville, FL 32611
(904) 392-0378

Carl Thor
PC-TRANS
University of Kansas
Transportation Center
2011 Learned Hall
Lawrence, KS 66045
(913) 864-5658

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) 968-4772

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), two disk drives, and LOTUS 1-2-3™.

AVAILABILITY Available for a nominal fee from contacts below.

CONTACTS

McTrans Center
512 Weil Hall
University of Florida
Gainesville, FL 32611
(904) 392-0378

Carl Thor
PC-TRANS
University of Kansas Transportation Center
2011 Learned Hall
Lawrence, KS 66045
(913) 864-5658

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION PASSER II-84 Version 3.0, 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 3.0 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 contacts below.

CONTACTS

Carl Thor
PC-TRANS
University of Kansas Transportation Center
2011 Learned Hall
Lawrence, KS 66045
(913) 864-5658

McTrans Center
512 Weil Hall
University of Florida
Gainesville, FL 32611
(904) 392-0378

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION TIMDIS 2, CARDED: Traffic Signal Coordination

DEVELOPER DKS Associates

SUMMARY 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-space 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. The coding form templates can be created or modified by the user.

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.

CONTACT
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 PLUS (EZ7+)

DEVELOPER Transtek Software

SUMMARY EZ-TRANSYT PLUS is a multi-window, full-screen input data manager for FHWA's TRANSYT-7F, release 4 and 5. EZ7+ was jointly developed by Hobih Chen, author of EZ-POSIT, and Dr. Charles Wallace, developer of TRANSYT-7F. The program is so smart and user-friendly that even if you've never run TRANSYT-7F before, you will be able to create your first error-free data file for TRANSYT-7F execution from scratch within half an hour.

EZ7+ totally abandons the card types, link-node scheme, and phase notations used in a standard TRANSYT-7F deck. Instead, intersections are identified by street names, and links are identified by the directional movements such as "NORTHBOUND LEFT, SOUTHBOUND THROUGH," etc. There is an on-line help manual for each data item on the screen.

For the timing data, EZ7+ will present you a phasing menu and on-line phase diagram from which to choose. You can construct the timing plan very easily using simple notations such as "NORTH-SOUTH LEFT TURN, NORTH THRU-LEFT," etc.

For every intersection approach in the network, the volumes will be balanced automatically based on the turning volume upstream. If the left turn movement is not protected, EZ7+ can adjust the left-turn capacity based on Tanner's Curves. You may request a time-space diagram or flow profile diagrams for any arterial. You need only to enter the name of the arterial and the program will generate the link list along the street, even if it is curved. EZ7+ is a must for every TRANSYT-7F user.

ENVIRONMENT IBM-PC/XT/AT or compatibles with PC/MS-DOS 2.0 or higher operating system, at least one 360K disk drive, and 128K RAM.

STATUS EZ-TRANSYT is being used by over 150 agencies including the University of Florida, Pennsylvania State Univ., Georgia Institute of Technology, Arizona State Univ., Univ. of Kansas, all districts of the Missouri DOT, Maryland DOT, etc.

AVAILABILITY For sale at $450. Multiple copy discount and site licensing plan are also available.

CONTACT Transtek Software
P.O. Box 3067
Falls Church, VA 22043
(904) 374-4807

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION EZ-PASSER II.X6

DEVELOPER Hobih Chen

SUMMARY EZ-PASSER is an optimized and interactive implementation of the highly popular PASSER-II arterial signal optimization program. It has a built-in multi-window screen editor and on-screen phase diagrams for easy and error-free input data editing. Instead of using the link-movement numbering system, EZ-PASSER adopts a POSIT/SOAP-like directional notation such as "North-Bound-Left," "South-Bound-Thru," etc., which are very easy to understand.

ENVIRONMENT IBM-PC/XT/AT or compatibles with PC/MS-DOS 2.0 or higher operating system, at least 360K disk drive, and 128K RAM.

STATUS EZ-PASSER is being used by over 60 agencies including Pennsylvania State University, University of Delaware, Arizona State University, University of Kansas, all districts of the Missouri DOT, New York State DOT, Maryland DOT, etc.

AVAILABILITY For sale at $250. Multiple copy discount and site licensing plan are also available.

CONTACTS

Hobih Chen
2251 Pimmit Dr. #315
Falls Church, VA 22043
(913) 864-5658

Carl Thor
PC-TRANS
University of Kansas Transportation Center
2011 Learned Hall
Lawrence, KS 66045
(913) 864-5658

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 or compatible system; Apple II+ UCSD p-System; 64K RAM on either 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
PC-TRANS
University of Kansas Transportation Center
2011 Learned Hall
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 IBM PC, PC DOS or compatible system, 448K RAM.

STATUS Operational.

AVAILABILITY For sale from contact for $25, payable to the University of Kansas Transportation Center.

CONTACT
Carl Thor
PC-TRANS
University of Kansas 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

SUMMARY SSTOP was developed to reflect "Canadian" conditions while calculating cycle lengths, splits, and offsets. Offset optimization is based on minimization of network delay. SSTOP produces a full range of Measures of Effectiveness. The package also contains an interactive data entry preprocessor.

ENVIRONMENT MS DOS Microcomputer, DOS 1.1, 2.X, 3.X, 256Kb RAM minimum, two double-sided disk drives.

Preferred: 640Kb RAM, hard disk, 8087 math coprocessor.

STATUS Operational.

AVAILABILITY Program available free of charge. Send two 5-1/4" double-sided disk drives.

CONTACTS

S.W. Erwin
Traffic Signal Systems Engineer
Traffic Management and Engineering Office
Ontario Ministry of Transportation and Communications
1201 Wilson Avenue
Downsview, Ontario
Canada M3M 1J8

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION NETSIM

DEVELOPER KLD Associates, Inc.

SUMMARY NETSIM is a program that performs detailed simulation of traffic flow on urban streets. It provides detailed estimates of traffic performance measures. Inputs include geometric design, speeds, headways, and type of traffic control. Output provides average speed, number of stops, average delay, vehicle queue length, fuel consumption, and vehicle emissions.

ENVIRONMENT The PC version runs on IBM PC and compatibles with MS-DOS 2.0 or higher. Two disk drives are recommended and 366K of memory is required. Thirty intersections require about 1-1/2 hours to execute.

STATUS Operational.

AVAILABILITY Available from contacts below.

CONTACTS

McTrans Center
512 Weil Hall
University of Florida
Gainesville, FL 32611
(904) 392-0378

Carl Thor
PC-TRANS
University of Kansas Transportation Center
2011 Learned Hall
Lawrence, KS 66045
(913) 864-5658

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION PRETRANSYT/TEAPAC - Easy Input/Time Space Plot for TRANSYT7F

DEVELOPER Barton-Aschman Associates, Inc.

SUMMARY PRETRANSYT is a preprocessor to be used in conjunction with the various versions of the TRANSYT program. TRANSYT requires a rigid input stream of specially numbered card types and fixed-format input fields. On the other hand, PRETRANSYT accepts data in free format directed by commands, and builds the fixed format TRANSYT input, thus eliminating user error in coding card types and preparing fixed format input. Data files from SIGNAL85/TEAPAC can be read directly.

This interactive analysis tool will generate the network structure for the signal system being analyzed through the use of the NETWORK command, thus the user does not have to specify all of the link-to-link movements throughout the network. Further, the phasing and timings for each signal is specified in straightforward traffic engineering terms, and can be changed quickly when testing alternatives. After an analysis by TRANSYT is completed, PRETRANSYT has the capability of interactively plotting a time-space diagram for any portion of the system. Because of the speed of the computer and the ease of input, an entire day's variation in traffic conditions can be analyzed quickly and accurately. This, in combination with the capacity analysis output of SIGNAL85/TEAPAC, provides all the information needed to implement the optimum timings in a network.

ENVIRONMENT Any computer running standard MS/PC-DOS versions 2.x or 3.x with a minimum of 512K RAM. The '87 family of math coprocessors is supported and recommended. Not copy protected.

STATUS Used by hundreds of engineers and planners in cities, planning agencies, consultancies, and educational institutions worldwide, including the Department of Civil Engineering at Arizona State University and Parsons, Brinckerhoff, Quade & Douglas. List available from contact on request.

AVAILABILITY License arrangements made by contact below.

CONTACT Dennis W. Strong, P.E.
Barton-Aschman Associates, Inc.
820 Davis Street
Evanston, IL 60201
(312) 491-1000

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION NOSTOP/TEAPAC - Bandwidth Progression

DEVELOPER Barton-Aschman Associates, Inc.

SUMMARY Barton-Aschman Associates, Inc., has redeveloped the original NOSTOP program to provide accurate and useful analyses presented in a more meaningful form. This program develops the most productive set of timing plans from the point of view of linear bandwidth progression in an arterial traffic signal system. The program provides a fast and effective means of presenting to the user with a graph of the variation of progression efficiency over a complete range of cycle lengths and progression speeds. After the cycle/speed analysis is tabulated, the cycle with the best efficiency is determined. Further analysis provides the optimum system control parameters, which include cycle length, speeds, and offsets. Additional refinements which are provided are (1) the amounts of lead and lag left-turn time available at each intersection without interfering with the through bands, (2) the amounts of through green time unused by the progression bands, and (3) widening the band in the preferential flow direction.

Once the optimum timings are determined, the program will plot a time-space diagram showing all of the offsets and the progressive bands. Using these results, combined with the optimum signal splits produced by SIGNAL85/TEAPAC, leads to a highly efficient operation of all linear systems and isolated intersections within the total road network in a community.

ENVIRONMENT Any computer running standard MS/PC-DOS versions 2.x or 3.x with a minimum of 512K RAM. The '87 family of math coprocessors is supported and recommended. Not copy protected.

STATUS Used by hundreds of engineers and planners in cities, planning agencies, consultancies, and educational institutions worldwide, including the City of Dekalb, IL and the Government of Guam. List available from contact on request.

AVAILABILITY License arrangements made by contact below.

CONTACT Dennis W. Strong, P.E.
Barton-Aschman Associates, Inc.
820 Davis Street
Evanston, IL 60201
(312) 491-1000

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION SIGNAL85/TEAPAC - Signalized Intersection Analysis and Design

DEVELOPER Barton-Aschman Associates, Inc.

SUMMARY SIGNAL85 is a program for analyzing individual intersection control needs based upon approach capacity, lane usage, pedestrian and clearance constraints, and multi-phase signal control. The methodology used the capacity analysis procedures documented in the 1985 TRB Highway Capacity Manual, with a user-specified adjustment option. The user of the program can analyze existing conditions and timings as well as generate optimum signal timings and phas-ings. The optimizer in the program seeks to establish the least number of phases of control at the best attainable level of service within a predetermined range of cycle lengths.

This interactive analysis tool is particularly useful in developing individual intersection control strategies, controller requirements and required timings since an entire day's variation in volumes can be analyzed quickly and accurately. Two-phase, three-phase, multi-phase, and split-phase control strategies are considered, with the "best" phasing being identified for each set of input data and operational constraints, such as the acceptable range of cycles. The user can easily scan the output and quickly determine which phasing will handle an adverse situation most efficiently.

ENVIRONMENT Any computer running standard MS/PC-DOS versions 2.x or 3.x with a minimum of 512K RAM. The '87 family of math coprocessors is supported and recommended. Not copy protected.

STATUS Used by hundreds of engineers and planners in cities, planning agencies, consultancies, and educational institutions worldwide, including the Illinois DOT and Orth-Rodgers & Associates, Inc. List available from contact on request.

AVAILABILITY License arrangements made by contact below.

CONTACT Dennis W. Strong, P.E.
Barton-Aschman Associates, Inc.
820 Davis Street
Evanston, IL 60201
(312) 491-1000

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION PC-AAP: Arterial Analysis Package

DEVELOPER University of Florida, Transportation Research Center

SUMMARY The PC-AAP combines three of the most popular traffic signal timing models: SOAP84, PASSER-II 84, and TRANSYT-7F, into a single package. Instead of learning three data coding schemes from scratch, only one simple scheme is required, which is based on SOAP84. All three traffic models can be accessed with minimal effort.

ENVIRONMENT Program runs on IBM and compatible with MS-DOS 2.0 or higher.

STATUS Operational.

AVAILABILITY Available from the McTrans Center (see address below). The three required program disks, SOAP84, PASSER-II 84, and TRANSYT-7F must be purchased separately. The following (or later) versions distributed by the McTrans Center will work best with PC-AAP:

1. SOAP84 - Version 84.02, April 1985
2. PASSER-II 84 - Version 3.0, July 1986
3. TRANSYT-7F - Release 4, Version 5.0, July 1986

CONTACT McTrans Center
512 Weil Hall
University of Florida
Gainesville, FL 32611
(904) 392-0378

microcomputers in transportation

Traffic Engineering Software

Signal Timing Simulation and Optimization

APPLICATION TRAFFICQ

DEVELOPER MVA Systematica

SUMMARY TRAFFICQ is a simulation model of individual vehicles and pedestrians for detailed examination of activity in complex road networks. The outputs provide information on vehicle queues, link and network travel times, and pedestrian delays at crossing sites. TRAFFICQ models time variation in traffic conditions including the growth and decay of congestion during peak periods and also random aspects of traffic flow. TRAFFICQ is suitable for analyzing design options for small to medium size road networks, especially where intersection interaction is a feature. Studies can consider altered road and intersection layouts or pedestrian facilities, varied intersection control including online computer controlled signals, and car parks-either causing queueing when full or (suddenly) loading traffic on to the road system. This latter capability makes the program useful in assessing land development proposals.

ENVIRONMENT IBM PC-DOS, MS-DOS, and most other computers, including mainframes.

STATUS Over 80 users worldwide.

AVAILABILITY For sale from contacts below.

Callow Assoc., 11868-D Sunrise Valley Drive, P.O. Box 2893, Reston, VA 22090, Telephone: (703) 476-0001

PAWA-Winkelmann & Assoc., 12660 Coit Road, Suite 200, Dallas, TX 75251, Telephone: (214) 661-9406

Kittelson & Assoc., 512 SW Broadway, Portland, OR 97205, Telephone: (503) 228-5230

Kimley-Horn, 1200 E. Hillcrest Street, Suite 301, Orlando, FL 32803, Telephone: (305) 898-1511

Fehr & Peers Assoc., 3685 Mt. Diablo Blvd., Suite 200, Lafayette, CA 94549, Telephone: (415) 284-3200

Kaku Assoc., 1427 Santa Monica Mall, Suite 201, Santa Monica, CA 90401, Telephone: (213) 458-9916

EBASCO Services, 91st Floor, 2 World Trade Center, New York, NY 10048, Telephone: (212) 839-1422

RVA Ltd., 160 Duncan Mill Road, Don Mills, Ontario M3B 1Z5, Telephone: (416) 445-4360

OVERSEAS

MVA Systematica, MVA House, Victoria Way, Woking, Surrey GU21 1DD, UK, Telephone: (+44) 4862-28051

microcomputers in transportation

Traffic Engineering Software

Traffic Maintenance and Data Management

APPLICATION SignINVT - Traffic Control Device Data Management

DEVELOPER MHM Associates, Inc.

SUMMARY 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 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. An optional graphic printout of signs and streets and intersections is available. 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 sort by: type; size; type and size; name and condition; location; direction; condition; type of support; area; and maintenance type or date.

ENVIRONMENT IBM PC, XT, AT, and compatibles. Requires 256K RAM. One 5-1/4" floppy drive and an 80-column text printer is required. Operates under MS-DOS or PC-DOS.

STATUS Traffic Division, City of Hamilton, Ohio; Cook County, Illinois; Van Buren County, Michigan; Newport News, Virginia; Beatrice, Nebraska; and Wayland, New York.

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 and Data 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, XT, AT, and compatibles. Requires 256K RAM. One 5-1/4" floppy drive is required, and a 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, 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

Traffic Engineering Software

Traffic Maintenance and Data 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, XT, AT, and compatibles. Requires 128K RAM. One 5-1/4" floppy drive is required, and a 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

Traffic Engineering Software

Traffic Maintenance and Data Management

APPLICATION SIGNS INVENTORY ^2/^3

DEVELOPER J.P. Clement
City of Thousand Oaks, CA

SUMMARY SIGNS ^2/^3 is a program which enables the user to computerize traffic sign inventories. The program is available in both dBASE II™ and dBASE III™. Anyone familiar with dBASE programming may customize the screens and reports to suit their individual needs. SIGNS ^2/^3 was donated by J.P. Clement from the City of Thousand Oaks, California.

ENVIRONMENT IBM PC/MS-DOS 2.0 and dBASE II™ or dBASE III™.

AVAILABILITY Available from contact below.

CONTACT McTrans Center
University of Florida
512 Weil Hall
Gainesville, FL 32611
(904) 392-0378

microcomputers in transportation

Traffic Engineering Software

Traffic Maintenance and Data Management

APPLICATION TSIS - Traffic Signal Inventory System

DEVELOPER Mark O. White, New York State Department of Transportation

SUMMARY The Traffic Signal Inventory System (TSIS) is a menu-driven program which is used to keep track of traffic signal installations and their equipment. It is also used to provide records for liability claims as well as to pinpoint signals with maintenance problems. Future enhancements will include a maintenance history and signal cabinet inventories. Reports can be produced to provide data summaries including a quarterly report and statewide summaries.

ENVIRONMENT Requires IBM PC or compatible with a hard disk. Uses PC-DOS 3.10 or higher. The program was written in dBASE III PLUS™. The program will be available in a compiled version by summer 1987. A minimum of 512K memory is desirable.

STATUS Operational at 10 regional NYSDOT Traffic & Safety offices in Albany, Utica, Syracuse, Rochester, Buffalo, Hornell, Watertown, Poughkeepsie, Binghamton, and Hauppauge.

AVAILABILITY Available free from the contact below. This program would require some modifications in order to be transferable to other agencies.

CONTACT Mark O. White
New York State Department of Transportation
Division of Traffic & Safety
1220 Washington Avenue, Bldg. 5, Room 319
Albany, NY 12232
(518) 457-6186

microcomputers in transportation

Traffic Engineering Software

Traffic Maintenance and Data Management

APPLICATION TESL - Traffic Engineering Study Log

DEVELOPER Richard E. Pratt, P.E., New York State Department of Transportation

SUMMARY The Traffic Engineering Study Log (TESL) is a menu-driven program which is used to keep track of traffic engineering studies done by NYSDOT regional offices including such items as date initiated, person making the investigation, the current status, and the disposition of the case. It produces various data summaries including a quarterly report, which is used for statewide summaries and budget analysis.

ENVIRONMENT Requires IBM PC or compatible with a hard disk. Uses PC-DOS 3.10 or higher. The program was written in dBASE III PLUS™. A minimum of 512K memory is desirable.

STATUS Operational at 10 regional NYSDOT Traffic & Safety offices in Albany, Utica, Syracuse, Rochester, Buffalo, Hornell, Watertown, Poughkeepsie, Binghamton, and Hauppauge.

AVAILABILITY Available free from the contact below. This program would require some modifications in order to be transferable to other agencies.

CONTACT Richard E. Pratt, P.E.
New York State Department of Transportation
Division of Traffic & Safety
1220 Washington Avenue, Bldg. 5, Room 319
Albany, NY 12232
(518) 457-7436

microcomputers in transportation

Traffic Engineering Software

Traffic Maintenance and Data Management

APPLICATION Ice and Snow Road Report

SUMMARY The Ice and Snow Road Report used dBASE III PLUS™ and communications software and hardware to collect and distribute statewide roadway condition information for use within the Department.

Specific routes having statewide significance are used in the report. Each District collects data for the section of the routes they are responsible for and transmits it to the Division Office's Electronic Bulletin Board. The data from all Districts can then be accessed by the appropriate personnel on an as-needed basis. The programs are prepared to make the preparation, transmission, retrieval-and assembly as hands free as possible. This allows those with no PC knowledge the ability to perform these duties.

ENVIRONMENT IBM PC and compatibles, dBASE III PLUS™, and Procomm, Hayes 2400 Smartmodems, 80-column printer.

STATUS Currently being used by the Missouri Highway and Transportation Department.

CONTACT
Mr. Roy I. Coplen, P.E.
Division Engineer
Maintenance and Traffic Division
Missouri Highway & Transportation Department
P.O. Box 270
Jefferson City, MO 65102
(314) 751-2785

microcomputers in transportation

Traffic Engineering Software

Traffic Maintenance and Data Management

APPLICATION TESS - Traffic Engineering Sign Inventory System

DEVELOPER 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 maintains up to 40 fields of user-defined information per sign. 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 added to the system. Default values can be easily overridden when desired.

For reporting purposes, records may be selected by user-defined ranges for any field. Multiple 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 records 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 and County Engineers Office, Medina County, Ohio.

AVAILABILITY Available from contact for $395.

CONTACT
Cynthia J. Cestaro
Cestaro & Company, Inc.
P.O. Box 1005
Colonial Heights, VA 23834
(804) 526-5676

microcomputers in transportation

Traffic Engineering Software

Traffic Maintenance and 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 IBM-PC/XT PC-DOS or compatible system, 256K RAM, dBASE III™ or dBASE III PLUS™.

STATUS Operational.

AVAILABILITY For sale from contact below for $15, payable to the University of Kansas Transportation Center.

CONTACT
Carl Thor
PC-TRANS
University of Kansas Transportation Center
2011 Learned Hall
University of Kansas
Lawrence, KS 66045
(913) 864-5658

microcomputers in transportation

Traffic Engineering Software

Traffic Maintenance and 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 computer and merged with 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 was in use since 1982 by the City of Beverly Hills, California.

AVAILABILITY Available for HP-3000 only.

CONTACT Steve Lau, P.E.
LAU Engineering, Inc.
17220 Newhope Street, Suite 204
Fountain Valley, CA 92708
(714) 968-4772

microcomputers in transportation

Traffic Engineering Software

Traffic Maintenance and Data Management

APPLICATION Inventory Systems for Signal Hardware, Street Lights, Traffic Signs and Pavement Markings

DEVELOPER Bather Belrose Boje, Inc.

SUMMARY 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.

The **STREET LIGHT MANAGER** is an inventory program for public and privately maintained street light systems. It includes such information as location, maintenance district, map code reference, lamp data, mount and pole information, installation and maintenance dates, and work order reference.

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 **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.

In each of these programs, the city, county, or State may be divided into up to 99 maintenance areas for special reporting purposes or to permit smaller-capacity microcomputer systems to cover larger geographic areas.

ENVIRONMENT The program operates on MS-DOS or PC-DOS-based microcomputer systems and require a hard disk; 512K of RAM and a 132-column printer are required.

STATUS Operational at Traffic Division, City of Sioux Falls, SD; Albuquerque, NM; Helena, MT; and Vallejo, CA.

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 Maintenance and Data Management

APPLICATION KARS - Kansas Accident Records System

DEVELOPER University of Kansas Transportation Center

SUMMARY KARS is designed for traffic accident data analysis in small to medium-sized jurisdictions. Using data input from traffic accident reports, KARS produces accident summaries by location or by a number of particular accident characteristics, as well as a high accident location listing. The output reports provide the data from which to generate collision diagrams, perform engineering analyses of specific sites, and plan targeted countermeasures. The program is menu-driven, requiring minimal computing experience to use. Great flexibility in data coding (adaptable to any report form using single-character data codes) and nine user-definable data fields make KARS useful to traffic engineering and police agencies in most States.

ENVIRONMENT IBM-PC/XT PC-DOS or compatible system, 256K RAM.

STATUS Expected to be operational by July 1987.

AVAILABILITY Will be available from contact below for $250, payable to the University of Kansas Transportation Center. Price includes limited technical support and free updates for one year.

CONTACT
Carl Thor
PC-TRANS
University of Kansas Transportation Center
2011 Learned Hall
Lawrence, KS 66045
(913) 864-5658

APPLICATION ACCSUM - Accident Records Summary

DEVELOPER DK Graphics

SUMMARY ACCSUM is a program which summarizes sets of motor vehicle accident records. Its principal use is in studying the accident history of a particular intersection, midblock section, or length of highway. For a given set of accident records the outputs consist of frequency distributions and percentage distributions of accident type by severity, road surface condition, weather condition, collision type (object struck), month of the year, day of the week, hour of the day, and directions of travel by accident type. These summary outputs are available for an entire file of accident records, for a subset or records within a file, for multiple files, and for subsets within multiple files. The inputs required are values for the following variables in each accident record: identification number, accident type, severity, date, day of week, hour of day, road surface condition, weather condition, and collision type. These data are available on standardized accident report forms. The program has an elaborate input checking program to detect illegal and illogical values such as an accident record input as a right-angle accident involving vehicular travel directions which are not at right angles.

ENVIRONMENT This BASIC language program runs on IBM-PC and compatibles with either BASICA or GWBASIC. An APPLE BASIC version is under consideration as well as compiles versions to eliminate the need for a BASIC language.

STATUS Utilized by the Syracuse Metropolitan Transportation Council.

AVAILABILITY For sale from contact below for $100.

CONTACT DK Graphics
8025 State Street Rd.
Port Byron, NY 13140
(315) 776-4202

microcomputers in transportation

Traffic Engineering Software

Traffic Maintenance and Data Management

APPLICATION Sign Inventory System

DEVELOPER Shreve Area Council of Governments

SUMMARY THE SIGN INVENTORY SYSTEM (SIS) allows the inventory of traffic signs. It was modeled after the 3M manual sign inventory method and includes most of the data fields in that system. Features include a full work history for each sign, materials costing, year-to-date work/cost summaries, full search capability, street name inventory with ability to inventory several cities, and various report options, 140 page user's manual.

THE RAILROAD INVENTORY SYSTEM allows the inventory of railroad crossings. Data items include: location (hundred block, street name, and city name), railroad name, project number, county, urban/rural designation, road width, trains per day/night, train speed, vehicles per day, highway speed, number of tracks, number of spurs, crossing angle, grade crossing surface type, advanced warning device, traffic control device, vertical grading quad, sight distance, type area near crossing, adequate lighting, pavement markings and road surface type. A potential hazard index is computed by the Pennsylvania method. An 81-page user's manual is included.

ENVIRONMENT PC-DOS/MS-DOS 2.0 or greater, hard disk drive, and 512K RAM.

STATUS Operational in Shreveport, LA and Farmer Branch, TX.

AVAILABILITY For sale by contact: Sign Inventory System - $45
Railroad Inventory System - $25

CONTACT Shreve Area Council of Governments
627 Spring Street
Shreveport, LA 71101
(318) 226-6488

microcomputers in transportation

Traffic Engineering Software

Traffic Maintenance and Data Management

APPLICATION BTS: The Berkeley Traffic Data Management and Analysis System

DEVELOPER The Institute of Transportation Studies, University of California, Berkeley

SUMMARY A collection of data management and analysis "modules" incorporated into a comprehensive menu-driven system. Features include:

- Sign inventory and sign maintenance management
- Markings inventory and maintenance management
- Road inventory and maintenance management
- Signals inventory and maintenance management
- Lighting inventory and maintenance management
- Accident records inventory and analysis
- Traffic citations inventory and analysis
- Traffic volumes inventory and analysis
- Spot speed studies inventory and analysis
- Isolated intersection capacity and performance analysis
- Management of citizen comments

The package provides on-line help and information screens, as well as a variety of related utilities.

ENVIRONMENT Runs under dBASE II™ on IBM-PC's and compatibles with dual floppy disks or a hard disk. For data management applications, a hard disk is strongly recommended. For large data bases, an IBM-AT compatible or "386-type" computer is advised. A Hewlett-Packard HP 150 version is also available. (Note the dBASE II™ must be acquired separately.)

STATUS The sign inventory and intersection analysis modules have been used by several local California agencies.

AVAILABILITY The complete BTS is available on 13 floppy diskettes. The separate features of the system are available for $5/diskette, $12 for the 150-page user's guide, plus postage and handling.

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

microcomputers in transportation

Traffic Engineering Software

Traffic Maintenance and Data Management

APPLICATION Sign Inventory Program

SUMMARY The Sign Inventory Program used dBASE III PLUS™ as a base to establish a sign inventory from which inspections are to be made, signs are to be ordered, and work orders are to be generated. The database also allows us to check the signing at particular locations as well as have better control over sign inventory and stock.

The database is extremely large in size so storage and computation time have presented some problems. The possibility of using a maintenance computer interface is being investigated for some applications.

ENVIRONMENT IBM PC and compatibles.

AVAILABILITY We can make this program available to any other government agency upon request.

CONTACT

Mr. Roy I. Coplen, P.E.
Division Engineer
Maintenance and Traffic
Missouri Highway & Transportation Department
P.O. Box 270
Jefferson City, MO 65102
(314) 751-2785

microcomputers in transportation

Traffic Engineering Software

Field Data Collection and Analysis

APPLICATION TURNS/TEAPAC - Turning Count Analysis

DEVELOPER Barton-Aschman Associates, Inc.

SUMMARY A turning movement count summary program, TURNS, has been developed for reducing and summarizing manual turning movement counts. The program is capable of analyzing up to 12 movements per intersection with the input being either cumulative or reduced counts.

The outputs of the program are 15-minute and 60-minute volume tabulations by individual movement, approach leg, exit leg, and intersection totals. Peak hour analyses are provided including the peak hour volume, percentage of turns, peak hour factors, and highest hour volume for each movement. The peak hour analyses can be conducted for the a.m., p.m., midday, and for offpeak periods by time periods that are program or user specified. The program allows for fast and accurate analyses of volume data that is easy to check and repeat.

Design volumes and peak hour factors determined by the peak hour analysis can be placed directly into data files for later retrieval by other TEAPAC programs such as SIGNAL85, PRETRANSYT, and COERP.

An option that will be implemented at a future date is a plot of the variation of flow for the period of the count by intersection total, individual movements, or groups of movements such as an approach. Volume warrants for signalization will also be assessed.

ENVIRONMENT Any computer running standard MS/PC-DOS versions 2.x or 3.x with a minimum of 512K RAM. The '87 family of math coprocessors is supported and recommended. Not copy protected.

STATUS Used by hundreds of engineers and planners in cities, planning agencies, consultancies, and educational institutions worldwide, including Virginia DOT and the Village of Schaumburg, IL. List available from contact on request.

AVAILABILITY License arrangements made by contact below.

CONTACT Dennis W. Strong, P.E.
Barton-Aschman Associates, Inc.
820 Davis Street
Evanston, IL 60201
(312) 491-1000

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 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 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 McTrans Center
512 Weil Hall
University of Florida
Gainesville, FL 32611
(904) 392-0378

microcomputers in transportation

Traffic Engineering Software

Field Data Collection and Analysis

APPLICATION "TravelLog" Travel Time Analysis Package

DEVELOPER Timelapse, Inc.

SUMMARY TRAVELLOG 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 IBM PC 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 25 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.

CONTACT
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 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 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 McTrans Center
512 Weil Hall
University of Florida
Gainesville, FL 32611
(904) 392-0378

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. 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 contacts below.

CONTACTS

McTrans Center
512 Weil Hall
University of Florida
Gainesville, FL 32611
(904) 392-0378

Carl Thor
PC-TRANS
University of Kansas Transportation Center
2011 Learned Hall
Lawrence, KS 66045
(913) 864-5658

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 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, 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 application program's intrinsic data input capabilities.

A printed report which sorts the collected data can be produced. The EXPORT utility program is available to convert collected data to other formats, including dBASE™, LOTUS™, and MAILMERGE.

PDCS is available with the Migent Ability (R) integrated software package to provide spreadsheet, graphics, and word processing capabilities.

The program is fully implemented on IBM convertible, Toshiba 1100+.

ENVIRONMENT Selected CP/M-80, MS-DOS and PC-DOS based microcomputer systems, including portable battery-operated lap-type computers for easy field data collection.

STATUS Operational at City of Albuquerque, NM; Lyle Signs, Inc., MN; Ed Swanson & Associates, MI.

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 analyze the statistical results 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.

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 was 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 $100.

CONTACT Steve Lau, P.E.
LAU Engineering, Inc.
17220 Newhope Street, Suite 204
Fountain Valley, CA 92708
(714) 968-4772

microcomputers in transportation

Traffic Engineering Software

Field Data Collection and Analysis

APPLICATION SPEEDPLOT, SPEED, SPEED SURVEY∧2

SUMMARY SPEEDPLOT is a menu-driven, interactive program for filing, processing, and analyzing spot speed measurement data. Recorded speeds are processed and may be printed or saved. The speed analysis includes 'bell' and 'S' curves, 50th and 85th percentiles, pace speed, percent in pace, speed range, average speed and sample size. The documentation is on the disk. Speedplot is copyrighted by Bather, Belrose & Boje (BBB), Inc., 1986, Minneapolis, MN. An enhanced version of SPEEDPLOT is available from BBB, Inc., for $50.

SPEED is a program to compute statistical information and draws the normal distribution and cumulative frequency graphs for a spot speed study. The documentation is on the disk. SPEED was developed by Mike Gibbons, City of Tacoma, WA.

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. The program was developed by J.P. Clement, P.E.

ENVIRONMENT IBM PC and compatibles. Speed Survey∧2 also runs on most CP/M systems.

AVAILABILITY Available from contact below.

CONTACT
McTrans Center
University of Florida
512 Weil Hall
Gainesville, FL 32611
(904) 392-0378

microcomputers in transportation

Traffic Engineering Software

Field Data Collection and Analysis

APPLICATION Automated Traffic Count Program

DEVELOPER Traffic and Planning Division
King County, Seattle, WA

SUMMARY AUTOMATED TRAFFIC COUNT PROGRAM is a BASIC program which transfers traffic count data from a paper tape reader to an IBM PC and prints average daily traffic volumes. The program was written to transfer data from the Environ-Labs Model 311L Paper Tape Reader to the IBM PC. The program can be customized to work on other tape reader models. The documentation is on the disk. This program was written by the Traffic and Planning Division, King County, Seattle, WA.

ENVIRONMENT IBM PC/MS DOS 2.0+. BASICA required.

AVAILABILITY Available from contact below.

CONTACT McTrans Center
University of Florida
512 Weil Hall
Gainesville, FL 32611
(904) 392-0378

microcomputers in transportation

Traffic Engineering Software

Field Data Collection and Analysis

APPLICATION SURVEY/TEAPAC - Real Time Data Collection and Analysis

DEVELOPER Barton-Aschman Associates, Inc.

SUMMARY SURVEY has been developed to collect, store, and analyze real-time event data on a microcomputer. It can be used on a portable microcomputer in the field, or by viewing and listening to recorded information such as videotape or tape recordings. It is quite effective for performing multiple runs of travel time and delay studies.

The primary analysis function of SURVEY is a complete assessment of a travel time and delay study, providing estimates of average speed, delay, and fuel consumption. Collected data points can also be output to a file for additional analysis by user supplied programs.

ENVIRONMENT Any computer running standard MS/PC-DOS versions 2.x or 3.x with a minimum of 512K RAM. The '87 family of math coprocessors is supported and recommended. Not copy protected.

STATUS Used by hundreds of engineers and planners in cities, planning agencies, consultancies, and educational institutions worldwide, including the City of San Jose, CA, and the Auraria Higher Education Center at the University of Colorado. List available from contact on request.

AVAILABILITY License arrangements made by contact below.

CONTACT Dennis W. Strong, P.E.
Barton-Aschman Associates, Inc.
820 Davis Street
Evanston, IL 60201
(312) 491-1000

microcomputers in transportation

Traffic Engineering Software

Field Data Collection and Analysis

APPLICATION ISDELAY

DEVELOPER David Henry, Farradyne Systems, Inc.

SUMMARY Intersection Delay (ISDELAY) is a straightforward program written in a universal subset of BASIC to measure intersection delay. The key idea behind the program is the sequential poling of each approach in turn at frequent but not necessarily equal intervals. The real-time clock within the laptop provides the means to calculate elapsed time between observations.

The laptop approach allows for observations on all approaches to the intersection simultaneously with the computer taking care of the troublesome timing of the sample periods. The observations are input to the program using a dialogue initiated by the computer asking for the number of cars stopped on each approach in turn. The observer responds by typing the number of vehicles in queue. When the "return" key is pressed, the computer records the number of vehicles observed and the time.

At the end of the data collection period, the program displays the total delay measured in vehicle-hours per hour for each approach.

As an optional final step, the user is prompted to enter the count for each of the approaches on which delay was measured. Average stopped delay is computed by dividing approach delay by the number of vehicles counted on that approach.

ENVIRONMENT Radio Shack Model-100 laptop computer or any similar computer with an onboard clock.

STATUS Program is operational and has been used by Farradyne Systems, Inc.

AVAILABILITY Software is within the public domain. Program is available as a listing from contact below. There is a charge of $20 (prepaid) for copying, mailing, and user support.

CONTACT
David Henry
Farradyne Systems, Inc.
1776 East Jefferson Street
Rockville, MD 20852
(301) 468-5568

microcomputers in transportation

Traffic Engineering Software

Field Data Collection and Analysis

APPLICATION Traffic Count Program (TCOP) - A template to reduce Manual Traffic Count data, and to calculate the Peak Hour, Peak Hour Volume and Turn Movements, and Peak Hour Factor.

DEVELOPER Wilsey & Ham (Portland)

SUMMARY TCOP is a LOTUS 1-2-3™ template to assist the traffic engineer in calculating the aforementioned values quickly and accurately. This software can be used for any intersection and can handle up to 12 turn movements. The user would only have to enter the collected data into the worksheet, and a recalculate command does the rest. Past experience has shown what used to take hours of frustrating calculations can be done in a fraction of the time. In addition, percent heavy vehicles and pedestrians are calculated. It does not require a menu or extensive knowledge of LOTUS 1-2-3™.

ENVIRONMENT IBM PC (or compatible) microcomputers with DOS 2.0 (or later), two disk drives or a hard card, and LOTUS 1-2-3™ (R 2.).

AVAILABILITY Available for charge from contact below.

CONTACT Massoud Saberian
Wilsey & Ham, Inc.
1099 S.W. Columbia
Portland, OR 97201

microcomputers in transportation

Traffic Engineering Software

Field Data Collection and Analysis

APPLICATION Long-truck Operations, Gap Availability Long-truck Turning Maneuvers at Cross Streets

DEVELOPER Traffic Operations Section, Bureau of Engineering Services, Division of Highways and Transportation Services, Wisconsin Department of Transportation, Madison, Wisconsin.

SUMMARY Tests intersection capacity to accommodate long truck arrivals utilizing five different intersection control configurations. The model simulates gap availability in cross traffic stream opposing long trucks which must encroach into the oncoming lane in order to complete the turning maneuvers. The model assumes the worst case - all trucks entering a stop sign controlled intersection, turn right and encroach into the opposing traffic lane. Gaps in the arriving traffic stream are simulated by a log-probability reduction function. This program can be run for two types of conditions - ADT's of the intersecting traffic stream and estimation of actual vehicle counts. Model is especially applicable to an urban setting and is based on detailed field operations.

ENVIRONMENT Operational on IBM Personal Computers and other compatible systems. Written in Advanced BASIC Language.

STATUS Operational.

AVAILABILITY Available from the contact below.

CONTACT Philip DeCabooter, P.E.
Chief Traffic Operations Engineer
Wisconsin Department of Transportation
P.O. Box 7916
Madison, WI 53707-7916
(608) 266-0150

microcomputers in transportation

Traffic Engineering Software

Field Data Collection and Analysis

APPLICATION Traffic Count Editing Procedure

DEVELOPER New York State Department of Transportation

SUMMARY New York State has developed a procedure for editing traffic counts on a microcomputer. The procedure reads the count data, allows for manual or automatic editing of the hourly count data, summarizes hourly data to calculate average hourly data, applies an axle correction factor, and seasonally adjusts the data to calculate an estimated AADT. The program also performs checks of the hourly count data against statewide averages of these hourly figures, and graphs the results. The procedure was developed to operate with the Symphony program. We are currently revising the procedure to operate as part of an ORACLE database.

ENVIRONMENT The program runs on an IBM AT with 512K in conjunction with Symphony. The revised procedure will require ORACLE.

AVAILABILITY The editing procedure is available free from the contact. Symphony or ORACLE must be purchased separately.

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
David C. Fifield
(518) 457-2811

microcomputers in transportation

Traffic Engineering Software

Field Data Collection and Analysis

APPLICATION Travel Time and Delay Study

DEVELOPER City of Bellevue, Washington
Traffic Engineering Division

SUMMARY The program utilizes SMART™ spreadsheet to process and to analyze field data collected during average test-car travel time and delay studies. The program consists of a one-menu system which can evaluate up to 20 roadway sections with 21 runs. The outputs in-include standard overall summary and graphs for delays, travel time, and speed. The program also estimates the arterial and section level of service using the 1985 Highway Capacity Manual arterial procedures. An optional statistical summary is also available to determine the standard deviation, the level of confidence, and the minimum sample size of the field data. The program has the capability to do before and after study evaluation and summarizes the results in a statistical report and graphs. The program is well-documented with examples and field data worksheet.

ENVIRONMENT IBM-PC, XT (or compatible) with PC DOS 2.0 or higher and SMART™ system version 3.0 or higher; 132-column or compressed print capability printer. Hard disk system recommended.

STATUS Used by cities of Washington State.

AVAILABILITY Free by sending two formatted DSDD diskettes and a self-addressed, stamped mailer.

CONTACTS Fred Liang or Dirk Mitchell
City of Bellevue
Traffic Engineering
11511 Main Street
P.O. Box 90012
Bellevue, WA 98009-9013
(206) 453-5361

PARATRANSIT PLANNING AND OPERATIONS SOFTWARE

microcomputers in transportation

Paratransit Planning and Operations Software

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 D. Coverdale
BISPAC Systems
P.O. Box 580
9256 Madison Ave.
Orangevale, CA 95662
(916) 988-1111

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 by a developer for 8 school systems in North Carolina. Used on-site in 3 school systems in North Carolina by local personnel. User assistance manual prepared; training by developer required.

CONTACT

Robert L. Martin, P.E.
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 School Bus Routing System (SBRS)

DEVELOPER Roger Creighton Associates Incorporated (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 3 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. A fleet scheduling module interactively assigns routes to buses and graphs the results.

(2) SBRS support programs include:

Grade Advancement Program (GAP) advance students from grade to grade and school to school in preparation for next year's school bus routing.

Address Guide System (AGS) provides for automatic assignment of students to school building and bus stop on the basis of their home address and grade. AGS has an on-line module that lets you use the microcomputer to look up school and bus stop assignments in response to telephone calls.

Rider File Options (RFO) finds single riders or groups of riders. Groups can be specified by addresses (street names and house number ranges), by school, by grade, by bus stop, by bus number, and by combinations of these and other factors. This is especially useful when studying changes in enrollment areas. RFO also identifies riders transferring from one or more buses to one or more shuttle buses and lists their names.

Parent Letters/Student Tickets (PL/ST) sends either letters or bus passes to parents. Letters can be pre-printed or entered via built-in word-processing program. Letters or passes can be sent to all students, or to any sub-group specified by the user.

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

STATUS Operational in school districts in Massachusetts, New York, Pennsylvania, Virginia, Illinois, Arizona, Indiana, Ontario, and Manitoba.

CONTACT Roger Creighton Associates Incorporated
274 Delaware Avenue
Delmar, NY 12054
(518) 439-4991; 1-800-433-5530 (outside NY)

microcomputers in transportation

Paratransit Planning and 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 D. Coverdale
BISPAC Systems
P.O. Box 580
9256 Madison Ave.
Orangevale, CA 95662
(916) 988-1111

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION 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 Mr. Peter L. Vetere
KETRON, Inc.
Great Valley Corporate Center
350 Technology Drive, Suite 20
Malvern, PA 19355
(215) 648-9000

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. Single-user or multi-user (Novell) versions. 256K RAM, hard disk drive, and 132-column printer. No other software licenses for interpreters, data base systems, or utilities are required.

STATUS Used by SPAN in Denton, TX, and the City of Burbank, CA.

AVAILABILITY Object code license available for sale (IBM 360K diskettes and manual). See contact below. Demo available for a small fee.

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 ACCES: Client Registration/Automated Scheduling System
DISPATCH-A-RIDE: Client Registration/Computer-Assisted Scheduling

DEVELOPER GIRO, Inc., Montreal, Quebec/Multisystems, Inc. Cambridge, MA

SUMMARY ACCES is an advanced, fully-automated scheduling system for paratransit and can handle any size fleet and client base. Developed by GIRO, Inc. and marketed, customized, and installed in the U.S. by Multisystems, the system features rapid access to client, vehicle, trip request, and tour information. ACCES can schedule trips immediately (while the client is on the phone) or at a later time (if call-taking and scheduling functions are separated). ACCES features extensive error checking and generates a battery of reports on clients, trips, and aggregate statistics.

DISPATCH-A-RIDE is a client-registration and computer-assisted scheduling system for small paratransit operations. The system accommodates standing orders and individual trips and offers two means of helping the scheduler assign trips. First, it produces a listing of trip requests that are sorted by time and zone. Second, it has a screen that functions as a ride board by displaying trip assignments on all vehicles for a requested day and time period. DISPATCH-A-RIDE also produces driver sheets and two dispatch sheets (by client name and by time). DISPATCH-A-RIDE features ad-hoc query capabilities (from screens or the operating system) via INFORMIX DBMS and provides extensive operations and billing reports.

ENVIRONMENT The single-user versions of ACCES and DISPATCH-A-RIDE run on IBM PC/AT or compatibles; hard disk required. The multi-user versions of DISPATCH-A-RIDE run under XENIX 3.0 (e.g., on an Altos 586), SCO XENIX System V (e.g., on an IBM PC/AT to which terminals can be attached), and UNIX System V (e.g., on an Plexus P/55).

STATUS ACCES is installed in Montreal, Toronto, and Sherbrooke, Quebec and is currently being installed by Multisystems for SEMTA in Detroit. DISPATCH-A-RIDE is installed for the Norwalk (CT) Transit District's paratransit operation.

AVAILABILITY ACCES is available in the United States as proprietary software from Multisystems, and is available elsewhere from GIRO. DISPATCH-A-RIDE is available as proprietary software from Multisystems.

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

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION MIS: Management Information System for Paratransit Services

DEVELOPER BC ENTERPRISES (formerly Bucher & Cope), Amherst, Massachusetts

SPONSOR BC ENTERPRISES

SUMMARY The software package is called PAX-1 for the peace which it will bring to the paratransit operation. 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.

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, preserving the investment when expanding from single user to multi-user capabilities. The source code is available and may be purchased if desired. It is in a very high level database language. The system has practically unlimited capacity to expand with appropriate hardware systems. An extremely friendly and powerful query program provides selecting, totalling and unlimited constraints on any field in the query. Queries can be sent automatically to the screen, the printer or a file. Because the software is written in Dataflex, it is easily customized. The system is fully menu-driven from start to finish. This software will run on both single user IBM-PCs and multi-user systems utilizing 15 terminals and hundreds of vehicles. Training is available upon request. The software was written by programmers with ten years of paratransit management experience. A VCR demonstration tape is available for viewing upon request.

STATUS 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.

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

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION Paratransit Management and Information System

DEVELOPER New Alternatives Software, a Division of New Alternatives, Inc., Chicago, Illinois and Winnebago County Paratransit System, Rockford, Illinois

SUMMARY The Paratransit Management and Information System has six modules. The Registered Riders module contains basic identification and eligibility information. The Subscription Trip module has pickup and delivery information for those registered riders who are eligible and have requested such trips. The Donor module includes information about individuals and organizations who have made financial contributions to the paratransit agency. The Inventory module tracks all supplies and parts by recording deliveries, use, and reorder points. The Vehicle Work Orders module is under development.

All modules are written using a database management system that accommodates either a single user or multi-users connected by a local network area. To the extent possible, every module is menu-driven. A series of status reports are included on the menus and there is a report generator which allows the user to prepare customer reports.

ENVIRONMENT Operates on MS-DOS or PC-DOS systems with at least one floppy disk drive and a hard drive. Tested on machines with 8086, 8088, 80186, and 80286 microcomputer processor chips. Operates on Novell, 3-Com, and PC-Network Local Area Networks.

STATUS Five of the six application modules are operational and in use at the Winnebago County Paratransit System in Rockford, Illinois.

AVAILABILITY Available from contact listed below.

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

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION PARMIS: Paratransit Management Information and Scheduling System

DEVELOPER KETRON, Inc.

SUMMARY 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. No programming knowledge is needed to operate PARMIS.

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 or which allow vehicles to serve the same station areas. Trip roster and schedule are done simultaneously when on-line. The second supports systems which accept (on-line) all requested demands for trips and assign the trips to scheduled drive trip sheets (SDTS) the day before service delivery. 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.

ENVIRONMENT Requires dBASE II™ or dBASE III™ or dBASE III PLUS (Multi-user) as the data base management system. IBM-PC-XT or IBM PC-AT as file server. Networked system used for multi-user applications.

STATUS Installed at Surrey Services for Seniors, Wayne, IN.

AVAILABILITY For sale from contact below.

CONTACT
John N. Balog
Senior Associate, Transportation Planning
KETRON, Inc.
Great Valley Corporate Center
350 Technology Drive, Suite 20
Malvern, PA 19355
(215) 648-9000

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION SST: Special Service Transit System

DEVELOPER Transportation Systems Center, Taurio Associates, Texas State Department of Highways and Public Transportation

SUMMARY This public-domain, menu-driven dBASE II application automates the reservation and reporting functions common to most small paratransit providers. SST maintains a file of clients, and allows standing client reservations as well as single trip reservations. Reporting features include the generation of driver itineraries (pick-up and drop-off sequences), the summarization of operations with respect to various client demographics, and monthly reports on services provided.

SST is easy to use in that the user is prompted for all necessary input, and possible choices are presented in menus. This program may be easily adapted (by one well-versed in dBASE II programming) to meet your specific needs. The user's guide is available separately, and it is suggested that you review this document before acquiring the program.

ENVIRONMENT Inputs: General client information, client funding sources, trip mileage data, vehicle-related information, standing- and single-trip reservations. IBM PC or compatible, 256 Kb RAM, 2 floppy disk drives or one hard disk and one floppy disk drive, an Epson-compatible 80-column printer, and dBASE II version 2.4 or later. A hard disk is highly recommended.

STATUS Operational. A dBASE III version, in development under the sponsorship of the Texas State Department of Highways and Public Transportation, is expected to be available in the Summer of 1987.

CONTACTS

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

Carl Thor
PC-TRANS
University of Kansas
Transportation Center
Lawrence, KS 66045
(913) 864-5658

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 9,999 units of service per year for each of the 60 available (user-defined) services and 10 funding sources (titles).

This software 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 user-definable. Monthly and yearly reports feature such information as service unit totals, totals per center, volunteer units, unduplicated recipients, new clients by ethnic origin, no-shows, etc.

ENVIRONMENT IBM XT/AT or compatible computer with PC-DOS. Single-user or multi-user (Novell) versions. 256K RAM, hard disk drive, and 132-column printer. No other software licenses for interpreters, data base systems, or utilities are required.

STATUS Used by SPAN in Denton, TX

AVAILABILITY Object code license available for sale (IBM 360K diskettes and manual). See contact below. Demo available for a small fee.

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 Match - A Rideshare Facilitation Program

DEVELOPER Linda Kieffer - Upgraded and modified from a program written in dBASE II running under CP/M.

SUMMARY "Match" is a singler user program written in dBASE III Plus. It is based on a grid system with the entire service area divided into numbered grids. The commuters are stored in the data base with information concerning their home grid, work grid, work begin time, work end time, and driver/rider preference. "Match" matches the commuters as they are entered based on home grid, work grid and work begin time and produces and stores an ID number and a match code. If no primary match is found, a secondary process tries to match using the eight surrounding home grids.

Using this menu driven system the user can enter, edit and delete records in the data base or produce reports keyed on work grid, home grid, work begin time, commuter ID number or match code. Rematching occurs when a commuter is deleted or edited. The program is proceduralized for speed and well-documented.

ENVIRONMENT MS-DOS, IBM PC or compatible using either a two floppy or hard disk drive system.

STATUS Operational at Spokane Transit Authority Rideshare Program, Spokane, Washington.

AVAILABILITY Available from contact below.

CONTACT

Teresa Kelley
STA Rideshare Program
West 1229 Boone
Spokane, WA 99201

Eastern Washington Univ.
Dr. Ray Hamel
Computer Science Department
Mail Stop 86
Cheney, WA 99004

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION Rideshare Matching System (RMS)

DEVELOPER DeShazo, Starek & Tang, Inc.

SUMMARY RMS is a menu-driven program (for use with dBASE III Plus) designed to match potential carpoolers and/or vanpoolers. The criteria for identifying a match are based on distances between origin points (the home), distances between destination points (the work place), starting times at work, and quitting times at work. The user can examine statistics about the pool of potential ridesharers and produce letters listing the best matches. Mailing labels and database listings can also be generated.

ENVIRONMENT IBM PC, XT, AT or compatible, with 512K RAM, hard disk recommended. Requires dBASE III Plus.

AVAILABILITY Program and training available from contact below.

STATUS Operational at Central Oklahoma Transportation and Parking Authority, Oklahoma City, OK

CONTACT
Ken Cervenka
DeShazo, Starek & Tang, Inc.
330 Union Station
Dallas, Texas 75202-4802
(214) 748-6740

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION Ridesharing Data Processing - "POOLMATCH"

DEVELOPER Jesse Glazer, Steve Kanya, Kendra Cole, and other staff of Crain & Associates Systems Development Company

SUMMARY POOLMATCH is an on-line data processing system that performs all of the data processing functions normally required by areawide and private-employer ridesharing organizations. For example:

- o On-line maintenance of a file of commuters (applicants) --(up to 100,000 persons)
- o On-line or batch matching for carpools
- o On-line or batch matching for vanpools and buspools
- o On-line or batch matching for transit information
- o On-line (immediate) automatic geocoding of addresses
- o On-line maintenance of a file of employers
- o Vanpool driver/rider rosters and vanpool planning tools
- o Special programs for "Personalized matching" efforts
- o Evaluation statistics for performance monitoring
- o New features for TMA's and suburban office centers
- o Special capabilities to support remote users
- o 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 immediate automatic address geocoding, and the most comprehensive transit information now availabale.

POOLMATCH can be purchased as a complete package--including hardware, software, installation, training, and maintenance--or the software can be purchased separately.

ENVIRONMENT IBM/PC (single-user) or Altos (multi-user) microcomputers. Also available for portable computers and some minicomputers.

STATUS First installed 1981. Operating at Ridefinders (Richmond, VA) and 14 other ridesharing agencies, private employers, and TMAs.

CONTACT Jesse Glazer
Crain & Associates Systems Development Co.
2007 Sawtelle Blvd. - Suite 4
Los Angeles, CA 90025
(213) 473-6500

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 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) 648-9000
(Micro- and mini-computer versions of CAFES)

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 Three-year operating history operated by three 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

Melody Macary
Administrative Assistant
The Rideshare Company
216 Main Street
Hartford, CT 06106
(203) 527-4472

microcomputers in transportation

Paratransit Planning and Operations Software

APPLICATION 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 Systems are operational at Sullivan County Transit Systems, Inc., Claremont, NH and Home Health Care & Community Services, Keene, NH.

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

UTILITIES AND MISCELLANEOUS MICROCOMPUTER SOFTWARE

Utilities and Miscellaneous Microcomputer Software

APPLICATION MicroSURVEY

DEVELOPER MVA Systematica

SUMMARY MicroSURVEY is a comprehensive survey analysis package, including:

- Data Editing
- Data Correction
- Record Manipulation
- Cross-Tabulation
- Regression Analysis

The package can handle hierarchic records (as in a household survey) or fixed-length records. In complements the MicroTRIPS transportation package.

A companion package, SMIS, is available for survey fieldwork administration.

ENVIRONMENT IBM PC-DOS, MS-DOS, and most other computers, including mainframes.

STATUS Over 60 users worldwide.

AVAILABILITY For sale from contacts below.

Callow Assoc., 11868-D Sunrise Valley Drive, P.O. Box 2893, Reston, VA 22090, Telephone: (703) 476-0001

PAWA-Winkelmann & Assoc., 12660 Coit Road, Suite 200, Dallas, TX 75251, Telephone: (214) 661-9406

Kittelson & Assoc., 512 SW Broadway, Portland, OR 97205, Telephone: (503) 228-5230

Kimley-Horn, 1200 E. Hillcrest Street, Suite 301, Orlando, Fl 32803, Telephone: (305) 898-1511

Fehr & Peers Assoc., 3685 Mt. Diablo Blvd., Suite 200, Lafayette, CA 94549, Telephone: (415) 284-3200

Kaku Assoc., 1427 Santa Monica Mall, Suite 201, Santa Monica, CA 90401, Telephone: (213) 458-9916

EBASCO Services, 91st Floor, 2 World Trade Center, New York, NY 10048, Telephone: (212) 839-1422

RVA Ltd., 160 Duncan Mill Road, Don Mills, Ontario M3B 1Z5, Telephone: (416) 445-4360

OVERSEAS

MVA Systematica, MVA House, Victoria Way, Working, Surrey GU21 1DD UK, Telephone: +44 4862-28051

Utilities and Miscellaneous Microcomputer Software

APPLICATION MVMACH

DEVELOPER MVA Systematica

SUMMARY MVMACH is a comprehensive license plate matching program for O-D or parking surveys. It has a large capacity, handles multiple screenline and cordon crossings, and includes its own sort utility. Features include matching of partially correct recordings and time constraints of matches.

ENVIRONMENT IBM PC-DOS, MS-DOS, and most other computers, including mainframes.

STATUS Over 20 users in first year of release.

AVAILABILITY For sale from contacts below.

Callow Assoc., 11868-D Sunrise Valley Drive, P.O. Box 2893, Reston, VA 22090, Telephone: (703) 476-0001

PAWA-Winkelmann & Assoc., 12660 Coit Road, Suite 200, Dallas, TX 75251, Telephone: (214) 661-9406

Kittelson & Assoc., 512 SW Broadway, Portland, OR 97205, Telephone: (503) 228-5230

Kimley-Horn, 1200 E. Hillcrest Street, Suite 301, Orlando, FL 32803 Telephone: (305) 898-1511

Fehr & Peers Assoc., 3685 Mt. Diablo Blvd., Suite 200, Lafayette, CA 94549, Telephone: (415) 284-3200

Kaku Assoc., 1427 Santa Monica Mall, Suite 201, Santa Monica, CA 90401, Telephone: (213) 458-9916

EBASCO Services, 91st Floor, 2 World Trade Center, New York, NY 10048, Telephone: (212) 839-1422

RVA Ltd., 160 Duncan Mill Road, Don Mills, Ontario M3B 1Z5, Telephone: (416) 445-4360

OVERSEAS

MVA Systematica, MVA House, Victoria Way, Woking, Surrey GU21 1DD, UK, Telephone: (+44) 4862-28051

Utilities and Miscellaneous Microcomputer Software

APPLICATION SADISTIC STATISTICS (VERS 1.4): General Statistical Analysis

DEVELOPER Kenneth Cypra, Ph.D., P.E.

SUMMARY SADISTIC STATISTICS is an integrated set of statistical analyses tools which is supported by database editing features. SADISTIC STATISTICS now has a utility for import/export of files to APPLE-WORKS, thereby permitting the use of APPLEWORKS' powerful database editing capabilities. Among the statistical programs are:

- o Straight and cross tabs
- o One- and two-way ANOVA
- o Scatter diagram
- o Product-moment correlation
- o Regressions
- o Data transformations
- o Student's t and chi-square tests

ENVIRONMENT Apple II family and compatibles (ProDOS)
IBM-PC (mid-1987)

STATUS Operational. Used by author and others.

AVAILABILITY Available from author at $59.95 including non-copy protercted disk and documentation.

CONTACT Kenneth Cypra
932 Braemer Road
Flossmoor, IL 60422

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, ITT, and Leading Edge. 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; and California State University, Sacramento.

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

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 Daytona Beach, Florida.

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

Utilities and Miscellaneous Microcomputer Software

APPLICATION HWP - Highway Work Permits

DEVELOPER David Woodin, P.E., New York State Department of Transportation

SUMMARY The Highway Work Permit system (HWP) is a menu-driven program which is used to issue highway work permits. The program also has features which allow one to monitor the status of permits and to generate various types of financial and work accomplishment type reports.

ENVIRONMENT Requires IBM PC or compatible with a hard disk. Uses PC DOS 3.10 or higher. The program was written in dBASE III PLUS. The program will be available in a compiled version by summer 1987. A minimum of 512K memory is desirable.

STATUS Operational at 10 regional NYSDOT permit offices in Albany, Utica, Syracuse, Rochester, Buffalo, Hornell, Watertown, Poughkeepsie, Binghamton, and Hauppauge.

AVAILABILITY Available free from the contact below. This program would require some modifications in order to be transferable to other agencies.

CONTACT David C. Woodin, P.E.
New York State Department of Transportation
1220 Washington Avenue, Bldg. 5, Room 319
Albany, NY 12232
(518) 457-6186

Utilities and Miscellaneous Microcomputer Software

APPLICATION t-log Time Accounting System

DEVELOPER Dobbins, DeGuire & Tucker, P.C.

SUMMARY Automated time accounting for hard-disk PC's allows easy recording of time usage for system utilization and cost accounting purposes. The system requires the user to log-on with user ID, charge code, and other data when processing any application. Log-off is entirely transparent to the user. System maintains billing data for per-hour charge and minimum billing time interval (in minutes). Billing report shows log-on and log-off times, elapsed time, and billed charges for each charge code. Complete user manual.

ENVIRONMENT IBM PC or compatibles under MS or PC-DOS with hard disk and minimum of 256K RAM.

STATUS Used by contact organization below and by several other professional organizations (names and addresses available upon request).

AVAILABILITY Proprietary software available from contact below.

CONTACT Paul Sepp
Dobbins, DeGuire & Tucker, P.C.
s3819 Stephens, P.O. Box 5026
Missoula, MT 59806-5026

Utilities and Miscellaneous Microcomputer Software

APPLICATION Self-instruction on the statistical methods of identifying hazardous "entities" (road sections, intersections, drivers, etc.) and estimation of treatment effect.

DEVELOPER Safety Studies Group

SPONSOR Transport Canada

SUMMARY This is a tutorial for self-instruction and exploration. It consists of four parts. In the first, the user "creates" the system which consists of up to 1000 "entities," their long-term accident rate, and exposure. On this basis an accident history for each entity is randomly generated. In the second part, the user uses the accident history to select entities for inspection. The program tells the user how many of the selected entities are indeed deviant. On the third part, the selected entities are subjected to a treatment of a given safety effect. An "after" accident history is then generated. The estimate of treatment effect as it would appear in a "before-and-after" study is calculated. An estimate obtained by a novel method is also given. The last part of the program repeats steps 2 and 3 so that conclusions can be based on a large number of "studies."

ENVIRONMENT Operates on the IBM PC with a minimum of 256K RAM and a single 360K disk drive. Configured for both the IBM Colour Graphics Card and the Hercules Monochrome Graphics Card.

STATUS Operational. Currently being used by universities and provincial/State highway departments.

AVAILABILITY Available free from the contact below.

CONTACT
E. Hauer
Safety Studies Group
Department of Civil Engineering
University of Toronto
Toronto, Ontario
CANADA M5S 1A4
(416) 978-5976

Utilities and Miscellaneous Microcomputer Software

APPLICATION FLEXIGRAPHIX

DEVELOPER Walter H. Keller, Jr., Inc.

SUMMARY FLEXIGRAPHIX is a computer-aided mapping and graphics program designed to aid the user in producing quality report and presentation graphics. FLEXIGRAPHIX combines many features found in expensive CADD programs, yet is surprisingly easy to use. FLEXIGRAPHIX is unique in that digitizing is performed using a plotter (and optional mouse) as the digitizer--no digitizing tablet is required. This allows the user to place an original sketch or photocopoy directly on the plotter deck to trace. Features of FLEXIGRAPHIX include:

- o Complete Mapping and Labeling overlay
- o Arcs, fillets, multiweight lines, multiple line types and link smoothing enlargement and reduction, simplified editing and rotation
- o Computerized planimeter and distance measuring
- o Arcs, fillets, multiweight lines, multiple line types and link smoothing enlargement and reduction, simplified editing and rotation
- o Computerized planimeter and distance measuring
- o Block and Quick Labeling
- o Auto file saving in the event of power loss
- o Minimum training time

ENVIRONMENT FLEXIGRAPHIX 4.0 requires an IBM PC, XT, or AT with at least 512K memory, two floppy disk drives or hard disk, and a Hewlett-Packard graphics plotter. Printer and Microsoft compatible mouse optional.

STATUS FLEXIGRAPHIX is currently in use by planning departments in Delray Beach, Deerfield Beach, and Pompano Beach, Florida; Geography Departments at East Carolina University and Kantana, Ontario; and consulting firms in New Jersey, Pennsylvania, Florida, and California.

AVAILABILITY License, program disk, and user's manual are available from contact below. Price is $450 plus any applicable taxes.

CONTACT Walter H. Keller, Jr., Inc.
P.O. Box 9740
Coral Springs, FL 33075
(305) 755-3822

TRADEMARKS

Clipper™ is a trademark of Nantuckett Corp.

Condor 3™ is a trademark of Condor Computer Corp.

DataFlex™ is a trademark of Data Access Corp.

dBASE II™, dBASE III™, dBASE III PLUS™ are trademarks of Ashton-Tate

DB Master™ is a trademark of Stoneware Microcomputer Products

Fleet Controller™ is a trademark of Fleet Computing International, Inc.

INFORMIX™ is a trademark of Relational Database Systems, Inc.

KeyWorks™ is a trademark of Alpha Software Corp.

KnowledgeMan™ is a trademark of Micro Data Base Systems, Inc.

Lotus 1-2-3™ and Lotus Symphony™ are trademarks of Lotus Development Corp.

MDBS™ and MDBS III™ are trademarks of Micro Data Base Systems, Inc.

Microtrans™ is a trademark of Microtrans Corp.

NCAP™ is a trademark of Professional Solutions, Inc.

PathPro™ is a trademark of Transware Systems

Rbase 4000™, Rbase 5000™, and R:BASE System V™ are trademarks of Microrim Corp.

Relational Report Writer (R&R)™ is a trademark of Concentric Data Systems

SMART™ is a trademark of Innovative Software

SuperCalc 2 and 3™ are trademarks of Sorcim Corp.

TIGER™ is a trademark of Professional Solutions, Inc.

TMODEL™, TMODEL-EX™, TMODEL:UTILITY™ are trademarks of Professional Solutions, Inc.

TransPro™ is a trademark of Transware Systems

Unify™ is a trademark of Unify Corp.

UNIX™ is a trademark of Bell Labs

VisiCalc™ is a trademark of VisiCorp.

DIRECTORY OF SOFTWARE SOURCES

Association of Bay Area Governments
Poulicos Prastacos or
Pertti Karjalainen
P.O. Box 2050
Oakland, CA 94604
(415) 464-7923
page 71

Barton-Aschman Associates, Inc.
Ray Rebeiro
180 South Lake Avenue
Pasadena, CA 91191
(818) 449-3917

Gordon Schultz
1400 K Street N.W.
Washington, D.C. 20005
(202) 289-0519

Dennis W. Strong, P.E.
820 Davis Street
Evanston, IL 60201
(312) 491-1000
pages 52, 65, 117, 139, 140, 141, 160, 172

Bather Belrose Boje, Inc.
William M. Belrose
7101 York Avenue South
Minneapolis, MN 55435
(612) 921-3303
pages 112, 154, 168

BC Enterprises
Paul McOwen, Associate
1 East Pleasant Street
Amherst, MA 01002
(413) 549-7480
pages 33, 185

Bernardin, Lochmueller & Associates, Inc.
Vincent L. Bernardin, AICP
Hulman Building - Suite 606
20-24 N.W. 4th Street
Evansville, IN 47708
(812) 426-1737
pages 43, 59, 80

BISPAC Systems
Gary Coverdale or Bill Cook
P.O. Box 580
9256 Madison Ave.
Orangevale, CA 95662
(916) 988-1111
pages 6, 178, 181

James A. Bonneson
Transportation Engineer
8960 Underwood Ave., #315
Omaha, NE 68114
(402) 399-1074
page 98

Greg Bullock
11 Dublin Ct.
Pleasant Hill, CA 94523
(415) 933-1830
page 127

Capital Dist.Transportation Committee
Glenn Posca
5 Computer Drive West
Albany, NY 12205
page 79

John R. Caswell, P.E., Consultant
P.O. Box 98
Lincoln Center, MA 01773
(617) 259-0830
page 63

Center for Urban Analysis, Santa Clara County
Frank Lockfeld, Director
70 West Hedding Street
San Joes, CA 95110
(408) 299-3285
pages 61, 72, 73

Cestaro & Company, Inc.
Cynthia J. Cestaro
P.O. Box 1005
Colonial Heights, VA 23834
(804) 526-5676
page 151

CFA
Mike Ohlinger
205 W. North Ave.
Villa Park, IL 60181
(800) 437-6001 or (312) 279-0880
page 9

Hobih Chen
2251 Pimmit Dr. #315
Falls Church, VA 22043
(913) 864-5658
page 134

City of Bellevue
Fred Liang or Dirk Mitchell
Traffic Engineering
11511 Main Street
P.O. Box 90012
Bellevue, WA 98009-9013
(206) 453-5361
page 177

City of Lakewood
Robert Kochevar
Traffic Engineering Division
445 South Allison Parkway
Lakewood, CO 80226-3105
(303) 987-7980
pages 116, 126, 164

Classic Development Consultants Eastern U.S.
John Trant
4136 Stanley St.
Pittsburgh, PA 15207
(412) 621-2220
page 110

COMSIS Corporation
Larry Seiders
2131 Landings Drive
Mountain View, CA 94043
(415) 964-5911
or
Mark Roskin
11501 Georgia Avenue
Wheaton, MD 20902
(301) 933-9211
pages 51, 83

Crain & Associates Systems Development Co.
Jesse Glazer
2007 Sawtelle Blvd. - Suite 4
Los Angeles, CA 90025
(213) 473-6500
page 192

Roger Creighton Associates, Inc.
Douglas M. Hamlin or Charles Manning
274 Delaware Avenue
Delmar, NY 12054
(518) 439-4991;
1-800-433-5530 (outside NY)
pages 10, 54, 101, 180

Kenneth Cypra
932 Braemer Road
Flossmoor, IL 60422
page 200

DeShazo, Starek & Tang, Inc.
Larry Cooper, Brian Jahn, or Ken Cervenka
330 Union Station
Dallas, TX 75202-4802
(214) 748-6740
pages 70, 100, 191

M.M. Dillion Ltd.
Bob Lewis
47 Sheppard Avenue East
Toronto, Ontario
Canada M2N 6H5
(416) 229-4646
pages 53, 91, 121

DK Graphics
8025 State Street Rd.
Port Byron, NY 13140
(315) 776-4202
page 156

DKS Associates
Warren Tighe
1419 Broadway, Suite 700
Oakland, CA 94612
(415) 763-2061
page 132

Dobbins, DeGuire & Tucker, P.C.
Paul Sepp, CPA
3819 Stephens
P.O. Box 5026
Missoula, MT 59806-5026
(406) 721-4550
pages 19, 20, 24, 204

Philip G. Dorcas & Associates
4133 Huckleberry Drive
Fort Worth, TX 76137
(817) 847-0044
pages 8, 183, 189

East Montgomery County SHARE-A-RIDE
Marie Anderson
P.O. Box 513
Burtonsville, MD 20866
(301) 953-2808
page 193

Eastern Washington University
Dr. Ray Hamel
Computer Science Department
Mail Stop 86
Cheney, WA 99004
page 190

ENDI
P.O Box 1686
Leesburg, VA 22075
(703) 777-8414
page 99

Ernst & Whinney
Mr. Paul T. Lauria
1225 Connecticut Ave., N.W.
Washington, D.C. 20036
(202) 862-6013
page 13

Farradyne Systems, Inc.
David Henry
1776 East Jefferson Street
Rockville, MD 20852
(301) 468-5568
page 173

Federal Highway Administration, HSR-30
Juan M. Morales, P.E.
Highway Research Engineer
6300 Georgetown Pike
McLean, VA 22101
(703) 285-2499
page 120

Fleet Computing International, Inc.
Paul M. Setne
P.O. Box 14698
Albuquerque, NM 87191
(505) 275-0626
page 4

Florida DOT
Gary Sokolow
605 Suwannee Street
M.S. 19
Tallahassee, FL 32399-0450
page 94

Fulton County Police Department
Officer R.A. Nixon
Crime Analysis Unit
183 Central Avenue
Atlanta, GA 30303
(404) 572-3311
page 113

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

Kenneth Hausman
c/o Bellomo-McGee, Inc.
901 Follin Lane, Suite 220
Vienna, VA 22180
page 104

Indiana Dept. of Highways
James R. Gulick, P.E.
Div. of Location & Environment
Rm. 1107, State Ofc. Bldg.
100 North Senate Avenue
Indianapolis, IN 46204
(317) 232-5305
or
David Pluckebaum
Division of Planning
Rm. 1205, State Office Bldg.
100 North Senate Avenue
Indianapolis, IN 46204
(317) 232-5460
pages 43, 59, 80

INFOTAP Bulletin Board
University of California-Berkeley
Have your modem call:
(415) 642-7088
page 3

INRO Consultants, Inc.
4950 Queen Mary Road
Suite 436
Montreal, Quebec
Canada H3W 1X3
(514) 738-8336
page 52

ITRE
James Martin, P.E.
P.O. Box 12551
Research Triangle Park, NC 27709-2551
(919) 549-0541
page 76

KaWES & Associates Western U.S.
Brian Smith
2804 Beverly Boulevard
Los Angeles, CA 90057
(213) 384-7418
page 110

Walter H. Keller, Jr., Inc.
P.O. Box 9740
Coral Springs, FL 33075
(305) 755-3822
page 206

KETRON, Inc.
Dr. David N. Freeman/Peter L. Vetere
or
John N. Balog, Senior Associate
Transportation Planning
Great Valley Corporate Center
350 Technology Drive, Suite 20
Malvern, PA 19355
(215) 648-9000
pages 182, 187, 194

LAU Engineering, Inc.
Steve Lau, P.E.
17220 Newhope Street, Suite 204
Fountain Valley, CA 92708
(714) 968-4772
pages 97, 129, 153, 169

Massachusetts Executive Office of Transportation & Construction
Lawrence J. Harman
10 Park Plaza
Boston, MA 02116
(617) 973-7000
page 196

Metropolitan Area Planning Council
Carol W. Blair, Chief Transportation Planner
Catherine Meyers, Transportation Planner
110 Tremont Street
Boston, MA 02108
pages 78, 84

Metropolitan Transit Authority
Steve Yaffe
Service Planning
P.O. Box 61429
Houston, TX 77208
page 22

MGA
Albert L. Grover
Executive Vice-President
901 E. Imperial Highway, Suite A
La Habra, CA 90631
(714) 738-3471
page 111

MHM Associates, Inc.
1920 Ridgedale Road
South Bend, IN 46614
(219) 291-4793
pages 144, 145, 146

Microtrans Corporation
Penny L. Buttke, President
P.O. Box 636
Portland, OR 97207
(503) 223-4728
page 42

Midwest System Sciences
325 Sheridan Road
Wilmette, IL 60091
pages 69, 114

Missouri Highway & Transportation Department
Roy I. Coplen, P.E., Division Engineer
Maintenance & Traffic Division
P.O. Box 270
Jefferson City, MO 65102
(314) 751-2785
pages 150, 159

MODELISTICA
T. de la Barra or B. Perez
Apartado Postal 47709
Caracas 1041-A
Venezuela
page 46

Multisystems, Inc.
J. William Rodman, Gary Ruprecht,
Larry S. Englisher, Sr. Transportation Analysts or John Attanucci
1050 Massachusetts Ave.
Cambridge, MA 02138
(617) 864-5810
pages 1, 5, 16, 21, 29, 184

MVA Systematica
Callow Assoc.
11868-D Sunrise Valley Drive
P.O. Box 2893
Reston, VA 22090
(703) 476-0001
(Other contacts listed)
pages 50, 143, 198, 199

New Alternatives, Inc.
Rick Kuner, President
8 S. Michigan Ave., Suite 610
Chicago, IL 60603
(312) 263-2808
pages 12, 186, 201, 202

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 196

New Mexico State Highway Department
Richard Boyce
Planning Bureau
P.O. Box 1149
Santa Fe, NM 87504-1149
(505) 827-5523
page 90

New York State DOT
David T. Hartgen
Nathan Erlbaum/David C. Fifield
Technical Contacts
Data Services Bureau
1220 Washington Avenue
State Campus, Building 4
Albany, NY 12232
(518) 457-2967/457-2811

Mark O. White/David C. Woodin, P.E.
Richard E. Pratt, P.E.
Division of Traffic & Safety
Bldg. 5, Room 319
(518) 457-6186/457-7436
Albany, NY 12232
pages 68, 85, 86, 148, 149, 176, 203

Northwestern Indiana Regional Planning Commission
John Molinaro
Computer Services Dept.
8149 Kennedy Ave.
Highland, IN 46322
(219) 923-1060
page 88

Ontario Ministry of Transportation & Communications
S.W. Erwin, Traffic Signal Systems Engineer
Traffic Management & Engineering Office
1201 Wilson Avenue
Downsview, Ontario
Canada M3M 1J8
page 137

Orange County Transit District
Advanced Planning Section
Planning Department
11222 Acacia Parkway
Garden Grove, CA 92640-5208
page 44

Professional Solutions, Inc.
Route 3, Box 182
Vashon, WA 98070
(206) 463-3768
pages 57, 62, 96

Pueblo Transportation Company
Eric L. Bracke
South Elizabeth Street
Pueblo, CO 81003
(303) 543-6006
page 7

Regional Planning Council
Susan Glenn
2225 North Charles Street
Baltimore, MD 21218
(301) 554-5633
page 82

Rideshare Company, The
Melody Macary, Administrative Assistant
216 Main Street
Hartford, CT 06106
(203) 527-4472
page 195

Rutland Regional Commission
Mark Blucher, Executive Director
P.O. Box 965
Rutland, VT 05701
page 197

SAGE Management Systems Corporation
Jeff Proudfoot, Marketing Representative
156 Front Street West, Suite 600
Toronto, Ontario M5J 2L6
1-800-268-9118
pages 2, 32

SamTrans
Gregory L. Kipp, Associate Planner
945 California Drive
Burlingame, CA 94010
(415) 872-6748
page 31

San Diego Metropolitan Transit Board
Dennis Wahl, Sr. Transportation Planner
620 "C" Street, Suite 400
San Diego, CA 92101
(619) 231-1466
pages 17, 18

San Francisco Municipal Railway
K.L. (Dan) Wong, Transit Planner II
Service Planning Department
949 Presidio Avenue, #204
San Francisco, CA 94115
(415) 923-6100
page 39

SCY
7 Moss Street
Burlington, MA 01803
(617) 273-0015
page 41

SEMCOG
Anne Nolan or Tom Mullin
800 Book Building
Detroit, MI 48226
(313) 961-4266
page 34

Shreve Area Council of Governments
627 Spring Street
Shreveport, LA 71101
(318) 226-6488
pages 119, 157

STA Rideshare Program
Teresa Kelley
West 1229 Boone
Spokane, WA 99201
page 190

TIME Support Center
Department of Civil Engineering
Rensselaer Polytechnic Institute
Troy, NY 12180-3590
(518) 276-6227, Between 9:00 AM and 4:00 PM (EST)
pages 3, 11, 14, 15, 23, 25, 26, 27, 30, 36, 37, 40, 188

Timelapse, Inc.
Roy M. White
9025B 131st Place N.
Largo, FL 33543
(813) 585-4230
pages 118, 161, 163, 165

TRAAC
Robert Johnson or Jitendra Bajpai
2020 N. 14th Street, Suite 400
Arlington, VA 22201
(703) 522-2000
pages 25, 26

Transport & Road Research Laboratory
Callow Assoc.
11868-D Sunrise Valley Drive
P.O. Box 2893
Reston, VA 22090
(703) 476-0001
(Other contacts listed)
page 124

Transportation Systems Center
David Heimann
Safety & Security Systems Division
55 Broadway
Cambridge, MA 02142
(617) 494-2206 or 494-2577
page 35

Transportation Systems Planning
David L. Phipps
1032 South Shores Rd.
Jacksonville, FL 32207
(904) 399-4066
page 66

Transtek Software
P.O. Box 3067
Falls Church, VA 22043
(904) 374-4807
page 133

Transware
Edward J. Bromage
P.O. Box 190
Auburn, MA 01501
(617) 797-3470
page 56

Transware Systems
John M. Kain, AICP
42 Canyon Ridge
Irvine, CA 92715
(714) 559-4599 or 854-4689
pages 58, 64

Tulare County Public Works Department
Allen Wilson or Philip Slitor
Room 10, County Civic Center
Visalia, CA 93291
(209) 733-6645/733-6557
page 75

UNC-ITRE
Robert L. Martin, P.E./Derek Graham
P.O. Box 12551
Research Triangle Park, NC 27709
(919) 549-0541
page 179

University of California
ITS Systems Unit
107 McLaughlin Hall
Berkeley, CA 94720
(415) 642-1008
pages 102, 158

University of Florida
McTrans Center
512 Weil Hall
Gainesville, FL 32611
(904) 392-0378
pages 45, 55, 67, 74, 77, 81, 93, 95, 103, 105, 108, 109, 115, 120, 122, 123, 125, 128, 130, 131, 138, 142, 147, 162, 166, 167, 170, 171

University of Illinois at Chicago
Joseph Fazio
Urban Transportation Center (M/C 357)
Box 4348
Chicago, IL 60680
(312) 996-4820
page 109

University of Kansas Transportation Center
Carl Thor
PC-TRANS
2011 Learned Hall
Lawrence, KS 66045
(913) 864-5658
pages 3, 11, 36, 45, 67, 81, 125, 128, 130, 131, 134, 135, 136, 138, 152, 155, 167, 188

University of Toronto
E. Hauer
Safety Studies Group
Department of Civil Engineering
Toronto, Ontario
Canada M5S 1A4
(416) 978-5976
page 205

University of Washington
Mark E. Hallenbeck
Washington State Transportation Center (TRAC)
135 More Hall, FX-10
Seattle, WA 98195
(206) 543-6261
page 48

University of Wisconsin--Milwaukee
Center for Urban Transportation Studies
P.O. Box 784
Milwaukee, WI 53201
(414) 963-5787
pages 28, 38, 47, 60

Urban Analysis Group, The
James Fennessy or Edward Granzow
145 North Hartz Avenue
Danville, CA 94526
(415) 838-1363
pages 49, 61

Vector Solutions Systems Analysis Group
Trenton A. Scott
Vector Solutions Group Leader
1355 Terra Vista Lane
Colorado Springs, CO 80911
(303) 392-8746
page 7

Virginia Tech
Dr. Antoine G. Hobeika
Head, Transportation Division
Civil Engineering Department
Blacksburg, VA 24061
(703) 961-7407
page 92

Watt & Estes, Inc.
Harold N. Estes, Jr., P.E.
4926 Adams road
Chattanooga, TN 37343
(615) 842-3335
pages 106, 107

West Virginia University
Ronald W. Eck, P.E.
Department of Civil Engineering
P.O. Box 6101
Morgantown, WV 26506-6101
(304) 293-5580
pages 87, 89

Wilsey & Ham, Inc.
Massoud Saberian
1099 S.W. Columbia
Portland, OR 97201
page 174

Wisconsin Department ot Transportation
Philip DeCabooter, P.E.
Chief Traffic Operations Engineer
P.O. Box 7916
Madison, WI 53707-7916
(608) 266-0150
page 175

INDEX

☆ U.S.GOVERNMENT PRINTING OFFICE:1987-720-879/60189