Center for Microcomputers in Transportation

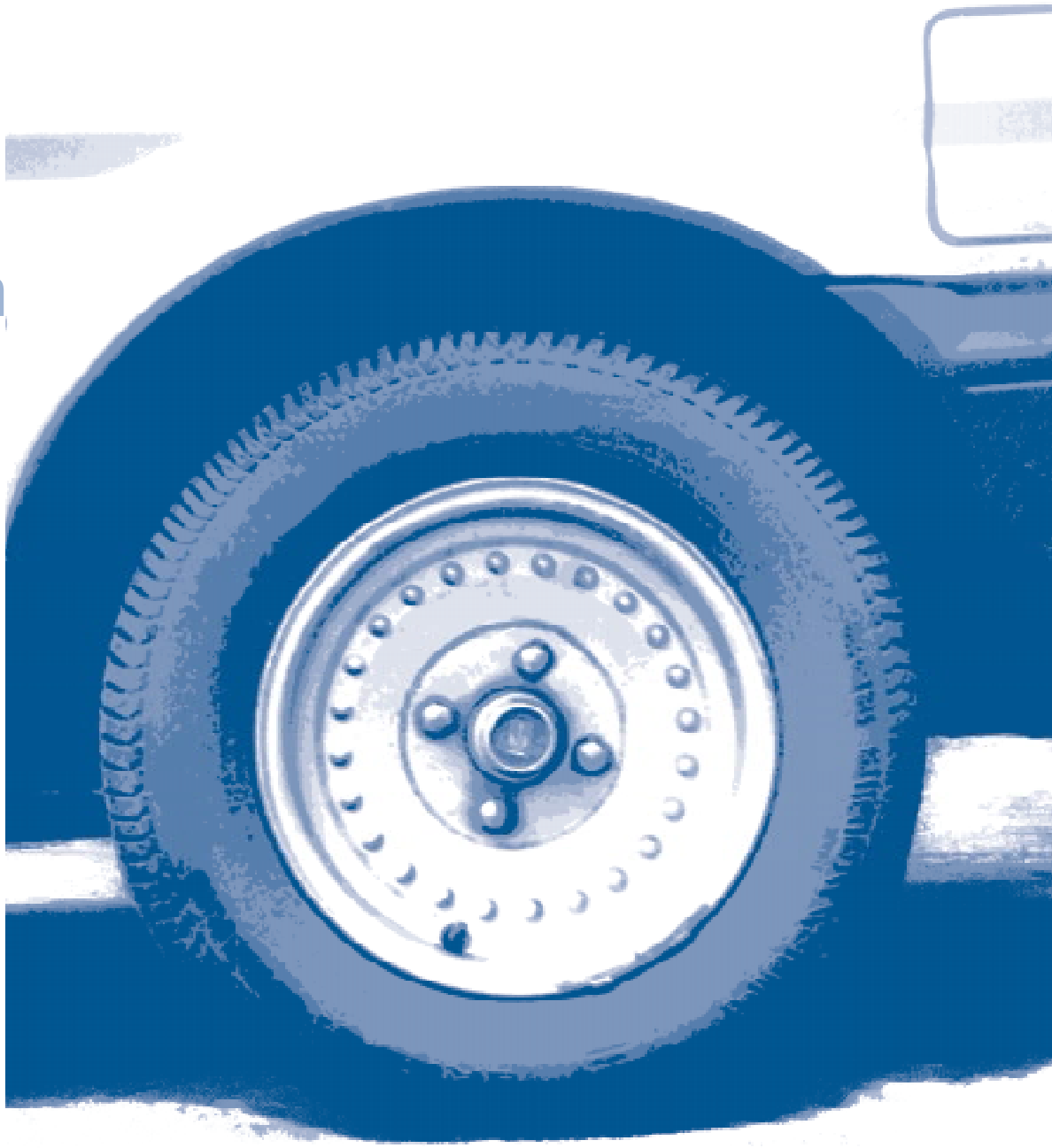
McTrans™

Newsletter Volume 11 Number 2 December 1996

The World Interchange Network (WIN) for the Transfer of Road Technology is a major vehicle for knowledge exchange on a global scale for the international road community. Drawing on cutting-edge and proven technologies WIN brings people with transportation problems together with people who have solutions. Page 2.

transportation research board

T R B is coming!



McByte

See Page 3 for a new infrastructure management tool, PerfilMap, presented in an OAS workshop hosted by McTrans; and updates in metrification status. Learn how Richmond, VA saves $4.2 million annually since installing a new traffic signal system, Page 4. There are several New Products: EZVAL, Estimax for Windows, METS, PAVESPEC, Quick-HOV, Road Surface Management System'96, Signal 94 for Windows, and Zaphers®, beginning on Page 6. Two Updates, STRUCTURES COBM and PLRF, and Traffic Synchro appear on Page 8. Coming events and training are on the last page.

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WINNING SUPPORT WITH WIN

world INTERCHANGE network

Cutting edge technology with worldwide potential

A network of networks, WIN is organized to facilitate information exchange among people who share comparable environments and common concerns. WIN adds a new dimension to existing technology transfer efforts because it enables individuals to communicate directly rather than depending on the exchange of written technical material.

Central to the concept of WIN is that the best way to share information is to interact cooperatively on the level that best suits the situation—local, regional, national or international. Using similarities in climate, terrain and economy, WIN can match technical experts with those seeking information. In short, WIN puts those with information needs into direct contact with colleagues who have solved the same, or similar, problem.

WIN is an important development for both individuals and technology transfer efforts. By promoting the exchange of road-related information and knowledge on a global scale, the dissemination and implementation of technology is accelerated. The global reach of the network makes it readily available to developed, developing and transitional countries alike. The benefits reaped through this worldwide association is more than improved access to road expertise. It also complements research and development efforts and fosters goodwill throughout the transportation community.

From concept to WIN in just two years

The World Interchange Network for the Transfer of Road Technology was approved in principle at the October 1993 PIARC Executive Committee meeting in Copenhagen and was formally launched in the November 1994 Executive Committee meeting in Madrid.

WIN was demonstrated at the World Road Congress held in Montreal, September 3 to 9, 1995. Using computers and databases, conference participants were able to sample the WIN network. Many Congress participants took the opportunity to ask questions through WIN for which they received prompt printed or faxed answers for display. Some of the resources available through WIN represent more than 4400 publications and extracted bibliographies.

Last year WIN established a permanent Secretariat in Montreal. At the moment, salaries of the staff are paid by specific donations, notably from the host province in Canada.

Located at the World Trade Centre in Victoria Square, a small office will oversee WIN operations for the next years, at least until the XXIst World Road Congress in Kuala Lumpur, Malaysia.

WIN communicates technology

WIN was organized by PIARC to connect existing technical exchange networks among institutions in the public, private, academic and nonprofit sectors. Each site, or location, is designated as a node. The purpose of each node is to foster communication by provid-

ing technical contacts for those seeking information; the nodes do not deliver consulting services.

For example, an individual or organization seeking information can contact a node through whatever technology is most appropriate: letter, telephone, e-mail, fax, or Internet. Perhaps it is an inquiry to the local node about the encroachment of traffic into neighborhoods, resulting in an out-of-state contact who found traffic measures that alleviated the problem. That contract would recommend or provide appropriate resources and information.

Once a referral has been made, it is up the client and expert to determine their best means of exchange. It might be a discussion by phone or a fax of technical data. If there is any charge involved, it is worked out between the individuals. Additionally, this structure keeps rules and bureaucracy to a minimum and makes it easier for all institutions involved to participate in road knowledge dissemination.

Turning the neighborhood traffic issue into a problem solved, a node in Australia contacted its local node asking for information on how others deal with a particular local traffic law or ordinance within metropolitan areas. Within a few hours, that node was able to provide information on the corresponding local laws in 24 major U.S. cities.

The nodes serve the important function of being intermediaries who understand the community around them, and they can bridge the gap between cultural and language differences to help bring together those who can help each other. In a sense, the function of the nodes is a smart repackaging of the question. They analyze the request based on local conditions and locate a contact(s) within their node or within another node.

Currently, there are 25 active nodes worldwide, with others scheduled to join. Their common bond is the commitment to enhance the speed and facility with which the technical advice is accessed. By combining their cooperative efforts, each node creates a connection that expands its capability. This enhances both the speed and development of new ideas throughout the international road community.

WIN forecasts true global span

Although WIN is currently undergoing a 3-year trial period, the future of WIN appears bright. The nodes continue to improve their databases and means of communications. Additional nodes are expected to come on-line soon.

Although the success of WIN does not depend upon highly technical communication, it is likely that printed materials, telephone, and manual indexes and directories will gradually give way to e-mail and electronic indexes, as well as the use of CD-ROM, electronic bulletin boards, the World Wide Web, computer file transfer, satellite broadcasts, and video teleconferencing.

To get involved, contact the WIN's Secretariat in Montreal and join as a full or corresponding member, or visit their Web site for node and other information.

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Web site:

http://www.cam.org/~win/

Adapted from World Interchange Network Debuts in Montreal, 1995.

During the last week of October **Mc*Trans*** hosted an Organization of American States (OAS) "Train the Trainers" workshop at the University of Florida. The purpose of the workshop was to train future instructors in the use of a new infrastructure management computer package called *PerfilMap.* *PerfilMap* is a tool for the analysis, planning and management of road infrastructure data which generates natural hazard vulnerability profiles for road components (road segments, bridges, drainage structures, overpasses, tunnels, etc.). *PerfilMap* uses a Geographic Information System (GIS) format to overlay transportation infrastructure data with natural hazard maps, generating a management tool of multi-thematic information analysis capabilities.

The participants, who came from seven different Latin American countries (Argentina, Colombia, Costa Rica, Chile, Ecuador, Panama and Peru) will be responsible for training other professionals in their home countries. During the workshop they discussed the importance of the reliability and security of transportation corridors in fulfilling the promise of economic expansion and improved quality of life in developing countries.

The software program *PerfilMap* was presented by the Project for the Reduction of Vulnerability to Natural Hazards of the Road Network in Central America and the Andean Countries (referred to as the OAS-ECHO-PIH Project). The Project was carried out from September 1995 through October 1996 by the Unit of Sustainable Development and Environment (formerly the Department of Regional Development and the Environment) of the OAS, in conjunction with the Pan American Institute of Highways (PIH), and with the financial support of the European Community Humanitarian Office (ECHO). The project is a contribution to the International Decade for Natural Disaster Reduction 1900-2000 (IDNDR).

PerfilMap was developed with the considerable assistance of the *Instituto Superior de Ingeniería del Transporte* (ISIT), a PIH center at the University of Cordóba, Argentina. The beta version of *PerfilMap* was tested in a number of workshops presented by the OAS-ECHO-PIH project in South and Central America to verify its applicability and reliability in the generation of vulnerability to natural hazard profiles for the transportation sector.

PerfilMap will be available from **Mc*Trans*** in the near future. For more information you may contact **Mc*Trans*.–Mc*Trans***

METRIC: What's Going On?

Did you know that 41 state highway agencies will take bids on an estimated $2.5 billion metric construction projects in 1996? In 1997, bids will be taken for $9.2 billion in metric construction projects; $13 billion will be let in 1998!

To find out more about this and other metric news, visit the Metrication Clearinghouse Online at:

http://tti.tamu.edu/metric

On their website you'll find:

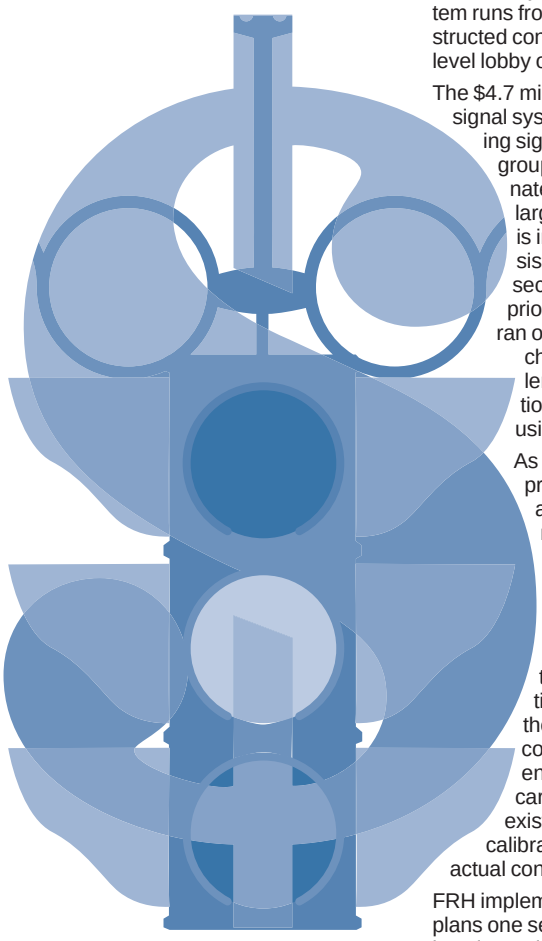
- AASHTO's Metrication Newsletter
- A Searchable Database of Metric Publications
- Key Metric Contacts–state, FHWA, federal agency, and AASHTO metric coordinators
- Links to other Metric Sites
- Clearinghouse Publications:
Metric Conversion Status of State Highway Agencies
Geometric Design Standards
- Status of Metric Legislation

Browse On By!
The purpose of the Clearinghouse is to educate the transportation community, as well as the public at large about what metrication means to them. It is a service of the American Association of State Highway and Transportation Officials.

HOW TO SAVE $4.2 MILLION A YEAR

Stephen D. Hetrick, P.E. and B. Curtis McCollough Jr., P.E. evaluate the benefits of a new traffic signal system in Richmond, Virginia.

Reprinted by permission from the June 1996 issue of ITS International newsletter.



In 1988, the city of Richmond, Virginia identified the need to evaluate alternative methods of updating its existing traffic signal control system. Responding to a Technical Steering Committee representing the city and the Virginia Department of Transportation (DOT), Frederick R. Harris, Inc. (FRH) recommended complete replacement to reflect the operational deficiencies of the existing equipment.

In April 1991, FRH was contracted to provide engineering services for a new system which was to be designed to meet exacting performance requirements in terms of delivering improved levels of traffic operations (from both drivers' and system operators' viewpoints), as well as flexibility in use and for future extensions and ease of monitoring and maintenance. Now installed and providing measurable benefits after its first full year of operation, the system runs from a specially-constructed control center in the lower-level lobby of Richmond's City Hall.

The $4.7 million Richmond CBD signal system includes 262 existing signalized intersections grouped into seven coordinated timing sections. The largest group (50 percent), is in the core CBD and consists of 181 pretimed intersections most of which, prior to the new installation, ran on three-dial, electromechanical, pretimed controllers operating in coordination on a time-of-day basis using three timing plans.

As an integral part of the project, FRH developed and installed new optimized timing plans for all the signalized intersections in the system. The TRANSYT-7F signal timing optimization program was the primary tool used to develop new timing plans and, once all the input data had been collected and coded for entry, it was possible to carry out simulations of the existing signal timing and calibrate the program to reflect actual conditions.

FRH implemented the new timing plans one section at a time, by adding plans with new cycle lengths, splits and offsets to the coordination data for each intersection in the database of the central computer. The new coordination data was then downloaded to the controller at each intersection, and the system event schedule altered to run the new plans at the appropriate times.

As each new timing was implemented, the signal operation was checked by driving the network and comparing the traffic flow, signal phasing, splits and offsets with those shown graphically on platoon progression diagrams (PPDs), which combine time-space and flow-profile diagrams to show progression bands, queuing and vehicle-flow densities for a given arterial route. Each section was then observed for several days, during which fine-tuning adjustments were made to splits and offsets, and this process continued until it was judged that the new timing plans were working optimally.

Evaluation

Evaluation of the installed system, once installed, was based on the comparison of travel times, delays, stops and fuel consumption before and after implementation. Actual data was collected for a 25 percent sample of intersections through a series of travel runs along four key arterials chosen as being representative of geographical locations and varying traffic conditions throughout the project area: Broad Street East End, Broad Street West End, Boulevard and Robinson.

The runs were made using a test vehicle equipped with the MicroFloat automated data collection and processing system, specially developed by FRH, which interfaces a laptop computer with a distance measuring device (in this case, a Nu-Metric's distance-measuring computer) and records elapsed time and distance in memory. Runs took place at the peak periods of 0700 hrs to 0900 hrs, 1130 hrs to 1330 hrs and 1600 hrs to 1800 hrs.

Using weighted values to calculate the effects of longer periods, each of the four routes evaluated experienced reductions in travel time (between nine percent and almost 14 percent); in total delays (between 14 percent and 30 percent); and stops (between 28 percent and 39 percent). The morning peak on the Broad Street West End route showed the greatest improvements, with reductions of nearly 30 percent, nearly 50 percent and 60 percent respectively.

Prior to the installation of the new system, this sector consisted of several signal-coordinated sections with no overall coordinated timing in operation between them. These sectional boundaries have now been removed.

The MicroFloat provides estimates of average fuel consumption and vehicle emissions, including carbon monoxide, hydrocarbons and nitrous oxides, using information based on the relevant characteristics of acceleration, deceleration and stops (both in number and duration). The fuel consumption model was based on data produced by the Federal Highway Administration (FHWA), again using weighted values, and the results show reductions of between 10 percent and 12 percent in fuel consumption and between five percent and 22 percent in emissions.

Estimates of the annualized system-wide benefits are based on the fact that the sections evaluated represent some 25 percent of the total number and are in intensive use for 250 working days per year. Annual savings are estimated at 326,020 vehicle/hours of delays, 495,530 vehicle/hours of total travel time, over 76 million stops and nearly 2.9 million liters of fuel.

This adds up to a total estimated annual financial saving, based on combined reductions, of $4,224,567. The calculation is based on values of $5 per vehicle/hour saved (federal minimum usage guidelines); $1.06 per vehicle stop (from the FHWA's National Signal Timing Optimization Project Summary Evaluation Report of May 1982), and an average price of $0.23 per liter of fuel (American Automobile Association figure for Virginia as of January 1996).

In addition to the savings to motorists, the City of Richmond's Bureau of Traffic Engineering now has a system which provides a far greater capability than the previous one. It has the ability to monitor and control every signalized intersection in the CBD area, and to upload or download new timing information from any of the system intersections.

The system also has the inherent capability of being expanded to accept additional intersections in the future with minimal changes at the control center. It can run multiple timing plans for sections where traffic patterns vary by time-of-day, and provide for time-of-day or manual selection to run these plans; provide a smooth transition from one timing plan to another; remove intersections from coordinated control to isolated operation, either manually or by time-of-day; and provide the capability to run specially prepared plans to accommodate traffic heading for or leaving special events in the city.

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transportation research board

TRB

76TH annual meeting

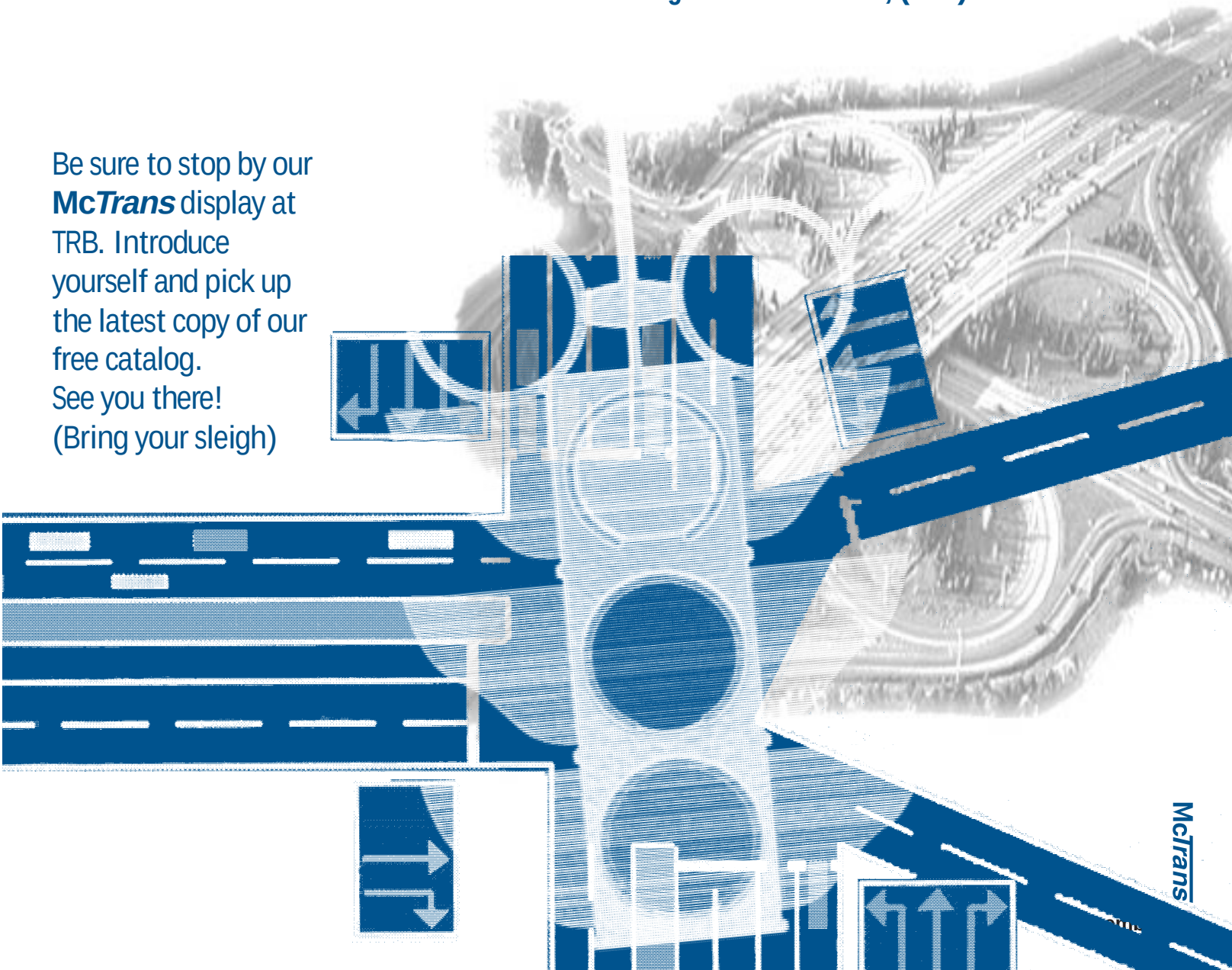
January 12-16, 1997

Information is available on the Web at

http://www.nas.edu/trb/meeting/index.html

or call the TRB Annual Meeting Information Line, (202) 334-3472

Be sure to stop by our **Mc*Trans*** display at TRB. Introduce yourself and pick up the latest copy of our free catalog.
See you there!
(Bring your sleigh)



McTrans

new products

Easy Vertical Alignment for Windows

Easy Vertical Alignment for Windows (EZVAL.WIN), Version 2.0 is a full featured program concentrating on evaluating vertical curves and complete vertical alignments. The user can enter any number of vertical curves which make up a vertical alignment. EZVAL.WIN allows the user to perform calculations in U.S. Customary units or in Metric (S.I.) units. EZVAL.WIN can perform a code check for the vertical curves in accordance with the current AASHTO criteria or the AREA criteria. The user can also enter custom "K" values for use in evaluating curves using the AASHTO method. EZVAL.WIN provides curve fitting features and will calculate anything necessary for the vertical curves. The program can print detailed reports with a large number of options as to what is included in the reports. EZVAL.WIN can export the alignment to a DXF file for easy import into AUTOCAD or Microstation. EZVAL.WIN can import and export INROADS vertical alignment AASCII files for each interface with INROADS. EZVAL.WIN will save the user many man-hours of effort the very first time it is used. EZVAL.WIN comes with a complete printed User's Manual.

Easy Vertical Alignment, Ver. 2.0 for Windows (#EZVAL.WIN) by Adam West is available at LOS 7 for $70.

Estimax for Windows

Estimax for Windows, Version1.01 is a project records management software for both owners and contractors monitoring an awarded contract. Other than monitoring a project during its performance (construction phase), Estimax also serves as a quick estimating tool and a paper-saving archive medium.

The main features of Estimax include:

Easy setup of a project due to the general contact items database. The program provides for maintenance of a general contract items database. The database has the following fields: item number, item description, unit, unit price, template, and optional code. To quickly assemble a new project, one can select and import items from this database to the new project. Selection is done by clicking the mouse over desired items. Thus, manual typing is minimized in putting together the contract items in a project.

Estimax's database and project files may be accessed by other database engines. Estimax's database and project files are Microsoft Access files, which may be easily imported by other Open Database Connectivity (ODBC) databases like dBase, Paradox, Oracle, Sybase, etc. Of course, MS Access can access them directly.

Replaces bulky Estimate Books. All data needed for audit purposes are in Estimax's electronic files, and detailed printouts may be made of any item and for any period. Thus, manual entries in binders and binders of Estimate Books are no longer essential. If paper reduction is sought, Estimax with this feature, offers the perfect opportunity.

Prints Estimates ready for Owner-Contractor signatures. All reports are printed with the 'final' look. All estimates are printed with subtotals and grand totals in the last page. Simply add (or replace the last (totals) page with) the signature page to complete a document acceptable by the accounting and finance office.

Estimax keeps track of 'over-runs' and 'underruns' for each item and for the project total. Some of the reports generated by Estimax are: (1) Project Estimates (know exactly how much is due the contractor, say, every 15 days), (2) Most probable final estimate, with overruns and underruns, (3) Final Estimate, (4) Audit Trail Report (the estimate book), (5) Quick cost estimate, and (6) Bid Tab.

Estimax was designed for Windows 3.x, Windows 95 and Windows NT.

Estimax, Ver.1.0 (#ESTMAX.WIN) by LOBO DIGITAL is available at LOS 7 for $975.

METS

METS (Medio para la Evaluacion de Temporizacion de Semaforos), a Spanish version of WEST, is a sophisticated tool that aids the traffic engineer in the performance of a variety of tasks related to the creation, modification, and comparison of alternate TRANSYT-7F signal timing plans.

METS combines features of a TRANSYT-7F preprocessor, a program executor, and TRANSYT-7F post-processor into a single package with a common user interface.

So why use METS? METS differs from other signal timing programs in a variety of aspects. While METS offers a unique, real-time signal offset editor, this editor is not as mature as those offered by TSPP Draft or Synchro. While METS offers features for creating initial T7F data files, these features are not as mature as those of EZ-TRANSYT or PRE-TRANSYT.

METS was designed for the traffic engineer who uses TRANSYT-7F on a frequent basis. METS allows the direct editing of the raw T7F cards. The specific representations of various intersection geometries are not hidden behind glitzy screens. The user is not required to adopt specific coding assumptions of shared lanes or right turn treatments that may be hard-coded into other programs. METS works with any link numbering convention and/or coding assumption, allowing METS to work with TRANSYT-7F files created from other preprocessors.

METS provides numerous utilities to "get the job done." The experienced traffic engineering doesn't have time to dig through numerous menus, or learn coding tricks to "fake" the program out. By working with the raw T7F data file, the experienced TRANSYT-7F user can get the job done with a minimum of extra effort.

What differentiates METS from other programs, however, is it's ability to compare different TRANSYT-7F runs. METS was specifically created to address the problem of "what to do after you run TRANSYT-7F." METS generates special reports that allow direct side-by-side comparisons of the MOEs from different T7F runs, allowing the user to examine the tradeoffs between the individual intersections, the routes and the system as a whole. Using METS, the engineer can answer questions like: "Should I maximize bandwidth or minimize fuel consumption?" or "Do these choices really produce different timing plans?"

METS will run on any PC-compatible computer capable of running TRANSYT-7F and McT7F. METS will run with any TRANSYT-7F data file, whether created by METS or by other preprocessor programs. The entire METS interface (including online help, menus and computer outputs) and the METS Users Guide are written in English and Spanish.

METS (#METS) is available at LOS 6 from McTrans for $200.

METS software is distributed with a complete manual and quick-start tutorial.

En Español

METS

METS (Medio para la Evaluación de Temporización de Semáforos) es una sofisticada herramienta para asistir a los ingenieros de tránsito en la realización de una serie de tareas relacionadas con la creación, modificación y comparación de diferentes planes de sincronización de señales producidos por TRANSYT-7F. METS combina atributos de un pre-procesador de TRANSYT-7F, un programa ejecutor, y un post-procesador de resultados de TRANSYT-7F en un solo paquete, con una interfaz de usuario común a todos.

Entonces, ¿ Por qué usar METS?. METS se diferencia de otros programas de sincronización de semáforos en una variedad de aspectos. Mientras METS ofrece un único editor de señales en tiempo real, este editor no es tan desarrollado como los ofrecidos por programas como TSPP Draft o Synchro. METS ofrece atributos que permiten crear archivos iniciales de datos para T7F, aunque estos atributos no son tan sofisticados como los de EZ-TRANSYT o PRE-TRANSYT.

METS fue diseñado por un ingeniero de tránsito quien es un usuario frecuente del programa TRANSYT-7F. METS permite la edición directa de las tarjectas de datos de T7F. Las representaciones específicas de varias geometrías de intersecciones no están ocultas detrás de pretenciosas pantallas. El usuario no necesita adoptar postulados de codificación específicos de carriles compartidos, o tratamientos de giros a la derecha que pueden estar directamente

codificados en el programa fuente en el caso de otros paquetes de software. METS trabaja con cualquier convención numérica de tramos y/o códigos, permitiendo entonces utilizar con TRANSYT-7F archivos creados con otros pre-procesadores.

METS proporciona numerosas utilidades que permiten aumentar la eficiencia del trabajo. Un ingeniero de tránsito especializado no tiene tiempo de pasear por numerosos menúes, o aprender triquiñuelas de codificación para "engañar" al programa. Al trabajar directamente con los archivos de datos "en bruto" (tarjetas) de T7F, un usuario experimentado en TRANSYT-7F puede realizar el trabajo con un mínimo de esfuerzo extra.

Lo que diferencia a METS de otros programas, sobre todo, es su capacidad de comparar diferentes corridas de TRANSYT-7F. METS fue específicamente creado para solucionar el problema de "qué hacer después de correr TRANSYT-7F". METS genera reportes especiales que permiten la directa comparación, lado a lado, de las medidas de eficiencia de diferentes corridas de T7F, permitendo al usuario examinar las ventajas y desventajas entre las intersecciones, las rutas y el sistema como un todo. Usando METS, el ingeniero puede responder cuestiones como: "¿Debería ser maximizado en ancho de banda, o minimizado el consumo de combustible?", o "¿Estas opciones realmente producen diferentes planes de sincronización?".

METS puede correr en cualquier computadora PC-compatible con capacidad para ejecutar TRANSYT-7F y McT7F. METS puede usar cualquier archivo de datos de TRANSYT-7F, sea éste creado por METS o por otro pre-procesador. Toda la interfaz de METS (incluyendo ayuda, menú y salidas) y la Guía del Usuario están escritas en español, y también se encuentran disponibles en inglés.

METS puede adquirirse a través de McTrans por $200 (dólares americanos).

El programa METS se distribuye con el manual completo y un tutor para un rápido comienzo.

PAVESPEC for the Structural Design of Interlocking Concrete Pavements

PAVESPEC calculates base thickness' under interlocking concrete pavements. The program is derived from the widely accepted 1993 AASHTO *Guide for Design of Pavement Structures*. The user inputs traffic, soils, pavement materials, drainage, and environmental data. The program outputs pavement designs based upon the calculated Structural Number (SN). PAVESPEC includes a routine for new pavement design and overlay/inlays on existing pavements. The software includes the Construction Specifications Institute (CSI) ManuSpec guide specification, and SpecData product application guidelines. The Windows® based program requires at least a 486 processor, 4K of RAM, and 3 MB of disk drive space. PAVESPEC includes two 3.5" disks, plus printed program and technical documentation in a three ring binder.

PAVESPEC (#PAVESPEC) by Interlocking Concrete Pavement Institute is available at LOS 7 for $50.

QUICK-HOV

QUICK-HOV provides quick response computations for predicting order-of-magnitude HOV and mixed-flow demand and traffic performance resulting from new HOV lanes and/or new eligibility requirements for existing HOV lanes. The methodology is designed to be applied by planners and engineers with limited or no access to or experience with regional travel demand modeling. This software is applicable to corridor, network, and system level HOV demand analysis.

QUICK-HOV provides procedures for predicting and evaluating the impacts of HOV lanes on person demand, vehicle demand, auto occupancy, congestion, delay, and air quality. The methodology does not provide for the analysis of the impacts of congestion pricing and tolls; however, the effects of ramp metering can be incorporated into the impact analysis. The program evaluates the impacts of HOV lanes for a single direction of travel over a single peak period for freeways and arterials. To analyze both directions of travel, the model needs to be run for each direction.

QUICK-HOV also provides an appropriate estimate of the number of new HOW's and non-HOV's that might have come from a parallel facility. This estimate of vehicles attracted from parallel facilities is used to compute an "air pollution" credit for the facility that counteracts the air pollution impacts of increased traffic attracted to the HOV facility itself.

QUICK-HOV is designed to require minimal input data through the extensive use of default values and assumptions. The program however allows the user to over-ride these assumptions and defaults if desired. It can be used as a screening tool to evaluate the impacts of HOV lanes for opening day, short-term (six months to a year) and long term (after one or more years).

QUICK-HOV (#QUICKHOV) from FHWA is available at LOS 1 for $250. The documentation (QUICKHOV.D) is available for $20.

Road Surface Management System '96

Road Surface Management System (RSMS) provides a means to inventory and evaluate a multitude of possible road surface distress characteristics and places them into seven surface distress categories. Based upon these priority needs, typical repair strategies are outlined, with associated prices based on local information. Actual repair strategies adopted will depend upon local desires and may be influenced by additional information unique to the situation.

RSMS'96 adds to the functionality and remains compatible with existing RSMS systems. Databases created with earlier versions of RSMS may be imported into RSMS'96. RSMS'96 continues to operate under DOS and requires minimal hardware (640KB of memory) and will operate in network environments. The user interface is now graphical and conforms to windows functionality and standards.

The most important improvements to RSMS are in the area of system adaptability or flexibility. The user may modify or add to pavement types, repair strategies, repair categories, units of measure, distress types, road priorities or importance. By adjusting other system parameters, the user may develop a wide range of alternative maintenance strategy and budget alternatives.

This new version (#RSMS) from the University of New Hampshire is offered at LOS 3 for $5 and $20 for the updated documentation (#RSMS.D).

SIGNAL 94 for Windows

The popular standardized intersection capacity analysis, optimization and design program, SIGNAL 94/TEAPAC, has recently been released by Strong Concepts as a new Windows-based program. Like its DOS predecessor which will continue to be maintained and developed, SIGNAL94 for Windows performs complete phrasing and timing optimization based on a faithful implementation of the 1994 Highway Capacity Manual Chapter 9 procedures. The optimization balances the delay and level of service (LOS) of the critical movements, with an option to designate priority movements and minimum LOS thresholds for non-priority movements, thus producing the "best possible capacity analysis." It also has an option to balance the v/c of the critical movements in order to minimize the intersection's delay. Phasing optimization can be for any or all of the 49 standard phasings which are provided, with an unlimited number of cycle lengths allowed. A user-specific phasing may also be defined. SIGNAL94 also computes a wide range of additional measures of effectiveness such as queueing, stops, fuel consumption, CO emissions and oversaturated delay. It can also share its input data and results with other TEAPAC programs like PREPASSR, PRETRANSYT, PRENETSIM and SITE for a comprehensive, integrated project analysis, as well as TURNS and WARRANTS for multi-time period analysis, all based on a single data base of information.

new products updates

SIGNAL94 is now available for several Windows platforms. The Windows versions have all the features noted above (found in the DOS version), plus a unique Visual Mode which provides an intuitive, graphical user interface as a true Windows program. These versions also provide a complete and fully-indexed on-line user guide and context-sensitive help. Data files are fully interchangeable with the DOS version of SIGNAL94, as well as with all the other TEAPAC programs, either DOS or Windows. The .WIN versions will run on any of the Windows 3.x or Windows 95 platforms; the .W95 versions will run on any of the Windows 95 or Windows NT platforms.

The Optimization version of SIGNAL94/TEAPAC Ver. 1.20 from Strong Concepts (#TPCS94.2, #TPCS94.2WIN and #TPCS94.2.W95) is available at LOS 7 from **McTrans** for $695. The Capacity-Analysis-Only version of SIGNAL94/TEAPAC (#TPCS94.1, #TPCS94.1WIN and #TPCS94.1.W95) is available at LOS 7 for $395. Educational versions are available for half price and demonstration versions are available for $5 (#TPCS94.DEM, #TPCS94.DEM.WIN and #TPCS.DEM.W95). Registered licencees of DOS versions of SIGNAL94 may upgrade to a Windows version at a reduced fee directly from Strong Concepts.

Zaphers® Details and Specifications for Interlocking Concrete Pavement and Concrete Grid Pavements

Zaphers® is a Windows based program of 56 drawings and 7 guide specifications for interlocking concrete pavements. The program covers a wide range of applications including details for pedestrian, vehicular, roof, port, and airport projects. All drawings can be viewed and printed in the program without using CAD. Drawings can be exported as .DXF files for changes in CAD, and the guide specifications exported as text files for editing to project conditions. The specifications can also be edited in the program and printed. Zaphers requires Windows 3.1, a 386 processor or higher, and at least 4K of RAM. The program includes one 3.5" disk and instructions in a three-hole punched folder.

Zaphers® (#ZAPHERS) by Interlocking Concrete Pavement Institute is available at LOS 7 for $50.

STRUCTURES COBM and PLFR

Version 2.0 of structural analysis programs COBM (Continuous Beams) and PLFR (Plane Frames) have been received by McTrans. These two programs are a part of the STRUCTURES (see catalog for more information) series of six comprehensive general purpose programs for the structural analysis of supporting structures. Structures containing interior frictionless hinges may now be modelled and analyzed by these two programs.

Also, the print routines have been enhanced to allow the printing of output to either a file or to the printer. This allows the user to review results on the monitor prior to printing a hard copy.

STRUCTURES COBM AND PLFR Version 2.0, (#COBM & #PLFR) by Harry J. Graham is available at LOS 6 for $70 each.

Trafficware Announces Synchro 3

Trafficware, formerly Traffic Synchro Software, announces the release of Synchro Version 3. Synchro 3 is an easy-to-use software package for analyzing traffic signals. Synchro quickly generates timing plans and performs capacity analysis. Synchro optimizes offsets and phase order for coordination. Synchro has interactive time-space diagrams for viewing and modifying offsets. The time space diagrams either show arterial bandwidths or show individual vehicles stopping and moving. Data entry is easy with friendly Windows entry forms.

Synchro Professional version includes preprocessors for PASSER 2, TRANSYT 7F, and TRAF-NETSIM. This allows data to be input once and used with all of the popular timing packages. Synchro is used by over 250 agencies and consultants.

New Features in Version 3 Synchro 3 is the first and only interactive software package to analyze actuated signals. Our new Percentile Delay Method is a major advancement over the Webster formula used by the Highway Capacity Manual. The Percentile Delay Method is capable of analyzing and optimizing Actuated, Semi-Actuated, and Actuated Signals in Coordination. The Percentile Delay Method also has provisions for predicting delay at super saturated intersections.

Synchro 3 features a new universal method for sharing data between traffic software programs and hardware. Universal Traffic Data Format (UTDF) allows multiple volume counts and timing plans to be analyzed at the same intersections. Agencies can use UTDF to centralize all of their traffic data and use it easily with Synchro and other analysis packages. Consultants and planners can use UTDF to set up networks. These networks can be used for performing capacity analysis and coordination for different times of day, and different planning alternatives.

Synchro 3 (#SYNCHRO) by Trafficware is available at LOS 7 for $895.

update WATCH

Package	Version	Status	Target	Distribution
HCS	2.1d	Complete	Available	HCSPATCH.ZIP
HYDRAIN	6.0	Complete	Available	Registered users may upgrade
HY-8	6.0	Complete	Available	Registered users may upgrade

NOTE: The HCS Patch is a cumulative process.
Patch "d" includes all changes in previous patches.

discontinued ITEMS

Pavecheck (#PAVECHEK), Vertex CADalog (#VERTEX) by Concrete Pavement Institute and SAF-I (#SAF) by Prototype Engineering all have been removed from distribution.

REQUEST FOR ARTICLES

(Receive Free Software!)

Mc*Trans* is creating a forum for articles to include in our newsletters. Articles that show the new and/or innovative ways you have found to apply our software in everyday application, or relate to software developed by FHWA, **Mc*Trans*** or state DOTS will be considered for newsletter publication. AAP, PASSER, HCS, TRANSYT-7F and WHICH are some of the packages widely used. Pass your discoveries along to others! If we use your article, you will be rewarded with $200 toward the purchase of software from **Mc*Trans***. Please contact Bill Heitman at (352) 392-0378 or e-mail: mctrans@ce.ufl.edu for further information.

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