McTrans™
Moving Technology
Volume 32 January 2005 Newsletter

HCS+

McTrans has spent the last four years developing new features for the Highway Capacity Software toward this release of *HCS+*. This new version adds many significant improvements for more efficient data coding, more comprehensive analyses, and better output options. Existing computational modules have been significantly improved to offer automated multiple-period analysis, preset phasing and I-value computation in Signals, and a compeletely new HCS-type module for Freeway Facilities. And, there are additional programs to perform signal warrant analyses, turning movement data collection, and separate planning analysis methods. Finally, the new continuous support mechanism covers all technical assistance and provides free future upgrades for office or agency licenses, as well as single CPU licenses, which now are available.

Modules

Five new modules have been added to this new release: one to overhaul an existing computational program; three to supplement capacity analysis from the planning perspective; and one as a very useful tool for traffic engineering analysis.

continued on page 2

5th Highway Capacity Symposium in Yokohama

The 5th International Symposium on Highway Capacity and Quality of Service (5th ISHC) will be held in Yokohama, Japan from July 25 to 29, 2006. The conference is sponsored by the Transportation Research Board (TRB) and the TRB Committee on Highway Capacity and Quality of Service (AHB40). Papers on research or on practical issues related to any aspect of highway and transport capacity and quality of service are being solicited now.

Further information on the conference and abstract submission is available via the Committee AHB40 website: http://www.a3a10.gati.org/ or by e-mail to 5thISHC@civil.nagoya-u.ac.jp. Abstracts are due no later March 31, 2005. All abstracts, papers and presentations must be in English. Papers will be peer reviewed and made available in the proceedings to all delegates.

DYNASMART-P
Intelligent Transportation Network Planning Tool

Now Available! See page 3 for details.

McTrans
Department of Civil and Coastal Engineering
PO Box 116585
Gainesville FL 32611-6585
(352) 392-0378
Toll Free (US) 1-800-226-1013
Fax (352) 392-6629
E-mail mctrans@ce.ufl.edu
http://mctrans.ce.ufl.edu/

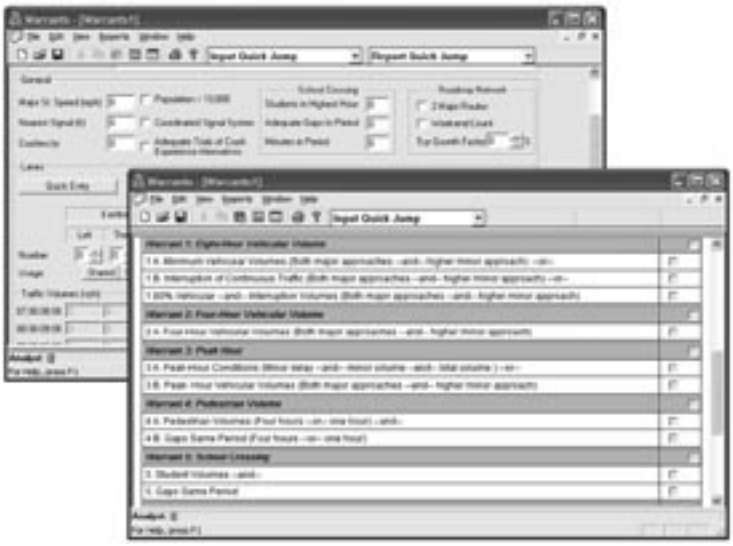
UNIVERSITY OF FLORIDA

McByte

HCS+ Features continued

Freeway Facilities: A complete overhaul of this module replaces the research-level spreadsheet with an HCS-style interface. With much assistance from the authors of the spreadsheet, Nagui Raphail of North Carolina State University and Brian Eads of Crawford, Murphy & Tilly, Inc., this new module automates the procedures in HCM 2000 Chapter 22 in easy-to-use coding and reporting similar to other HCS modules. This analysis provides the user with the ability to analyze many freeway segments, including basic freeway segments, ramps and weaving areas, over multiple time periods with oversaturated condition capabilties.

Warrants: This new module automates the procedures in the 2003 Manual on Uniform Traffic Control Devices (MUTCD) for the eight prescribed signal warrants. All data required for performing these tests and checks are accommodated in the HCS-style interface. A complete summary report listing the results for each warrant and sub-warrant, as well as a volume-specific report for details on warrants 1, 2 and 3, are provided.



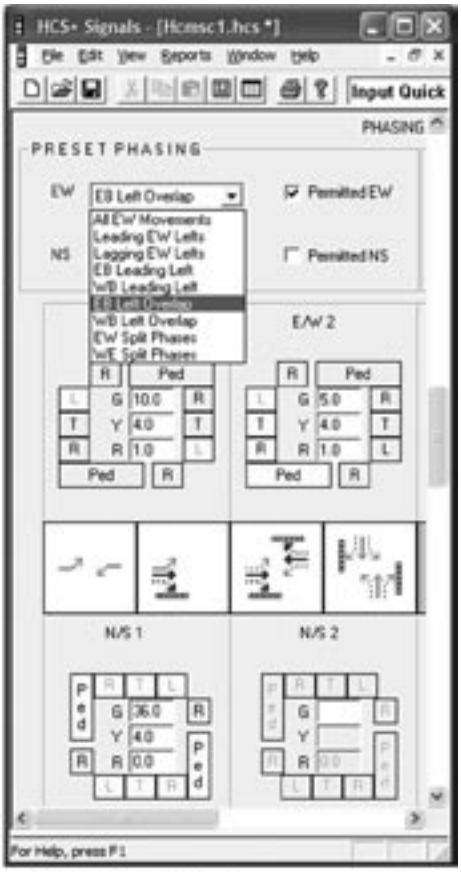
LOSPLAN: Three programs from the Florida Department of Transportation, courtesy Doug McLeod, have been added for planning level analysis of Arterials, Freeways and Two-Lane Roads. These programs expand on the HCM 2000 methods to include additional capabilities: ARTPLAN adds a multi-modal planning analysis to include bicycle, pedestrian and transit effects on arterials; FREEPLAN offers a planning-level analysis of up to 20 freeway semgents (basic, interchange and toll); and HIGHPLAN develops service volume tables including maximum v/c and AADT for LOS categories on two-lane facilities.

Signals

Several new features have been added to the Signals module to greatly improve the data coding and overall analysis efficiency of this most-widely used module.

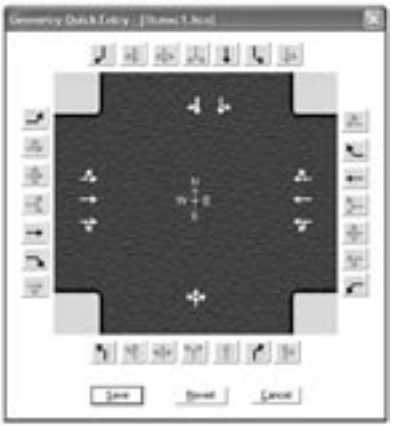
Muliple-Period Analysis: This feature allows coding of multiple time periods, especially for oversaturated flow analysis, implementing the methodology prescribed in HCM 2000, Chapter 16, Appendix F. The automated application passes the residual queue from one period to the initial queue for the subsequent period. The summary report shows building and dissipating of queuing over entire analysis.

Preset Phasing: The most likely phasing options are presented in a pull-down list based on coded lane configuration. Options for pretimed, actuated or semi-actuated operations are available as well as selecting protected or permitted left-turn phases. All movements are automatically entered for the phase option selected, with normal specific-movement coding still available.



I-Value: The ability to import upstream signal data to get the volume-to-capacity ratios for determing the I-Value for each approach has been added. The volume-weighted average of the contributing movement is used to select the appropriate I-Value from HCM 2000 Exhibit 15-7.

Quick Entry: This feature from HCS2000 has been updated to make coding lane configuration even more efficient. The arrows now exist for all approaches on a re-designed screen for easier selection.

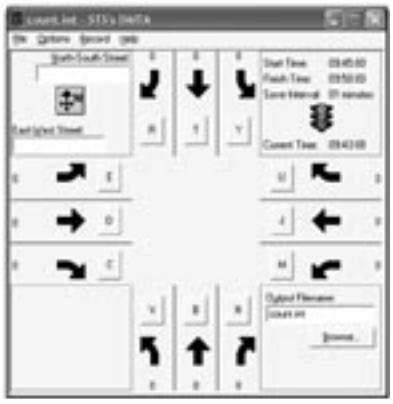


Advice: A new feature in this release is the "Advice" button to monitor data coding relationships for potential errors or oversights. This button becomes available when data combinations exist that raise particular questions for the user. Several data fields are monitored for potentially conflicting situations, such as coding a Duration of 1.0 with Peak-Hour Factors less than 1.0.

Data

Much improved and substantially expanded reporting capabilities, as well as two data collection tools, are part of this major upgrade.

Reports: Several new formatted reports, now encompassing virtually all worksheets in the HCM 2000. Each formatted report can now be saved for easy forwarding or sharing with others. Graphing sensitivity analyses is introduced with control and total delay charted in HCS-Signals and more graphs coming in future updates.



Collection: A program (DAITA) from Dr. Scott Washburn of the University of Florida, has been added to allow collecting intersection turning movement counts directly from within *HCS+*. This program uses laptop keys to increment the volume for each movement at an intersection, storing the data for use in *HCS+* modules. The Signals and Warrants modules will also now read data from Jamar count boards.

Licensing

Expanded license options now offer single CPU licenses in addition to office licenses. All licenses include the first year of toll-free technical support and electronic maintenance, providing all upgrades automatically with no more upgrade fees. The introductory price list is shown below:

	New	Upgrade from HCS2000	Annual Support[1]
Single CPU	$500	$250	$100
Single Office[2]	$1000	$500	$200

[1] First year of support is included with the license fee.
[2] Agency License (see page 22) upgrades are available onw a pro-rated schedule.

Note of Thanks: This major work could not have been accomplished without the expertise and guidance of Phil Hill and David Hale, both of the McTrans Center. Mr. Hill provided constant programming supervision and design skills and Dr. Hale was invaluable in his insights of traffic engineering applications by users. Of course, many others contributed greatly to the final implementation of this significant upgrade, including the McTrans programming staff (Jim Fliess, Charles Porter), student assistants (Rohini Bobba, Jigar Shah, Jose Thota), the McTrans accounting and processing staff (Jonathan Czerenda, Lee Duda, Debbie Escalera, Mitch Davis), and a long list of dedicated beta testers and users. ~Bill Sampson

NEW Products

DYNASMART-P

The Federal Highway Administration (FHWA) has released DYNASMART-P, a state-of-the-art dynamic network traffic operational planning tool, developed and supported by the University of Maryland under the FHWA's Dynamic Traffic Assignment (DTA) research project. DYNASMART-P (DYnamic Network Assignment-Simulation Model for Advanced Road Telematics) supports transportation network planning and traffic operations decisions, including evaluation of ITS deployment options, through the use of simulation-based dynamic traffic assignment. This tool combines (1) dynamic network assignment models, used primarily in conjunction with demand forecasting procedures for planning applications, and (2) traffic simulation models, used primarily for traffic operational studies. DYNASMART-P provides the capability to model the evolution of traffic flows in a traffic network, which result from the decisions of individual travelers seeking the best paths en-route over a given planning horizon. For more details, please see the Summer 2004 newsletter.

DYNASMART-P operates on Windows XP, Windows 2000, Windows ME or Windows NT 4.0 (service pack 5) or higher. A minimum of 300 MB of the hard drive space and the minimum of 512 MB of RAM memory are needed to run the model, depending the size of the network and analysis time period. Execution times vary with the hardware used and size of network, though typical experience on high end PC's suggests approximately a ratio of simulation to actual time of 1 to 0.10 ~ 0.25 on actual networks. The FHWA has also developed an input editor, DSPEd, to assist users in preparing input data. DYNASMART-P and DSPEd are available at LOS 1 for $1750 (#DYNA) for fully supported and $1000 (#DYNA.UN) for licenses with limited technical support.

Turning Templates Plastic & CAD V 3.0

New for 2005, Transoft Solutions introduces Turning Templates Plastic & CAD V3.0. We have combined our popular Plastic Templates with the latest release of our newest release: CAD Turning Templates V. 3.0

Turning Templates CAD V3.0 allow designers to evaluate turns for a number of standard vehicles at angles of 30, 60, 90, 120, 150 and 180 Degrees. They may be rotated, moved, scaled, mirrored and saved within a drawing file to assess most turning scenarios with ease. Turning Templates 3.0 features our "Turn Wheels from Stop" templates. With these new templates, it is even easier to assess turn maneuvers when space is limited. CAD Turning Templates 3.0 work with virtually any CAD program capable of reading .cel or .dwg file formats including AutoCAD, MicroStation, AutoCAD LT, Imagineer, InteliCAD and CADDIE.

Bundled with the CAD Templates are Transoft's Plastic Turning Templates for AASHTO 2001 vehicles. At 1/40 scale, they include all the standard AASHTO 2001 vehicles including WB-40, WB-62 and WB-67. Made of durable high-density polycarbonate, these templates are the perfect addition to every Transportation Engineer's toolkit for presentations and during the project approval process

Turning Templates Plastic & CAD V 3.0 (#TTC) is available at LOS 6 for $650.

NEW Products

PRENOSTOP/TEAPAC

PRENOSTOP/TEAPAC is a new program from Strong Concepts which prepares and runs NOSTOP input files, using the standard TEAPAC graphical dialogs and traffic engineering terms for each signal such as those found in SIGNAL2000/TEAPAC. All the information that is needed by NOSTOP for each intersection is coded automatically. Level 1 (#TPCPNS.1) handles up to 12 intersections and costs $195 for a site license. Level 2 (#TPCPNS.2) handles up to 100 intersections and offers a Subsystem feature for $295.

If the individual operation of each signal in the arterial or network is designed with SIGNAL2000, and coordinated timings are designed with other programs in the TEAPAC system, then PRENOSTOP can use these data files directly so NOSTOP results can be generated without any additional data input. If the offsets (or cycle length) are changed by the NOSTOP optimization, the changed timings can be imported back into PRENOSTOP for direct transfer to programs for simulation of the modified timings. This allows NOSTOP to be used in a seamlessly-integrated fashion for both evaluation of optimized timings and optimization of offsets and cycle.

PRENOSTOP includes the unique TEAPAC Visual Mode which provides an intuitive, graphical user interface as a true Windows program. The Visual Mode also provides a complete and fully-indexed on-screen user guide and context-sensitive help and error diagnostics. Other powerful input methods include the Tabular View and the Manual Mode.

Update

TEAPAC2004 Version 6

TEAPAC2004 (Version 6) has been released by Strong Concepts with a major enhancement to the generic user interface used by all TEAPAC programs, as well as major developments to individual programs. The most apparent change is the new completely seamless, one-click, one-file exchange of all input and results between all programs, including network connections, intersection geometry and conditions, and traffic volumes; as well as calculations of HCM satflows, optimized timings, peak-period turn counts and estimated site traffic. Other enhancements include new volume adjustment inputs to allow factoring volumes and adding additional volumes on a movement-by-movement basis, new sensitivity controls for global testing of factored volumes, additive volumes, factored satflows, minimums, clearances, etc., as well as the complete implementation of the enhanced TEAPAC2004 (Ver 6) user interface. The TEAPAC programs updated with the TEAPAC2004 (Version 6) interface include SIGNAL2000 (#TPCS2K), NOSTOP (#TPCNST), PRETSPPD (#TPCPTS), PREPASSR (#TPCPPS), PRETRANSYT (#TPCPTR), PRENETSIM (#TPCPNT), PRESYNCHRO (#TPCPSY), SITE (#TPCSIT), WARRANTS (#TPCWAR), TURNS (#TPCTRN), TED (#TPCTED) and TUTOR (#TPCTUT). A new program, PRENOSTOP, has been added, and additional major enhancements have been made to SITE, WARRANTS and TURNS, as described in separate articles. TEAPAC2004 is available as a new license from **McTrans** and Strong Concepts in several options -- the TEAPAC Traffic Engineering Package (#TPC*.*.1), the TEAPAC Signal Timing Analysis Package (#TPC*.*.2) and the TEAPAC Site Impact Analysis Package (#TPC*.*.3).

Update

SITE/TEAPAC

TEAPAC2004 version of SITE/TEAPAC (#TPCSIT) has been released by Strong Concepts as Ver 4.60. This major upgrade uses the standard TEAPAC2004 input dialogs, or data files from other integrated TEAPAC programs, and calculates projected traffic volumes which result from the defined development scenario. Multi-use and multi-site scenarios are handled easily, and new volume adjustment inputs allow factoring volumes on a movement-by-movement basis. Also, new sensitivity controls for global testing of factored volumes have been added. The data files for SITE have also been updated to be completely compatible with SIGNAL2000/TEAPAC (#TPCS2K) so complete multi-intersection systems with up to 500 intersections can be seamlessly integrated with SIGNAL2000 analyses, allowing complete HCM-based capacity analysis and timing optimization to be performed in conjunction with the SITE projected volumes.

SITE has been updated with a major enhancement for managing the list of nodes in the complete system being studied, and intersection selection has been enhanced with a new drop-down-list selection option. The complete network can also be visualized in a graphical network view diagram which can be enhanced with the addition of a bitmap background. A major enhancement to the output window for display of results and data input summaries now permits a virtually unlimited amount of output to be displayed, with many enhancmenets such as a sizeable, moveable, appendable window, toolbar buttons, etc.

SITE Level 1 (#TPCSIT.1) handles up to 12 intersections and costs $395 for a site license. Level 2 (#TPCSIT.2) handles up to 100 intersections and offers a Subsystem feature for $495.

Update

WARRANTS/TEAPAC and TURNS/TEAPAC

After 2 years in development, the TEAPAC2004 versions of WARRANTS/TEAPAC (#TPCWAR) and TURNS/TEAPAC (#TPCTRN) have been released by Strong Concepts as Ver 3.60 and Ver 2.60, respectively. These major upgrades use the standard TEAPAC2004 input dialogs, or data files from other integrated TEAPAC programs, performing MUTCD 2003 signalized and stop sign warrant analyses, count tabulations and peak-period analysis. New volume adjustment inputs allow factoring counts on a movement-by-movement basis. New sensitivity controls for global testing of factored data have been added. The data files for Warrants and Turns have also been updated to be completely compatible with SIGNAL2000/TEAPAC.

WARRANTS and TURNS have been updated with a major enhancement for managing as many as 500 intersections of count data in a single data file and analysis. The complete network can also be visualized in a graphical network view diagram which can be enhanced with the addition of a bitmap background. A major enhancement to the output window for display of results and data input summaries now permits a virtually unlimited amount of output to be displayed, with many enhancmenets such as a sizeable, moveable, appendable window, toolbar buttons, etc.

Level 1 versions (#TPCWAR.1 and #TPCTRN.1) handle up to 12 intersections and cost $395 and $295, respectively, for a site license. Level 2 versions (#TPCWAR.2 and #TPCTRN.2) add the functionality of the other program for $595 (ie, TPCWAR.2 performs the peak-period analysis of TPCTRN.1, and TPCTRN.2 performs the warrant analyses of TPCWAR.1). Level 3 versions (#TPCWAR.3 and #TPCTRN.3) handle up to 100 intersections and offer a Subsystem feature for $695.

Update

VISSIM 4.0 and VISUM 9.1

PTV America, Inc. is proud to announce the release of VISUM 9.1 to its North American customers.

VISSIM 4.0 – Microscopic Simulation

PTV America, Inc. is proud to announce the release of VISSIM 4.0 to its North American customers. One of the most exciting features of the new VISSIM 4.0 is that it now offers COM programming capability. VISSIM empowers traffic and transit professionals to efficiently and cost effectively model multi-modal corridors, freeways, toll plazas, ITS, HOV and HOT lanes, downtown grid networks, bus rapid transit centers, arterial streets, roundabouts, access management, bicycles, pedestrians and much more.

VISUM 9.1 – Travel Demand Modeling

Modelers in more than 50 countries rely on VISUM to meet their travel demand modeling needs. One of the key features of the recent upgrade is that VISUM 9.1 offers integrated LOS computation powered by TRAFFIX™.

VISUM 9.1 is GIS integrated and offers multi-modal assignment; the ability to store paths during assignment for select link and other flow analyses; traditional and activity-based trip distribution and mode choice, transit service planning and schedule-based ridership prediction, as well as dynamic highway and transit assignment. VISUM is fully integrated with VISSIM.

Advertising Directory

Did You Know?

HCS:

When printing Formatted Reports, margins should be set to 0.25" in the "File > Page Setup" screen of Internet Explorer to ensure single-page reports fit on one page. It may be necessary on this same Internet Explorer screen, to suppress the automatic header and/or footer by simply blanking the appropriate field(s). Also, make sure the setting in "Tools > Internet Options > Advanced > Printing" is set to "Print background colors and images" for graphics in these reports to be properly displayed and printed. Please note that users must have version 5.01 or higher (version 5.5SP1 or higher preferred) of the Internet Explorer for these Formatted Reports to work properly.

CORSIM:

Curvature, elevation and friction coefficient are only used to determine a safe upper limit to the free-flow speed on a freeway link. If that safe speed is less than the input link free-flow speed, the safe speed will be used instead, which would affect travel speed. If the input speed is less than the safe speed, curvature will have no effect. CORSIM will issue a warning if it reduces the link free-flow speed because it would exceed the safe speed. The calculation of safe speed is described in the CORSIM Reference Manual.

TRANSYT-7F:

The Original Cycle Length (OCL) affects the first individual in the first generation of genetic algorithm optimization. The first individual contributes to the optimization process, and is also used to create "Initial" results for the output file. Typically the first individual in the first generation of optimization simply reflects the user-coded initial timing plan. However, if the initial timing flag is turned on, coordinated nodes on the optimization node list immediately adopt the OCL. All other individuals in the first generation are unaffected by the OCL. Subsequent individuals in subsequent generations aren't explicitly affected by the OCL. However, they are usually implicitly affected by gene pool contributions from the first individual

Update Watch

Package	Version	Status	Target	Distribution
HCS+™	5.1	Testing	January	Registered users may upgrade
TRANSYT-7F	10.2	Complete	Available	Patch download
TSIS	5.1	Complete	Available	Sent to Registered users
IDAS	2.3	Complete	Available	Sent to Registered users
TNM	2.5	Complete	Available	Sent to Registered Users
Turbo Architecture	3.0	Complete	Available	Registered users may upgrade

UNIVERSITY OF FLORIDA

McTrans Center
Department of Civil & Coastal Engineering
PO Box 116585
Gainesville FL 32611-6585

Presorted
Standard
US Postage
PAID
Permit No. 94
Gainesville FL

Calendar

NEED Training?

- **Highway Capacity Analysis (*HCS+*)**
- **TRANSYT-7F Release 10**
- **CORSIM (TSIS 5.1) for Beginners**
- **Site Impact Analysis**
- **MUTCD**

Contact **Mc*Trans*** to set up a training course in your area, or read about currently scheduled training courses at: **http://mctrans.ce.ufl.edu/training/**

Training

VISSIM Basic Course VISSIM Advanced I - Signalized Control VISSIM Advanced II - Specialized Applications PTV America (541) 754-6836	Feb 1-2, 2005 Feb 3, 2005 Feb 4, 2005	San Diego, CA
"Designing Optimized Traffic Signals and Systems Using TEAPAC, PASSER, TRANSYT and CORSIM" University of Central Florida (407) 882-0260	Feb 9-11, 2005	Orlando, FL
Signal Capacity Analysis Seminar **Mc*Trans*** 1-800- 226-1013 ext. 229	Mar 1, 2005 Mar 3, 2005	Raleigh, NC Lexington, KY
"Microcomputer Applications in Signal Timing Using TEAPAC, PASSER, TRANSYT and CORSIM" Northwestern University (800) 323-4011	Apr 18-21, 2005	Evanston, IL
Highway Capacity Analysis Seminar **Mc*Trans*** 1-800-226-1013 ext. 229	TBA	TBA
Traffic Network Study (TRANSYT-7F) Seminar **Mc*Trans*** 1-800- 226-1013 ext. 229	TBA	TBA
CORSIM Simulation for Beginners **Mc*Trans*** 1-800-226-1013 ext. 229	TBA	TBA

Conferences

TRB Annual Meeting TRB (202) 334-3472	Jan 9-14, 2005	Washington, DC

McTrans
Moving Technology

http://mctrans.ce.ufl.edu/training/ for up-to-date training information