

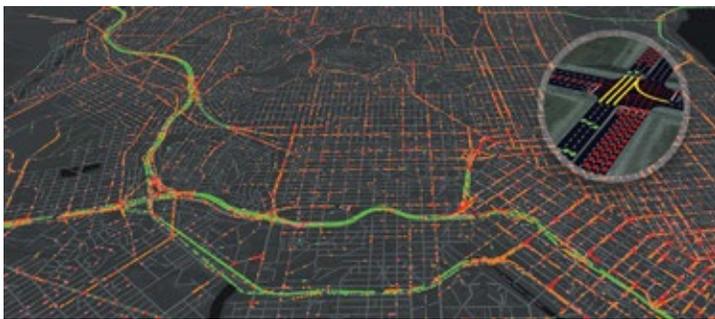


# **Dynameq 4**

Multiscale Traffic Simulation

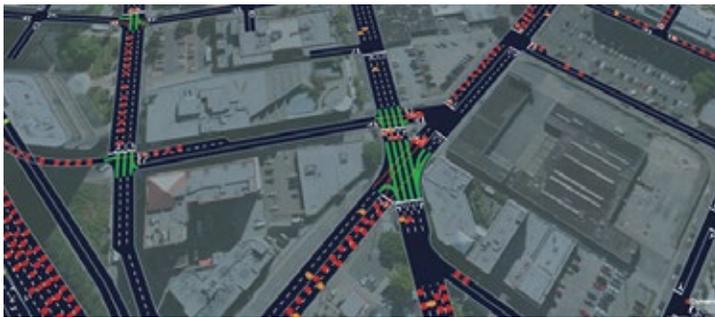
# Dynameq is software for multiscale traffic simulation.

Dynameq provides an advanced vehicle-based traffic simulation and simulation-based dynamic traffic assignment (DTA) that allows even large, congested applications to be modelled reliably within a single traffic model and at a consistent level of detail throughout the entire network. High-performance animations provide a 3D visualization and analysis framework that can be used for clear, detailed and intuitive presentations to both technical and non-technical audiences.



## One model. Multi scale.

Dynameq provides scalability from a single congested corridor to an entire city, all without losing detail. Vehicle trajectories over the entire network provide the transparency needed to understand what is happening, wherever it matters. There is no need to resort to hybrid approaches in order to ensure model stability and fast run times. There are no boundaries to define between separate micro and meso areas of your network, nor concerns about how the choice of those boundaries may impact model results.



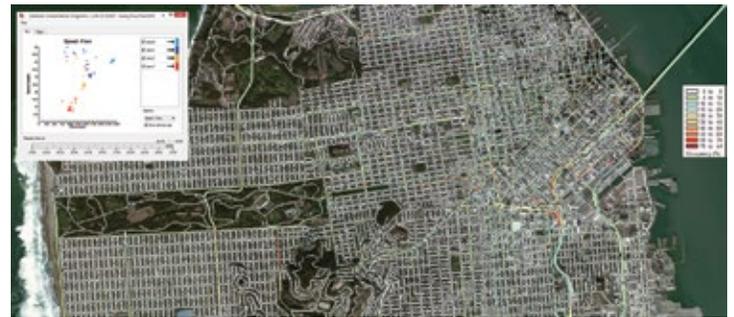
## All the detail you need

Dynameq traffic simulation moves individual vehicles on lanes, with car following, lane changing and gap acceptance models and explicit signal control. This is the only way to capture the true causes of congestion – the crossing and merging of vehicle trajectories, turn pockets that overflow, late merging and queue jumping – which are part of the real traffic environment and which have a major impact on actual traffic conditions and travel costs. Modeling these complex traffic phenomena naturally leads to realistic emergent capacities and throughputs.



## Future-year demand? No problem

When you want to run demand scenarios reaching out ten, twenty, or thirty years, the adaptive traffic simulation in Dynameq keeps the traffic in your model moving, virtually guaranteeing stable, converged results even in highly congested scenarios and without sacrificing model detail. The adaptive traffic simulation also provides new simulation outputs which identify critical bottlenecks to facilitate calibration and analysis.



## Performance and efficiency

Dynameq is extensively multithreaded for up to 4x speedup on a typical DTA run, and is optimized both for lower RAM requirements and faster run times. A Dynameq model of the entire city of San Francisco, including all vehicle road classifications and ~650,000 vehicles of demand, runs to dynamic user equilibrium in 50 iterations in less than 4 hours and under 14GB of RAM. More details upon request.

# Why use Dynameq on your next dynamic traffic modeling project?

- Virtually guarantees model stability even on large, highly congested networks
- Handles future-year traffic demand even when it exceeds network capacity
- Generates comprehensive vehicle-level detail at any scale
- Provides stunning vehicle animations, visualizations and analytics
- Reduces the time and cost of calibrating and validating your model



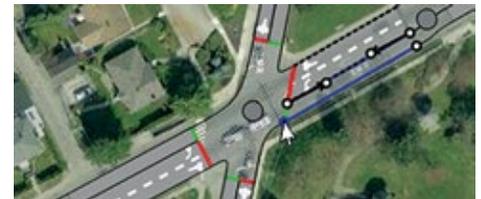
## Large-scale animation and analytics

High-performance 3D animations illustrate detailed vehicle trajectories and traffic signal states, permitting visualization at the individual vehicle level across the entire model area.



## Reliable route choice

Dynameq dynamic user equilibrium (DUE) routing reflects how real drivers make decisions based on day-to-day learning and experienced travel times: by anticipating congestion on alternative routes..



## Streamlined, easy network development

Dynameq helps you streamline the process of preparing your network. Smart logic and intelligent defaults drastically reduce the effort required to code large networks.



## Toll modeling toolkit

Dynameq provides a generalized-cost assignment which makes it easy to create fixed or time-of-day tolls by vehicle class.

## Transit signal priority and pre-emption

Transit-actuated signal priority and pre-emption using early/late green and phase insertion logic.



## Future signal timings

Use Dynameq's signal plan generator to produce signals for future scenarios or to fill in information missing from existing signal plans. The signal plan generator can design phases, compute timing parameters and define and synchronize corridors.

## And more to help your projects move

Dynameq includes lots of other desktop features and productivity tools designed to keep your project moving:

- Worksheets
- Editor
- Charting
- Select-link and path analysis
- Python API
- Subarea, traversal and network merge
- Speed contour plots
- Basemaps  
World imagery, world street, topographic, transportation or OpenStreetMap

## Operational Modeling Applications.

Dynameq is an ideal choice for a range of operational model applications and evaluations including congestion relief strategies, corridor and lane management, construction mitigation, transit design including transit signal priority schemes, traffic impact studies, emissions modelling, event planning and much more.

- Reduce calibration time and cost with a single, scalable traffic model
- Stable assignments and fast run times make larger models more cost-effective and more efficient than building separate networks for different studies
- Re-optimize traffic signal timings to help move traffic around work zones and closures

## Travel Forecasting Applications.

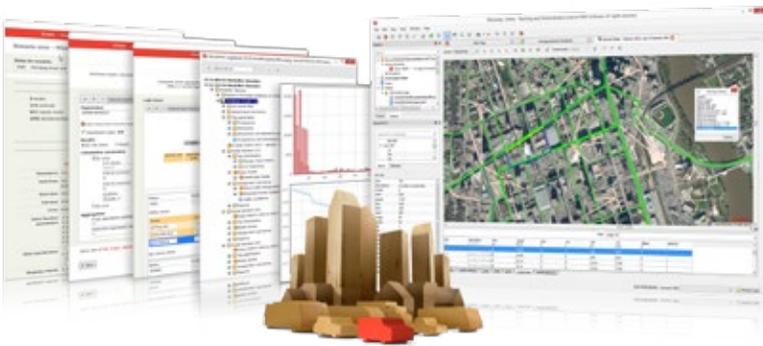
The improved stability, reliability and computational efficiency of Dynameq simulation-based dynamic traffic assignment provides a strong foundation for integrated DTA and travel forecasting applications. Please contact us to learn more.



The Evolution of Transport Planning



Also available from INRO:



**Emme**  
Transportation forecasting



**CityPhi**  
Visual analytics for large-scale  
spatial and mobility data

376 Victoria Avenue, Suite 200 • Westmount, Montreal, Quebec, Canada • H3Z 1C3  
www.inrosoftware.com • +1 514-369-2023 • info@inrosoftware.com

© 2016 INRO. All rights reserved. Emme, Dynameq and CityPhi are registered trademarks of INRO.  
ESRI and the ESRI logo are licenced trademarks of Environmental Systems Research Institute, Inc.  
Panorama of Seattle by Janus Jagomägi