

SHRP Project C10

Partnership to Develop an Integrated, Advanced Travel Demand Model and a Fine-Grained, Time- Sensitive Network

presented to

Third International Conference on Innovations in Travel Modeling

presented by

Thomas Rossi
Cambridge Systematics, Inc.

May 10, 2010

Transportation leadership you can trust.

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Project Goals and Objectives

- **Improve modeling process to address policy and investment questions**
- **Facilitate further development, deployment, and application of procedures**
- **Make operational an advanced travel demand model integrated with a fine-grained, time-dependent network**

Project Goals and Objectives

- **Secondary objectives**
 - **Produce a portable, transferable product**
 - **Incorporate products from related SHRP projects**
 - **Incorporate travel time reliability into the modeling capabilities**
 - **Demonstrate the application of outputs of the integrated model to estimate greenhouse gas emissions using MOVES**
 - **Demonstrate the dynamic integrated model set in a real-world environment on selected policies**

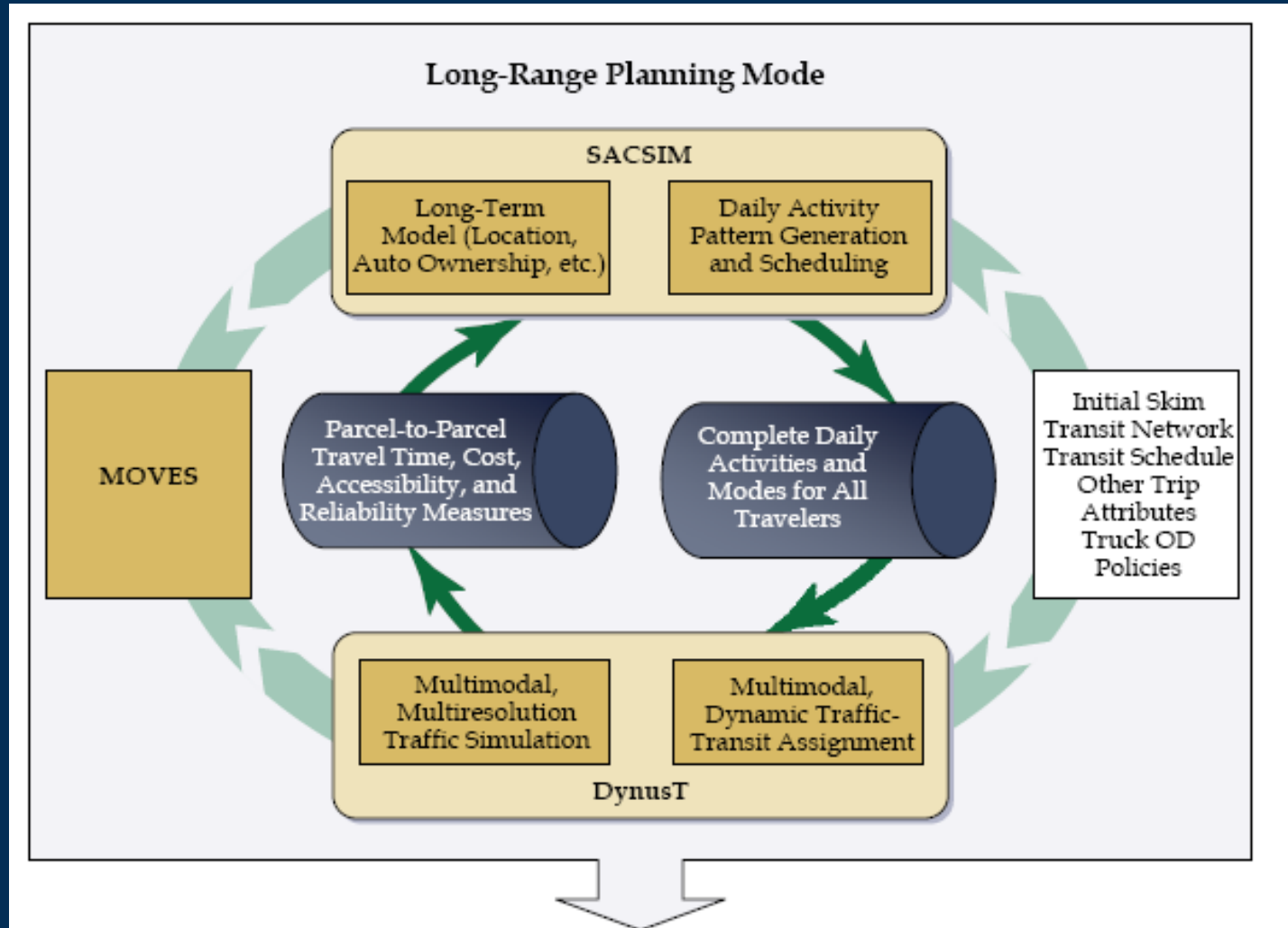
The Team

- **Cambridge Systematics, Inc.**
- **Sacramento Area Council of Governments**
- **University of Arizona**
- **University of Illinois, Chicago**
- **Sonoma Technology, Inc.**
- **Fehr and Peers**

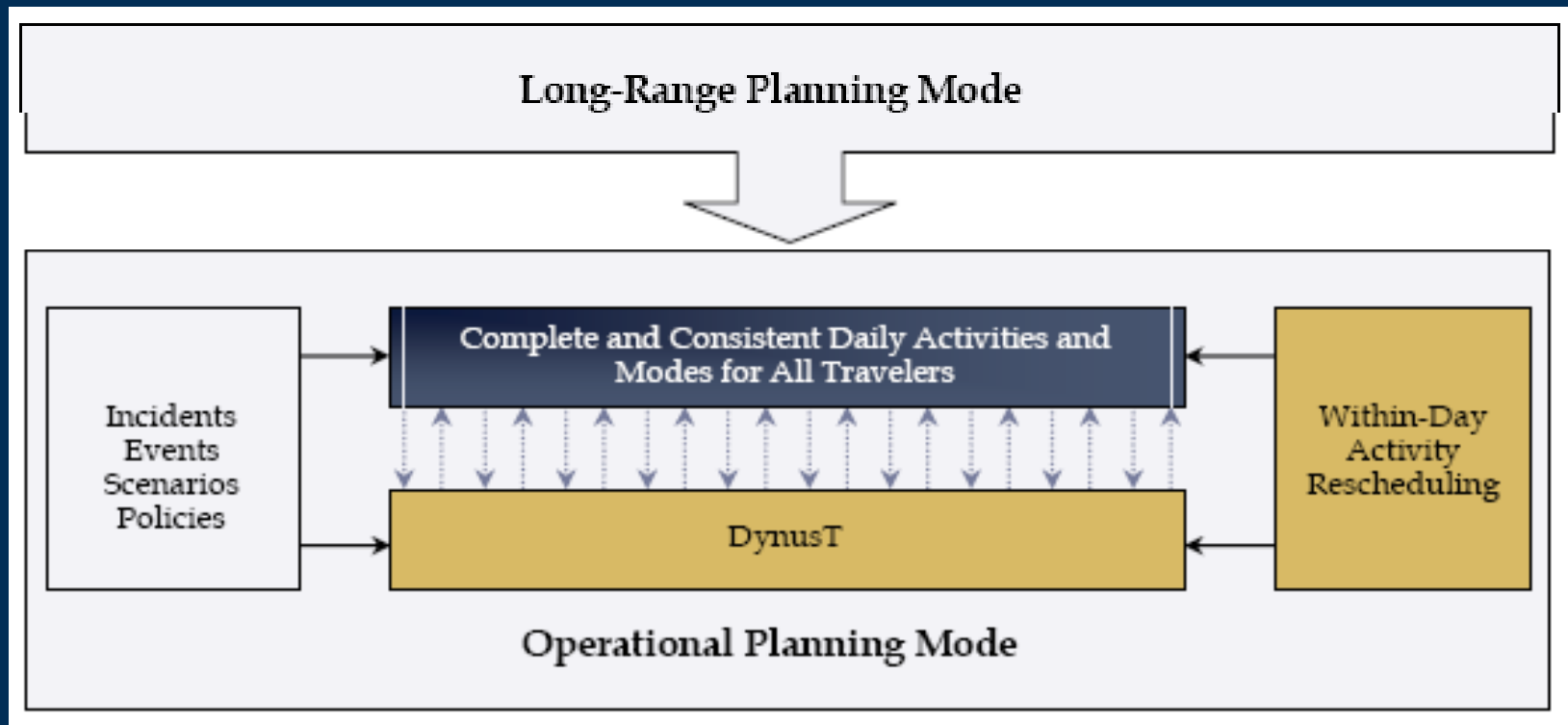
Our Approach

- Implement this approach by integrating an activity based model (SACSIM) with a traffic microsimulation model, DynusT
- Link individual person records with vehicle and transit trips in the microsimulation
- SACSIM is parcel based
- Simulate transit tours
- Incorporate model enhancements (e.g. reliability)
- Direct interface between DynusT and MOVES
- Use software development professionals for the programming of the integrated model

Integrated Modeling Approach



Integrated Modeling Approach (continued)



Issues in Model Design and implementation

- Incorporation of reliability
- Distributed values of time
- Use of tours in traffic simulation
- Treatment of transit
- Travel time resolution and feedback process

Treatment of Transit (Bus and Light Rail)

- **Transit passengers**
 - Identified in SACSIM (origins, destinations, departure times)
 - Routed in DynusT
- **Transit vehicles**
 - Simulated directly in DynusT based on timetable information
 - Assigned to their specific paths
- **Integration**
 - Passengers assigned to board specific vehicles identified in the timetable
 - Multi-path assignment

Travel Time Resolution and Feedback Process

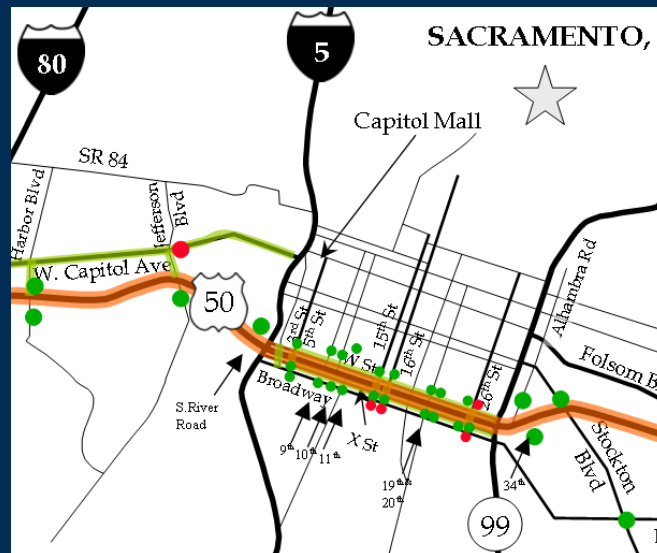
- **Questions regarding feeding level-of-service information from DynusT to SACSIM...**
 - For inputs to DAYSIM, use link data or vehicle trajectories?
 - Level of temporal resolution
- **Options**
 - Detailed 30-minute Skims from DynusT
 - Detailed 30-minute Skims using existing program (CUBE Voyager)
 - Broad time period skims using existing program

Open Source Software

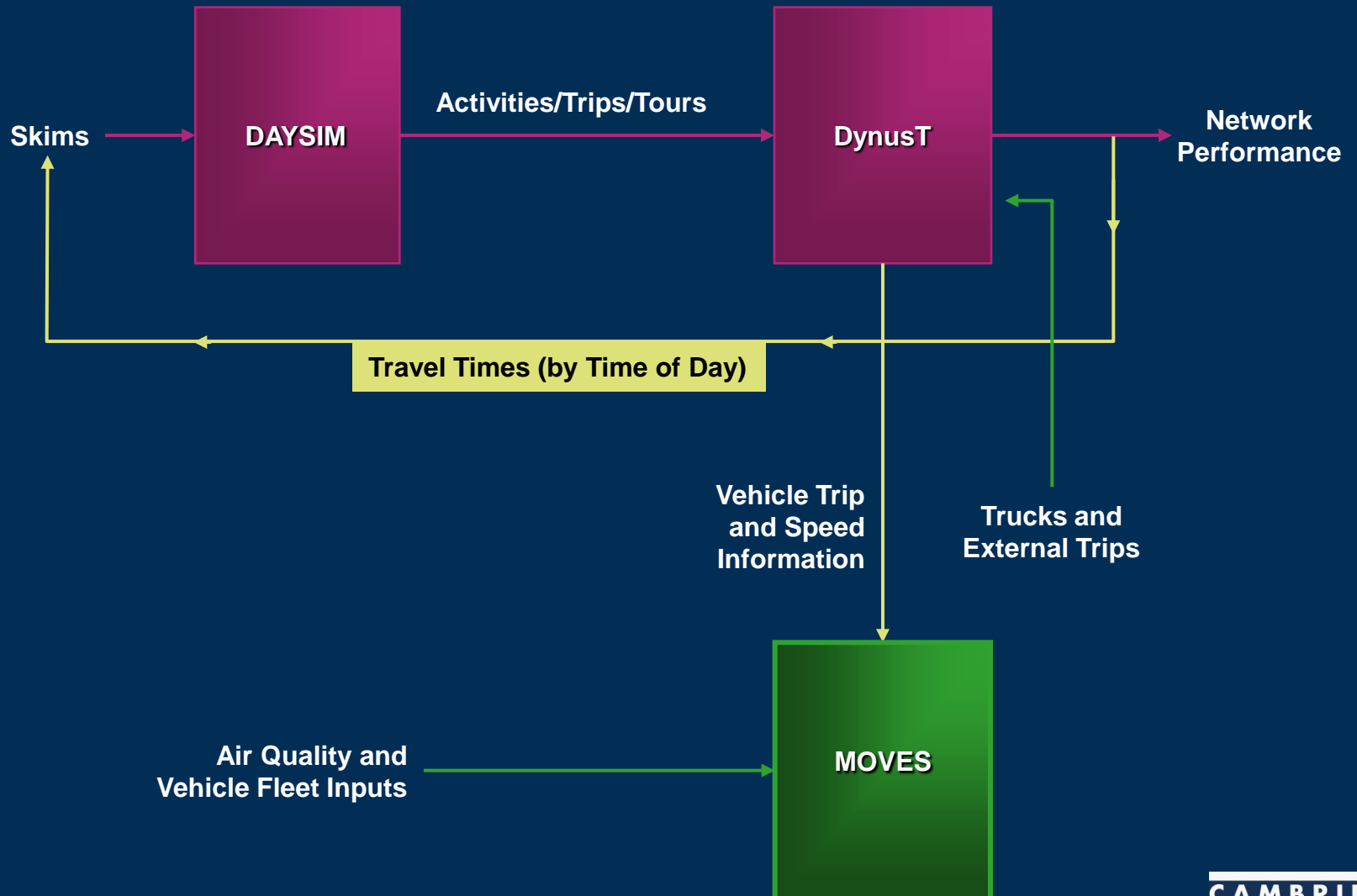
- **SACSIM source code is already released as open source**
- **DynusT has also been released as open source**
- **All new software will be property of NAS**
- **Therefore, entire source code for the new integrated model will be publicly available**

Software Approach

- Users will access the modeling software using web browser
- Software is being developed using an iterative, incremental methodology
- First software iteration to be completed this week using small-scale test network



Content for Iterations 1, 2, and 3



Outreach

- **SHRP C10 Project Portal - www.shrp2c10.org**
 - Project status reports
 - Software for download
 - Input and output data files
 - Technical reports (when approved)
 - Community forums
- **Complete documentation and user's manual**
- **Presentations at conferences and meetings**

C10 Web Portal

HOME NEWS FORUM DOWNLOADS RESOURCES WIKI CONTACTS ABOUT [Login](#) or [Sign up](#)

SHRP2

STRATEGIC HIGHWAY RESEARCH PROGRAM

SHRP 2 Project C10

Partnership to Develop an Integrated, Advanced Travel Demand Model

Welcome to the SHRP 2 C10 Community

Welcome to the project website for project C10 of the second Strategic Highway Research Program (SHRP 2). This site is an information and communication hub for the project, serving C10 project participants, the project panel, and interested observers from the transportation community. As the project progresses, the site will deliver project updates, technical reports, and interim and final versions of open-source software.

We invite you to participate in the project by reviewing these materials as they become available and by participating in the project forums. We also welcome your feedback on the structure and content of this site.

WHAT'S NEW:

Recent News

- [The SHRP 2 Project C10 Website is now live!](#)
11/23/2009 9:00:00 AM
- [SHRP 2 C10 Project Kickoff Meeting](#)
11/3/2009 10:00:00 AM

Partners

- [Cambridge Systematics](#)
- [Fehr & Peers Associates](#)
- [Sacramento Area Council of Governments](#)
- [Sonoma Technology](#)
- [University of Arizona](#)
- [University of Illinois at Chicago](#)

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