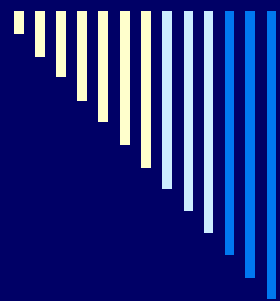


Road to ABM at NCTCOG

Arash Mirzaei

**TRB Innovation Conference
Portland, Oregon
June 23, 2008**



Challenges

1. Conceptual: Will ABM help or make our work more complicated?
2. Maintenance and Support: Will we be able to consistently retain enough knowledgeable staff to maintain and support the new model?
3. Cost: How do we fund the development, implementation and training cost?



Conceptual Challenge

Factors MPOs consider in short and long term plan development [special report 288]:

1. Economic vitality of the region
2. Safety of the transportation system
3. Security of the transportation system
4. **Accessibility and mobility options**
5. **Environmental protection**, energy conservation, and quality of life
6. **Integration and connectivity of the system**
7. **Efficient system management and operations**
8. System preservation

Travel Model Related Issues



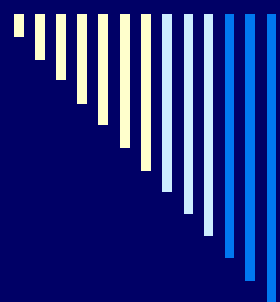
Conceptual Challenge

New expectation from the travel model

- ❑ Vehicle emission and speeds
- ❑ Induced travel
- ❑ Land use policies, cumulative and secondary impacts
- ❑ Non-motorized travel
- ❑ Transportation policies (e.g. variable tolls, parking charges, fuel taxes and cost)
- ❑ Environmental Justice
- ❑ Economic development
- ❑ Planning for emergencies
- ❑ Changes in population

ABM can help

Integrated Land Use Model can help



Conceptual Challenge

Will ABM deliver what is expected from it?

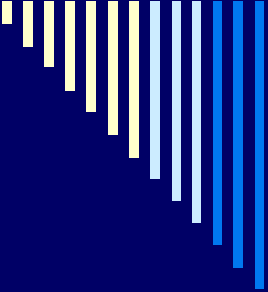
- Since ABM is a more integrated model system than 4-step, changes in the input may produce unintended results (This is also true for 4-step model in less degrees). For example, can we properly model variable tolls in managed lanes?



Conceptual Challenge

Vital improvements regardless of ABM can solve some of existing problems:

- ❑ Roadway coding (e.g. rectification, consistency among different model years)
 - ❑ Transit coding
 - ❑ Definition of capacity, incorporation of traffic control devices
 - ❑ Centroid connectors (proper and consistent)
 - ❑ Reporting capabilities
 - ❑ Maintenance of model runs and file storage and retrieval
 - ❑ Land use issues
 - Estimation of current year population and employment
 - Maintenance of the data
 - Forecast consistency among stakeholders
 - Boundary conditions
 - ❑ Travel surveys
 - Household
 - Transit
 - Airport, external, workplace, and commercial
 - Project specific surveys (e.g. toll roads)
-



Maintenance and Support Challenge

- Existing conditions for the 4-step model:
 - Travel model program area has 6 staff (model development and maintenance, surveys, application modeling support)
 - Information system (traffic count, ITS, and some database support)
 - Model Application group 10 staff (internal users of the model for projects and short and long range plan)
 - Current model has 4800 zones (soon 5500 zones) and each model run occupies 40 GB. We maintain about 200 model runs per year with file management system.
 - Future conditions for the ABM:
 - Unknown for now, but probably more?
-



Cost Challenge

□ Development

- Surveys: ~\$5 million
- Development: ~\$4 million

□ Maintenance and Support

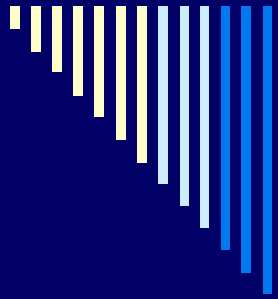
- We have not estimated yet, > ~\$1 million/year

Cost may be the least of challenges, though.



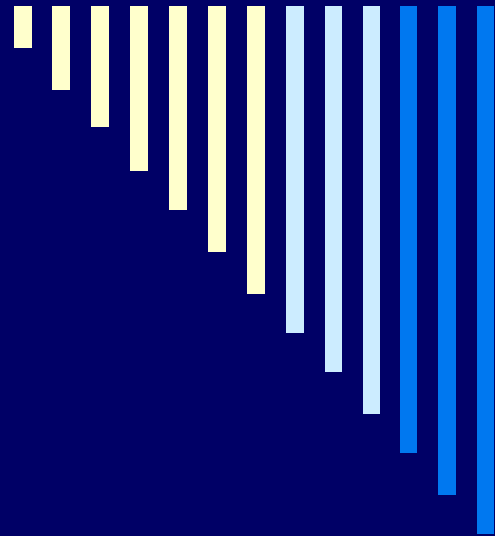
Current Activities

- Understanding ABM:
 - Support university partnership program in summarizing exiting ABMs
 - Test some of the model components
 - Understanding LU Models
 - Support university partnership program in explaining existing models with the hope of conceptualizing a robust LUM
 - Test some of the models or components
 - Improvement in Traffic assignment toward Dynamic Assignment
 - Enhance existing 4-step model in inputs and some model components
 - Conduct surveys that will be used for model development
-



UT Partnership

- UT partnership program explains to us how the following model are built:
 - SF-CHAMP of San Francisco County
 - SACSIM of Sacramento Council of Governments
 - MORPC of Mid Ohio Regional Planning Commission
 - CEMDAP that is developed for Dallas-Fort Worth Area



Contact

Arash Mirzaei

amirzaei@nctcog.org

817-695-9261
