

Bentley[®]
Advancing Infrastructure

 CONNECT Edition



CUBE

Predictive Modeling and Simulation of Transportation

CUBE is a powerful tool for transportation planners, transportation engineers, and city planners to clearly visualize and easily test varied scenarios to compare potential benefits and be aware of unexpected consequences. Being armed with this knowledge saves time, money, review cycles, and debates as changes are proposed before entering the often lengthy and time-consuming design process.

The CONNECT Edition

The SELECT[®] CONNECT Edition includes SELECT CONNECT services, new Azure-based services that provide comprehensive **learning, mobility, and collaboration** benefits to every Bentley application subscriber. *Adaptive Learning Services* helps users master use of Bentley applications through CONNECT Advisor, a new in-application service that provides contextual and personalized learning. *Personal Mobility Services* provides unlimited access to Bentley apps, ensuring users have access to the right project information when and where they need it. *ProjectWise[®] Connection Services* allow users to securely share application and project information, to manage and resolve issues, and to create, send, and receive transmittals, submittals, and RFIs.

CUBE Delivers a True Multimodal Approach

CUBE supports any mode of transport, delivering a true, multimodal approach with feedback interactions between different modes (pedestrians, bikes, cars, freight, buses, BRT, rail, air, water, among others). At the macroscopic level, CUBE Voyager is used for strategic and multimodal planning. It is typically used to study major roadway networks and public transport systems with a great level of detail. These macroscopic models treat the entire volume of traffic traveling between an origin and destination as a single unit to evaluate the lowest-cost path for the aggregated traffic volume and compute congestion effects on a strategic scale, using volume-capacity ratios and estimating resulting speeds. Using optional CUBE extensions such as Dynasim and Avenue, the user can also perform microscopic and mesoscopic modeling. Dynasim uses microscopic techniques to model each vehicle explicitly capturing detailed movements and interactions such as vehicle acceleration and lane merges. This level of detail makes CUBE Dynasim the ideal application for studying infrastructure geometry and traffic control systems or for studying multimodal projects, such as the interactions between pedestrian and vehicle flows. CUBE Avenue requires an intermediate level of detail, using mesoscopic techniques to study the dynamic of traffic flows over time.

Five Extensions Enhance Capabilities

CUBE is comprised of the primary product, CUBE Voyager, and its five extensions to enhance capabilities for specialized tasks.

- CUBE Voyager – supports macroscopic movement of people and vehicles with the customization necessary to create the best plan for your area without limitations.
 - » Network – Network editing
 - » Matrix – Demand modeling, big data analysis
 - » Highway – Zone-to-zone route analysis
 - » Public Transport – Public transport modeling
 - » Analyst – Matrix estimation
 - » Cluster – Multicore processing
- CUBE Avenue – the mesoscopic simulation solution to model the dynamics of congestion throughout a day including advanced Dynamic Traffic Assignment capabilities.
- CUBE Cargo – a library of programs for modeling freight demand throughout a city or at a regional and long-distance scale, to understand or predict the impact of commodity flows.
- CUBE Land – a library of programs for modeling land use. Easily integrated with any transportation model, it predicts land-use changes given modifications to the transportation system.
- CUBE Dynasim – a multimodal microscopic traffic simulation solution, capable of modeling all aspects of traffic operations and parking.
- CUBE Access – a GIS extension that provides a quick and easy interface for multimodal accessibility modeling.

System Requirements

Processor

Minimum: Intel® Pentium 4, AMD Athlon

Recommended: Intel® Core i5, i7, Xeon or better; AMD Phenom II, Athlon II, FX-Series, A-Series APU or better

Operating System

Recommended: Windows 10

Memory/RAM

Minimum: 1 GB

Recommended: 4 GB or higher

With Cluster: 2 GB per core recommended

Disk Space

10 GB for the application and supporting applications and data (like GIS)

100+ GB for output files

Display

Minimum: 1024 x 768 at normal size (96dpi); 16-bit color depth

Recommended: 1440 x 900 or higher at normal size (96 dpi); 32-bit color depth

Video/Graphics Adapter

Minimum: 24-bit capable graphics adapter; 64 MB video memory

Recommended: 32-bit capable graphics adapter; 512 MB or more video memory

OpenGL version 2.0 runtime and Shader Model 3.0 or higher is recommended

ATI or NVidia GPU is recommended for any 3D GIS work or CUBE Dynasim microsimulation

Find out about Bentley at: www.bentley.com

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CUBE At-A-Glance

Scalable and Comprehensive

- Supports macroscopic, mesoscopic, and microscopic modeling
- Built on decades of modeling development expertise
- Enables informed transportation and land use development decisions
- Improves communication with local communities
- Expands access to robust analytics
- An open platform that enables you to build and calibrate models of any type

Data Management

- Create, edit, and visualize your data
- Provides seamless support for Esri geodatabases and ArcGIS online

Scenario Management

- Define and organize an unlimited number of scenarios
- Easily document your input, assumptions
- Reproduce the results for hundreds of archived alternatives

Model Management

- Intuitively build models using a visual flow chart style user interface

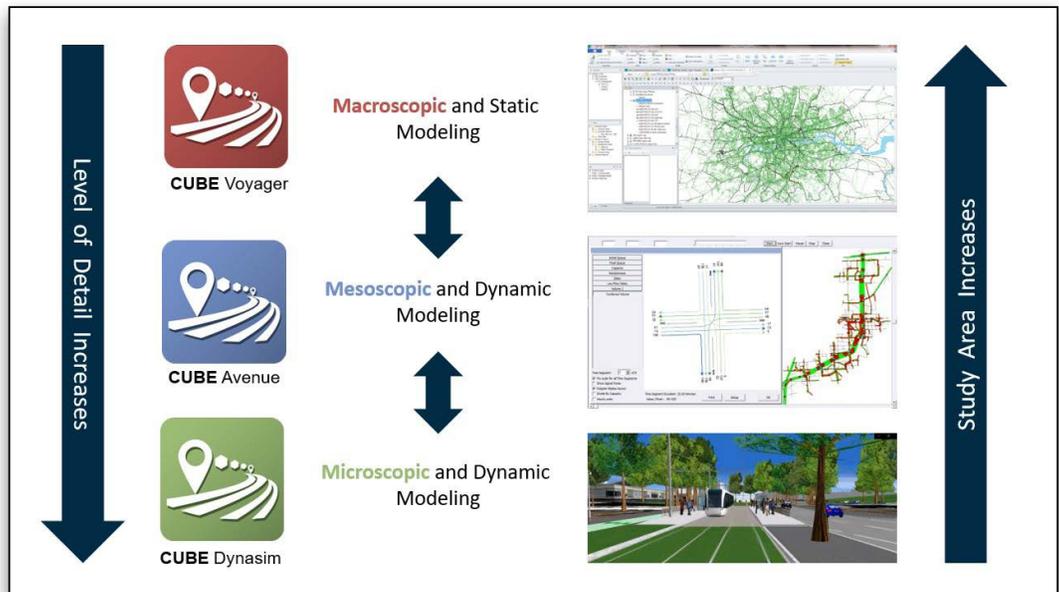
- Clearly document process flows
- Pull-down menus to choose model functions
- File linkage (networks, zonal data, and so on) and file creations for intermediate steps
- Simple click and drag to link data from one model step to another
- An easy-to-use interface to run part of the model or the whole process

Library of Programs for Modeling

- Traditional four-step demand models with feedback loops
- LUTI modeling with complete integration between land use and transport modeling
- Tour-based and activity-based demand modeling
- Combined equilibrium models
- Stand-alone strategic modeling
- Microscopic simulation modeling

Reporting

- Built-in reporting tools
- Table and chart form to support scenario analysis and comparisons
- Organizes reports produced by models in a user-defined and structured way



CUBE provides all levels of detail.