

Simulating Traffic with Cube Dynasim

Advancing to the next generation in software tools

Cube Dynasim is a state-of-the-art micro-simulation software package. Cube Dynasim has all of the capabilities of traditional micro-simulation software, but leverages advances in computer technology to offer an enhanced tool set that can greatly expand the uses of the software. With Cube Dynasim, traffic engineers and planners can greatly improve their productivity and effectiveness.

Getting more from your time

Cube Dynasim offers tools and features that help increase your productivity, eliminating or reducing tedious, time-consuming activities associated with older generation software.

Scenario management

Analysts use micro-simulation software to test alternative projects and competing options. A project might require many scenarios, such as for each signal timing plan. Cube Dynasim can separate scenario data into different elements, allowing analysts to develop scenarios rapidly by easily combining elements.

Similarly, analysts must run scenarios multiple times to capture variances in traffic. Cube Dynasim includes tools to combine, manage, and evaluate statistics from these runs, eliminating

many tedious, manual steps required with older generation software.

Data input

Creating data when setting up simulation models can be a time-intensive process. Cube Dynasim allows you to leverage data you already have. You can import data directly from other applications. For example, you can import design files and geographic databases from your CAD and GIS software, maximizing the return on your software investments. Most importantly, you can import roadway, public transit, traffic control, and travel demand data directly from Cube Voyager.

Customization

Often, projects have unique requirements and special circumstances, which cannot be met entirely by any out-of-the-box software. To help you in these cases, Cube Dynasim interfaces with external programming languages, which you can use to develop new capabilities.

Responsiveness

If you are a public employee, Cube Dynasim allows you to respond quickly to requests from management, policy makers, and citizens. And the visual results from Cube Dynasim are more persuasive than any cost-benefit study.

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If you are a consultant or system integrator, Cube Dynasim allows you to offer more traffic analysis work for a lower price, helping you maintain competitiveness and value in your proposals.

Getting more from your data

For today's organizations, data is an asset—an asset they spend considerable time developing to produce consistent studies and models. Unlike many older generation micro-simulation systems, Cube Dynasim uses contemporary information technology standards, compatible with organizations' modern data systems. By using Cube Dynasim, traffic engineers and analysts can use secure, cost-effective, and broadly available data.

You can integrate Cube Dynasim with other software packages, exchanging data between systems. Easy data exchange allows you to develop workflows that make optimal use of your software and data, and enhance the overall results.

For example, traffic simulations require a complete signal timing plan, for existing and proposed intersections. You might import these plans from a separate, traffic signal optimization software package. After running the traffic simulation, you might export the results from Cube Dynasim to the signal optimization software to fine-tune the signal.

Cube Dynasim stores data in a relational database. Therefore, you can easily manipulate the data into different formats and ensure consistency with other software and other models. For example, data for simulation studies often originate in regional models, in an aggregated format. You must disaggregate the data for use in the simulation. After the simulation, you might again aggregate the data to reconcile with higher level models.

Getting more from your software

Cube Dynasim is a powerful tool that offers opportunities to use your micro-simulation software in new and exciting ways.

Support for comprehensive studies

Meeting the needs of an increasingly complicated world, Cube Dynasim offers support for comprehensive studies of transportation systems—studies that examine the interactions between different modes and different networks.

Earlier generations in micro-simulation software usually addressed a specific transportation infrastructure or a specific transportation mode. For example, you might have used one piece of software to examine traffic circles or roundabouts and a separate piece of software to examine freeway traffic. Similarly, you might have used one piece of software to study roadways and another piece of software to study railways.

As a state-of-the-art, advanced traffic simulation software package, Cube Dynasim allows you to incorporate a broad mix of vehicles along with appropriate behavior for every mode of traffic. You can continue to build and test individual network components, or you can combine components to model comprehensive systems. For example, a large design team studying a mixed roadway and trolley system can use Cube Dynasim to concurrently develop a realistic scenario that captures the interactions between cars, trucks, buses, bikes, trains, and pedestrians. Such an advanced project might combine all six modes of traffic from three separate networks (that is, road, rail, and sidewalk) at over 200 intersections in order to examine infrastructure improvements on more than 15 miles of the city's networks.

Advanced visualization capabilities

By employing the advantages offered by today's high performance computing processors and networks, Cube Dynasim becomes a powerful visualization tool. Cube Dynasim can realistically

depict various alternatives, persuading others of the validity and value of the results.

With the advances Cube Dynasim offers in performance, diversity, and scale, you can use simulation for new purposes:

- Building and sharing virtual cityscapes
- Testing new, forward-looking signal control logic
- Evaluating complex intermodal interactions
- Developing evacuation and emergency contingency plans
- Optimizing investments in ITS equipment and strategies
- Studying traffic effects of impending construction projects

Benefits of migration

While you can port older micro-simulation packages to new platforms, ported packages typically do not take full advantage of technology improvements offered by Cube Dynasim, like relational databases, powerful video cards, inexpensive memory, and current data-sharing standards. Furthermore, running contemporary software on contemporary systems simplifies maintenance and support. You do not need to maintain non-standard equipment for older systems. Support and parts for newer, standard equipment is easier to obtain and less expensive.

Can I try it out?

Definitely. Citilabs is currently offering 30-day trial licenses of Cube Dynasim to existing clients. Contact your sales representative today at sales@citilabs.com to organize a trial.

Cube Dynasim is one of the many innovative and market-leading solutions developed by Citilabs—the leader in transportation planning software solutions.