McTrans™
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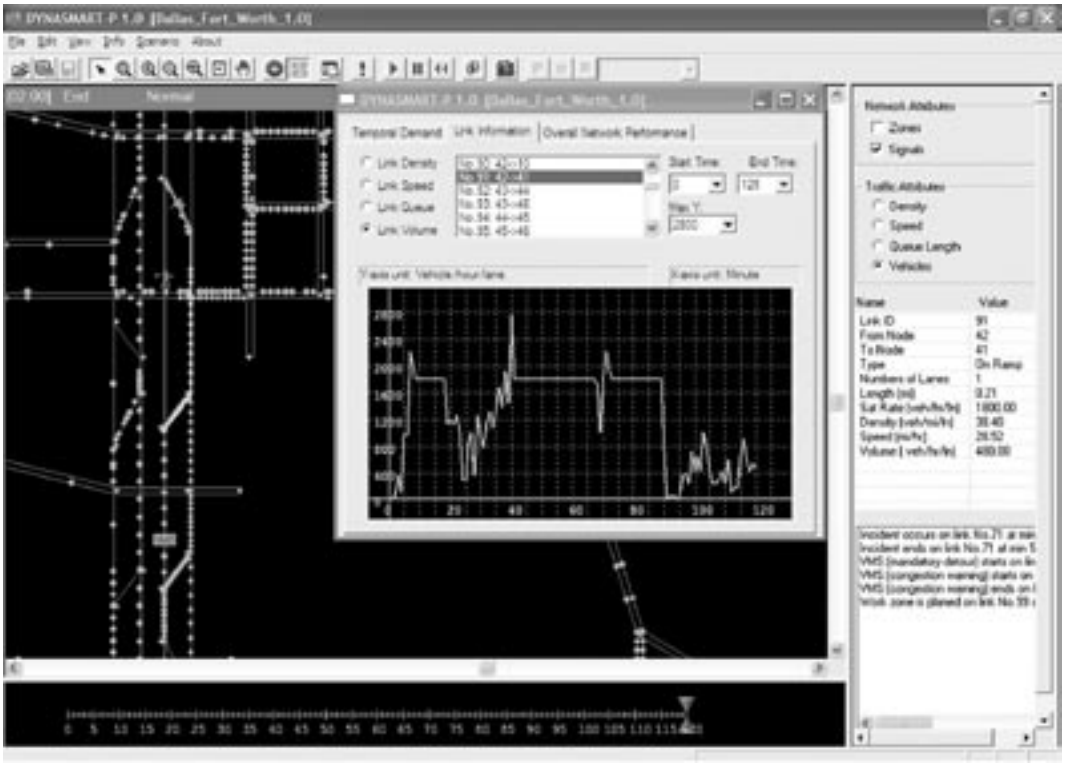
A State-of-the-Art Dynamic Network Traffic Operational Planning Tool

DYNASMART-P
Intelligent Transportation Network Planning Tool



DYNASMART-P is one of the two state-of-the-art dynamic network traffic operational planning tools developed under the Federal Highway Administration's (FHWA) Dynamic Traffic Assignment (DTA) research project. DYNASMART-P, developed by researchers at the University of Maryland, 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 for the best paths en-route over a given planning horizon. It overcomes many of the known limitations of static tools used in current planning practice. These limitations pertain to the types of alternative measures that may be represented and evaluated, and the policy questions that planning agencies are increasingly asked to address.

DYNASMART-P defines a new generation of transportation planning methodologies, which can interface readily with existing four step procedures, yet provides a meaningful jump in the range and type of measures that can be evaluated. Because it considers the

continue p.2

HCS+ is Coming!
(See page 3)

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Did you know? 3
New Products 4
Training 5
Advertising Directory 5
Products Listing 19
Calendar 24

continued p.1

time-varying nature of traffic flows, it is expected to produce more useful estimates of state variables such as speeds, queue lengths, delays, and congestion effects to better assess the functional and environmental impacts of a variety of traditional and emerging transportation planning measures, including the deployment of ITS and non-ITS technologies.

DYNASMART-P requires input data commonly used by the traditional traffic assignment and simulation models, particularly with regard to network representation and spatial demand loading patterns. The input data vary with the network being analyzed and the level of detail required by the user. Complexity of the network could range from a linear freeway network to an integrated network with High-Occupancy Vehicle (HOV) lanes, High-Occupancy Toll (HOT) lanes, ramp metering, transit services, possibly incidents and signal controlled intersections on surface streets. Applications to date have included metropolitan and regional networks with up to 35,000 nodes and 100,000 links, with nearly one million vehicles simulated over horizons of several hours.

DYNASMART-P produces a wide array of output information to assist users in performing detailed traffic analysis. The output report contains Measures of Effectiveness (MoEs) commonly used by traffic engineers, such as volumes, speeds, travel times, delays, etc. DYNASMART-P also produces an individual vehicle trajectory file, which is very useful for research purposes. In addition, through its intuitive graphical user interface (GUI), DYNASMART-P provides the user with the means to view simulation results and other characteristics through various graphical formats, both static and animated.

With rich built-in features, DYNASMART-P can be used to evaluate complex strategic and operational network planning decisions and to produce policy-relevant traffic assignment results for planning analyses. The potential applications include:

- Assessing impacts of ITS and non-ITS technologies on the transportation network, such as dynamic message signs, ATIS under different information supply strategies and behavioral response scenarios, dynamic route guidance, incident management, etc.
- Supporting decision-making for work zone planning and traffic management.
- Evaluation of HOV lanes and HOT lanes.
- Evaluation of different congestion pricing schemes.
- Planning for special events and emergency situations, including some evacuation scenarios for homeland security applications.
- Traffic assignment analyses in traditional planning functions, as well as in conjunction with activity-based and tour-based approaches.

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 0.25 ~ 0.35 on actual networks.

The FHWA has also developed a DYNASMART-P input editor, DSPEd, to assist users in preparing input data. Both DYNASMART-P and DSPEd will soon be available at McTrans. Please keep your eye on the McTrans website. For more information about DYNASMART-P, please check the websites: www.dynasmart.com or www.dynamictrafficassignment.org. Two free training workshops will be offered by FHWA and the University of Maryland in the Washington metropolitan area in fall 2004. Please contact Henry Lieu at Henry.Lieu@fhwa.dot.gov for more information about the training workshops.

HCS+ → Major New Version Coming

New *HCS* Freeway Facilities Module – Builds HCM 2000 Chapter 22 methodology into standard easy-to-use *HCS* module

New Warrant Analysis Module – Incorporates MUTCD 2003 procedures for signal warrant analysis

Signals Oversaturated Multi-Period Analysis – Allows coding of multiple time periods for over-saturated flow analysis

Signals Preset Phasing Selections – Presents list of most likely phasing options based on lane configuration with pretimed, actuated or semi-actuated options

Smarter Signals Data Options – Automated I-Value, additional global spinners, increased monitoring of input data to warn of potential mistakes

Improved Reporting – More than 30 Formatted Reports to include virtually all worksheets from HCM 2000 with a Save Report option to facilitate sharing

Importing Count Board Data – Mechanism to read turning movement data directly from Jamar count board for period-specific importing into Signals and Warrants

Batch Processing – Through MSExcel to allow multiple runs with captured results from pre-defined input

Licensing – Provides for continous automatic updates with electronic downloads and responsive toll-free telephone and electronic file exchange technical support

Training – New one-day Signals course focusing on HCM Updates and new HCS features with discount coupon for *HCS+* upgrade or purchase

Notice to all *HCS*-3 Users

Upgrading to *HCS2000* now will make you eligible to upgrade to *HCS+* when it becomes available this fall. Once available, only *HCS2000* users will be allowed to upgrade, all others will be required to buy a new license. Typically, upgrading is one-half to one-third the cost of new purchases.

Visit the McTrans Booth (#309) at the

ITE Annual Meeting
August 1-3, 2004

Coronado Springs Resort
Walt Disney World
Orlando, Florida

Stop by for an *HCS+* Demonstration

ITE 2004 Annual Meeting and Exhibit

August 1-4, 2004
Disney's Coronado Springs Resort
Lake Buena Vista, Florida, USA

CORSIM Optimization: Preview

Release 10.2 of TRANSYT-7F will introduce "direct" CORSIM optimization of cycle length, splits, and offsets, using the genetic algorithm. This version is targeted for January 2005. During the beta test period this Fall, send your TRF file to McTrans. If your file is chosen, we will optimize it free of charge. Regarding macroscopic, TRANSYT-based optimization, release 10.2 will introduce graphical coding of lane configuration, peak hour factor, and saturation flow rate.

Did You Know?

HCS2000

For Signalized Intersection and Urban Street analyses, the Upstream Filtering or Metering Adjustment Factor (I-Value) is a coefficient in the delay equation to account for way that upstream signals decrease the variance in the number of arrivals per cycle at the subject intersection, reducing delay. Many users leave the default of 1.0, which is intended only for isolated intersections at least one mile from an upstream signal. The I-Value is based on the volume-weighted v/c ratio average of all upstream movements contributing to the subject intersection lane group. This computation will be automated in HCS+.

CORSIM

U-turns and left-turns can only be simulated from a shared lane when actuated control is used. To model shared u-turns and left-turns at a pre-timed controller, it may be preferable to code the signal as actuated, but specify equal maximum and minimum green times to emulate pre-timed operation.

TRANSYT-7F

After recording hundreds of test cases, no input file has ever been found for which hill-climb optimization produces a better timing plan than genetic algorithm optimization. If you encounter a TRANSYT input file for which hill-climb optimization appears to produce a better result, submit it to McTrans. We will attempt to return it genetic-optimized with the best solution.

NEW

Capital Program Managment System

CPMS is a full featured, easy to use system for managing a 6-year Transportation Capital Improvement Program which can be used in a multi-user environment. The software facilitates both project level tracking as well as program level financial analyses. Special features allow evaluation of different program scenarios as well as tracking and summarizing changes between the current capital program and previous capital programs. A unique feature of CPMS is the ability to handle both programmed funds and carryover funds in order to track actual expenditures.

The user interface provides many useful views of the data which help to balance the funds during the 6-year program period. Editing is intuitive and there are many features which simplify data entry as well as help to assure that the information is entered correctly.

CPMS produces many types of project reports and budget/funding reports which can be easily customized by the User with a minimum of effort. Additional reports can be produced off-line using Crystal Reports, if desired.

The following reports are included (partial list):

- The federally mandated Transportation Improvement Program (TIP) Report
- A detailed TIP Report
- Project Summary Report
- Funding Summaries – Programmed or Actual Expenditures
- Budget Summaries
- Funding by Worktype Report
- Program Changes Report

Other features:

All reports can be printed to Acrobat PDF format for posting on an intranet or the web.

CPMS can export financial data directly to MS Excel for further analysis and the production of financial reports, charts and graphs.

CPMS has a GIS database component and can export data in a format suitable for GIS programs.

There is an Annual Update feature which transforms the financial data for the next fiscal year cycle automatically.

CPMS provides built in security and security administration to manage user accounts and privleges.

CPMS is available at LOS 7 from **McTrans** for $4500.

Update

CandeCAD Pro

Culvert Analysis and Design inside AutoCAD®

CandeCAD Pro is a two-dimensional, nonlinear finite element computer program developed exclusively for the design, analysis and evaluation of buried pipes, culverts and other soil-structure interaction systems. CandeCAD Pro incorporates the widely used source code CANDE, which was originally developed under sponsorship of the US Federal Highway Administration (FHWA), and has been in use worldwide for over twenty five years. CandeCAD Pro has revolutionized FE analysis in the AutoCAD® environment enabling engineers to utilize advanced FE technology on a routine basis for culvert and pipe design, analysis and evaluation in a considerably shorter time than previously possible.

Development Objectives

- To make it the fastest and easiest to use finite element buried pipe and culvert analysis software in the world.
- To empower users to incorporate advanced finite element technology in their design environment, leading to better engineered, safer and more economical designs for pipelines and culverts.

Using CandeCAD Pro will result in significant savings in time and money while ensuring better engineered, safer and more economical designs. CandeCAD Pro by SSIS Marketing International is available at LOS 6 from **McTrans** for $2,395.

Update

TRAFFIX™ 7.7

Dowling Associates, Inc. announces the release of TRAFFIX 7.7 traffic impact analysis software.

TRAFFIX 7.7 contains many new features, including analysis of left-hand side driving conditions, global trip generation entry, and more signal warrants and link volume posting options. These new features permit users to analyze conditions where traffic drives on the left-hand side of the roadway, enter trip generation rates globally, choose delay and/or volume based peak hour signal warrants, and post entering, exiting and change in link volumes.

TRAFFIX allows users to: rapidly forecast the impact of new developments; conduct capacity analyses using HCM, ICU, Circular 212 and other methods; interactively test mitigation measures; determine individual development projects' traffic impact fees; generate comprehensive, concise reports; import from travel demand models and ASCII; and export to Synchro, HCS, XML and ASCII, for multiple intersections and scenarios…all from a single file.

TRAFFIX 7.7 is available at LOS 7 from **McTrans for** $3700 per site license.

Update Watch

Package	Version	Status	Target	Distribution
HCS2000™	4.1e	Complete	Available	Patch Download
TRANSYT-7F	10.1	Complete	Available	Registered users may upgrade
TSIS	5.1	Complete	Available	Sent to Registered users
IDAS	2.3	Complete	Available	Sent to Registered users
PASSER™II-02	2.0	Complete	Available	Sent to Registered users
PASSER™V-03	1.0.2	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