



Cube

dynasim

citilabs

Simulate Before You Build

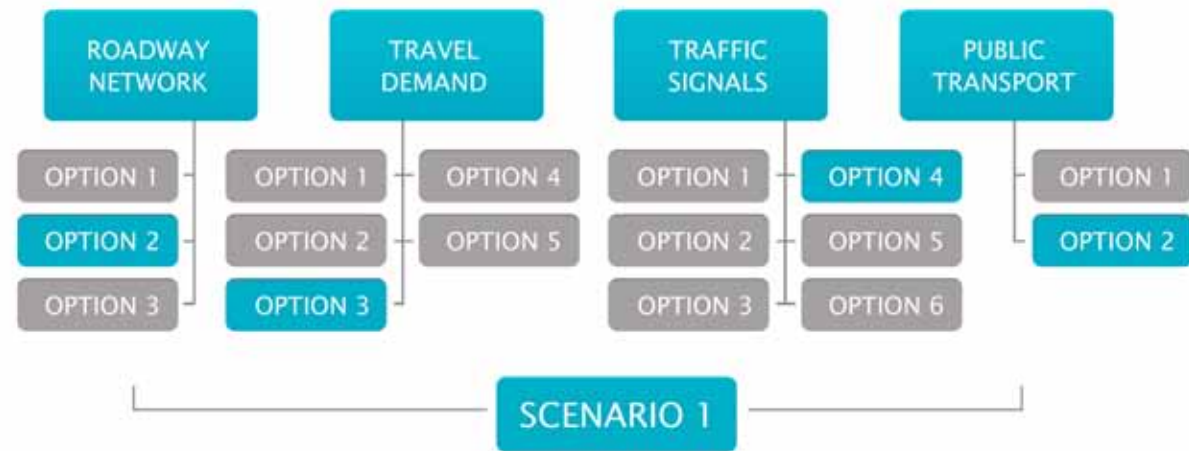
Cube Dynasim is a leading traffic micorsimulation software system used to model the operational impacts of changes to the built environment and to operating policy. Cube Dynasim takes into account the true impact that individual intersections, weaving areas, control devices, and transportation modes have on each other. It realistically emulates the flows of automobiles, motorcycles, trucks, buses, rail vehicles, bicycles, and pedestrians. It provides detailed reports, analysis, and 3D and 2D animations showing how the transportation system will function given the proposed changes.



Cube Dynasim is used for a wide variety of studies:

- Roundabouts
- On-street Parking Maneuvers
- Multimodal Transit Centers
- Bus Malls
- Parking Lots
- Transit Priority and Preemption
- Bike Lanes
- Pedestrian Priority Areas
- Expressway Facilities
- Complex expressway interchanges & weaving areas
- High occupancy vehicle lanes
- Toll plazas and facilities
- Construction areas and lane closures
- Ramp metering on expressways
- Railroad priority and preemption
- Taxi stands
- Grade separated intersections
- Complex and closely-spaced intersections
- Uncontrolled intersections
- Large-regional networks
- Two-way-left-turn-lanes
- ITS technologies
- Special event traffic
- U-turns
- Evacuation plans
- Truck terminals
- Advanced signal systems & technologies

Key Features



Scenario Based Simulation

Cube Dynasim is a scenario-based simulation offering a completely different user experience than any other software system. This approach provides a way to easily build, manage, and run an unlimited number of simulation alternatives. Instead of managing directories of redundant simulations, the entire simulation project is built and managed within a single file. A scenario-based simulation system saves users huge amounts of time, effort, and money.

Roadway network | Travel Demand Traffic Signals | Public Transport

The user creates options for each of the categories. For example three optional road networks, five levels of travel demand, six traffic signal plans and two options for the public transport system.

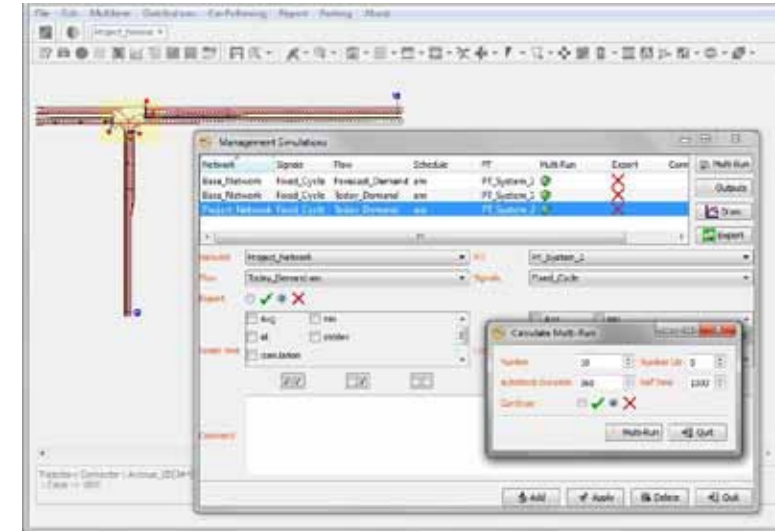
The user creates options for each of the categories. For example three optional road networks, five levels of travel demand, six traffic signal plans and two options for the public transport system.

A scenario is then created by selecting one option from each of the four categories: one roadway network option + one travel demand option + one traffic signal option + one public transport option. Creating alternative scenarios is as easy as selecting a different combination of the elements.

This structure provides huge benefits to the user:

- You only code an option once—not multiple times—in multiple files.
- If you need to update an option, you update it once and the change is then immediately shared with all scenarios using that option

Reporting and Charting with Automated Compilation of Numeric Results



Cube Dynasim is unique in that whether the simulation has to be run five, ten, or one-hundred times, the amount of work for the user is the same. Tell Cube Dynasim how many runs to perform and it does the runs, compiles the results, and generates summary statistics automatically.

All results are compiled and necessary statistics are calculated automatically saving the user time in compiling and analyzing results. Statistics can be calculated anywhere in the system by placing data collection points in the strategic areas of the simulation. Graphics are provided showing Vehicle Flows, Travel Times, Queues, Speeds, Delays, etc. All statistics may be stratified by time of day and location. These charts may be saved for incorporation into study reports.

Freely Distributable Animations

The animations and results produced by Cube Dynasim are exported and compiled into a single executable file. This CubeDynaViews file may be freely distributed and shared with clients, decision makers, or the public.

With Cube DynaViews, the animations are 'live' and may be viewed at any speed. The user is free to maneuver about the 3D space. There is no need to compile the animations or create movie files. Images from Cube DynaViews may be captured and used in reports and presentations.

The 3D animations may be visualized on background maps or the user may supply their own 3D landscapes. Cube Dynasim uses landscapes in 3DS format, a standard format similar to DXF or SHP and written by any 3D creation program.

New Flow Scenarios

Now five ways to specify travel demand

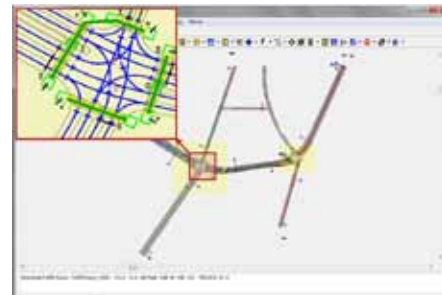


Generator

The standard method in Cube Dynasim, where travel demand is quantified with a set of origin-destination matrices by vehicle class and time segment.

Sub-Network

Allows you to simulate a sub-area, extracting flows from the trip matrix of the whole network. It provides a useful way to analyze how a sub-area (e.g. an intersection) functions without running the entire simulation.

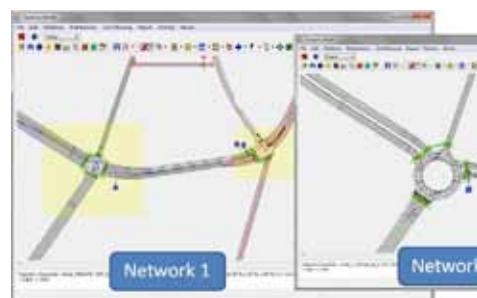


Export-Import

Associates Cube Dynasim with Cube Voyager. You can import all or part of an assignment (paths and flows) from Cube Voyager to Cube Dynasim to carry out a microsimulation of the network. The network generated by Dynasim can also be used in Voyager.

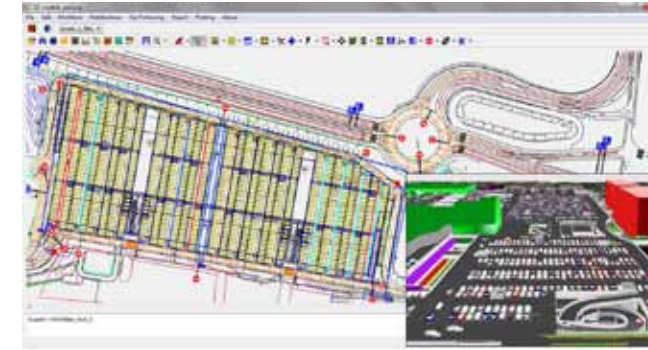
Estimation

Associates Cube Dynasim with Cube Voyager. You can import all or part of an assignment (paths and flows) from Cube Voyager to Cube Dynasim to carry out a microsimulation of the network. The network generated by Dynasim can also be used in Voyager.



Re-Assignment

The demand is based on the results of an estimation scenario, assigning flows estimated on network 1 to network 2. An important use for this method is evaluating traffic transfers resulting from changes to the road network.



Parking Simulation

Cube Dynasim 4 adds a new powerful tool to simulate parking, from very simple to extremely large lots.

Parking lots are grouped in “Zones”. Reaching a zone, each vehicle will try to find a parking space, seeking to optimize it’s final location based on the position of parking “attractors” and walking distance. In case a vehicle does not find an available parking space, it will continue looking for a parking space or

it will move to a new zone to look for a new parking space. It is possible to specify a “visibility” parameter for each alley and simulate the impact of VMS indicating the occupation rate of the parking lots.

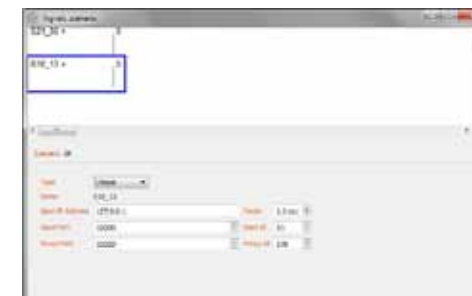


Accident Simulation

Cube Dynasim has a specific tool to simulate accidents and their impact on the network. Accident duration (start time/end time) and affected vehicle type(s) may be specified.

VMS - Variable Message Signs

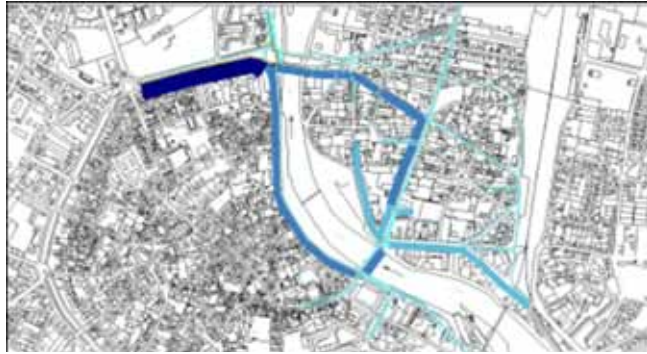
Cube Dynasim has a specific tool to simulate variable message signs and analyze their impact on the simulated network. It is possible to define different reactions to events. Cube Dynasim will reroute vehicles affected by the information. It is a fundamental tool for evaluation of ITS alternatives.



Integration with UTOPIA

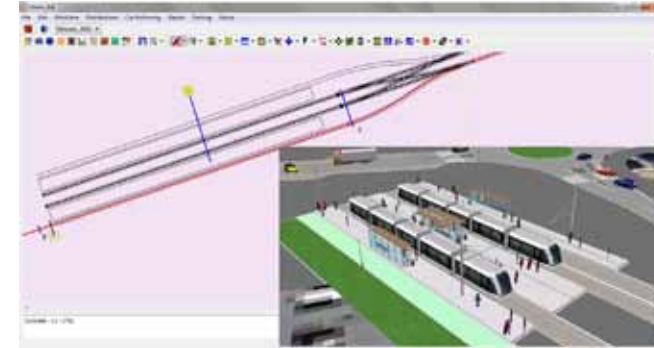
Cube Dynasim 4 now has an interface for communication with the signal optimization system UTOPIA. This function makes it possible to validate the scheduling of a controller or a real-time centralized system while avoiding the complications and cost inherent in on-site experiments.

New Outputs



Shape Files

Associate any data with the network trajectories and to export the Dynasim network as shape files (links and nodes). Simulation results can be added to the shape files making it possible to create static maps of the dynamic simulation.

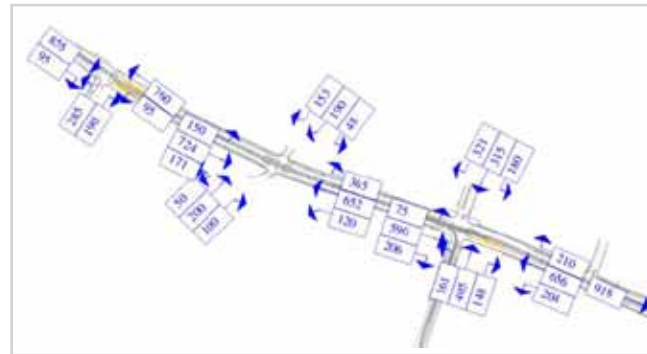


“Terminal” tool for PT Simulation

Cube Dynasim 4 now allows public transport services to turn-around and restart their return trip.

Flow Box

Turning volumes and link flows by vehicle type by area may be saved as EPS files for importing to documents.



Other Specific Tools

Several new tools have been added to Cube Dynasim 4 adding more techniques for simulating vehicle traffic and driving behavior.

Versions

Cube Dynasim is available for purchase from Citilabs in four alternative versions. For more details about these versions please visit www.citilabs.com/dynasim-version-comparison



Videos

In addition to DynasimViews, AVI files of the simulations may also be saved.



www.citilabs.com/dynasim