

Dear Transportation Specialists:

The Transportation Research Board (TRB) is preparing a synthesis on Statewide and Megaregional Models. This is being done for NCHRP, under the sponsorship of the American Association of State Highway and Transportation Officials, in cooperation with the Federal Highway Administration.

Synthesis Topic 47-10 seeks to document the state of practice in statewide modeling. The report will also identify limitations of current practices that are likely to change the future of statewide modeling.

This questionnaire is being sent to the AASHTO Standing Committee on Planning. Your cooperation in completing the questionnaire is crucial to the success of this effort. **If you are not the appropriate person at your organization to complete this questionnaire, please forward it to the correct person.**

Please complete and submit this survey by April 8th, 2016. We estimate that it should take approximately 30 - 45 min to complete. If you have any questions, please contact either Rick Donnelly (donnellyr@pbworld.com, 1-505-878-6524) or Rolf Moeckel (rolf.moeckel@tum.de, 01149-89-289-22699). Any supporting materials that you would like to share can be sent by email or to the postal address shown at the end of the survey.

QUESTIONNAIRE INSTRUCTIONS

1. To download the entire questionnaire as PDF, [CLICK HERE](#).
2. To save your partial answers and complete the questionnaire later, click on the "Save and Continue Later" link at the top of your screen. A link to the incomplete questionnaire will be emailed to you from SurveyGizmo. To return to the questionnaire later, open the email from SurveyGizmo and click on the link. We suggest using the "Save and Continue Later" feature if there will be more than 15 minutes of inactivity while the survey is opened, as some firewalls may terminate due to inactivity.
3. To pass a partially completed questionnaire to a colleague, click on the "Save and Continue Later" link at the top of your screen. A link to the incomplete questionnaire will be emailed to you from SurveyGizmo. You may forward it to a colleague.
4. Before submitting the survey, you will be able to view and print your answers at the review page.
5. To submit the survey, click "Submit" on the last page.

Thank you very much for your time and expertise.

1. What is your State? *

Current Practice for modeling personal travel demand at a statewide level

2. What is the current state of practice for *person* travel demand modeling in your state. We will ask for freight, economic and land use later. If your model distinguishes short- and long-distance travel, please answer for short-distance person travel only, as we will ask for long-distance travel later. You may select more than one answer. *

- ☐ We have an operational aggregate (four-step) model
- ☐ We are developing an aggregate (four-step) model, which is not operational yet
- ☐ We have an operational disaggregate (activity-based) model
- ☐ We are developing an disaggregate (activity-based) model, which is not operational yet
- ☐ We operate a different type of model, namely:

- ☐ I don't know
- ☐ We do not operate a statewide person travel demand model

Household travel survey and other input data

3. What kind of survey data do you use for person travel demand modeling?

- ☐ Household travel survey(s)
- ☐ National Household Travel Survey (NHTS)
- ☐ Trip rates provided by NCHRP Report or NCHRP Synthesis Report
- ☐ GPS data provided by
- ☐ Cell phone location data provided by
- ☐ Other travel behavior data:
- ☐ I am not sure

From which year(s) was/were the household travel survey(s) conducted?

From what years are the National House Travel Survey (NHTS)?

Trip generation

4. What type of trip generation model do you use? If your model distinguishes short- and long-distance travel, please answer for short-distance person travel only.

- ☐ Trip rates based on multiple regression
- ☐ Trip rates based on cross-classification
- ☐ Tour generation
- ☐ Other type, namely:
- ☐ I'm not sure

Trip Distribution

5. What type of trip distribution model do you use? If your model distinguishes short- and long-distance travel, please answer for short-distance person travel only.

- ☐ Gravity model
- ☐ Logit-based destination choice model
- ☐ Intervening opportunities model
- ☐ Other trip distribution model type, namely:
- ☐ I'm not sure

Mode Choice

6. What type of mode choice model do you use? If your model distinguishes short- and long-distance travel, please answer for short-distance person travel only.

- ☐ Static (fixed) modal split
- ☐ Multinomial logit model
- ☐ Nested multinomial logit model
- ☐ Multinomial probit model
- ☐ Mixed logit model
- ☐ Other mode choice model type, namely:
- ☐ We do not use a mode choice model (trip generation for auto trips only)
- ☐ I'm not sure

Modes represented

7. Which modes are represented in your mode choice model (please mark all modes captured by the short distance mode choice model, even if some modes are not carried through to the assignment)

- ☐ Walking
- ☐ Biking
- ☐ Auto
- ☐ Auto Drive-Alone
- ☐ Auto Shared-Ride
- ☐ Local Bus
- ☐ Express Bus
- ☐ Regional or long-distance bus
- ☐ Light rail
- ☐ Heavy rail (conventional, including Amtrak and similar services)
- ☐ High-speed rail
- ☐ Air
- ☐ Other mode(s), such as:

Long-distance travel model

8. Do you operate a separate model for long-distance and/or external person travel?

- ☐ Yes
- ☐ No
- ☐ Not sure

9. How do you define long-distance travel (e.g., greater than X miles, longer than X minutes, all trips that cross state border)

10. How do you generate demand for person long-distance travel?

- ☐ Apply long-distance trip generation rates per household
- ☐ Use FHWA's national long-distance model
- ☐ We use trip generation parameters provided in NCHRP Report 735
- ☐ Other approach, namely:

☐ I am not sure

11. How do you model mode choice for person long-distance travel?

- ☐ Static (fixed) modal split
- ☐ Multinomial logit model
- ☐ Nested multinomial logit model
- ☐ Multinomial profit model
- ☐ Mixed logit model
- ☐ Other mode choice model type, namely:

☐ We do not use a mode choice model (long-distance trip generation for auto trips only)

☐ I am not sure

12. What modes are represented in your person long-distance travel model?

- ☐ Auto
- ☐ Auto Drive-Alone
- ☐ Auto Shared-Ride
- ☐ Bus
- ☐ Rail (conventional, including Amtrak and similar services)
- ☐ High-speed rail
- ☐ Air
- ☐ Other modes, namely:

Time-of-day choice

13. Does your model distinguish time-of-day periods? If your model distinguishes short- and long-distance travel, please answer for short-distance person travel only.

- ☐ Our model generates daily traffic, no separation by time of day
- ☐ Our model distinguishes ____ time of day periods:

☐ I'm not sure

Assignment

14. What assignment algorithm do you use? If your model distinguishes short- and long-distance travel, please answer for short-distance person travel only.

- ☐ All-or-nothing assignment
- ☐ Static user equilibrium assignment
- ☐ Analytical dynamic traffic assignment
- ☐ Simulation-based dynamic traffic assignment
- ☐ Other algorithm, namely:
- ☐ I'm not sure

Model feedback

15. Does your model feed back congested travel times from the assignment to previous steps? If your model distinguishes short- and long-distance travel, please answer for short-distance person travel only.

- ☐ No, there is no automated feedback loop within the model
- ☐ Yes, congested travel times are fed back into trip- or tour-generation
- ☐ Yes, congested travel times are fed back into trip distribution
- ☐ Yes, congested travel times are fed back into mode split
- ☐ Yes, congested travel times are fed back into time-of-day choice
- ☐ I'm not sure

Current practice in freight modeling for your state

16. Does your state conduct statewide freight modeling?

- ☐ Yes, we have a model for short-distance trucks.
- ☐ Yes, we have a model for long-distance trucks (or freight flows).
- ☐ Trucks are only included as a static trip tables at this point
- ☐ No, we do not model freight at this point
- ☐ I am not sure

17. What kind of model do you use for short-distance trucks?

- ☐ A tour-based truck model
- ☐ A trip-based truck model
- ☐ I am not sure

18. What kind of model do you use for long-distance trucks?

- ☐ A supply chain model
- ☐ A commodity flow model
- ☐ A tour-based truck model
- ☐ A trip-based truck model
- ☐ I am not sure

Use of Freight Analysis Framework (FAF)

19. Does your state use FAF for freight modeling?

- ☐ Yes, we use the FAF Origin-Destination Data
- ☐ Yes, we use the FAF payload factors
- ☐ We use the following FAF product(s):
- ☐ We do not use FAF data

Freight mode choice

20. Do you have a freight mode choice model? If your model distinguishes short- and long-distance freight flows, please answer for long-distance freight flows only.

- ☐ We have a rule-based freight mode choice model
- ☐ We have a logit-based freight mode choice model
- ☐ We do not model freight mode choice
- ☐ I'm not sure

Freight modes

21. Which freight modes do you represent in your statewide model?

- ☐ Trucks
- ☐ Rail
- ☐ Water
- ☐ Air
- ☐ Pipeline
- ☐ Other (please name if other refers to a specific mode):
- ☐ I'm not sure

Economic model

22. Do you model economic forecasts? Here, we are asking about models that produce input for the travel demand model.

- ☐ We do not run our transportation model for future years
- ☐ We use macroeconomic forecasts prepared by other state agencies
- ☐ We have our own economic growth model
- ☐ We use externally prepared forecasts (e.g., Global Insight)
- ☐ Other forecast, namely:
- ☐ I'm not sure

23. For which years do you model forecasts? (E.g., 2007 and 2030, or 2010-2040 in 5-year increments)

Base year(s):

Future year(s):

Land use modeling for your state

24. Do you model land use?

- ☐ Yes, we have an operational land use model, namely:
- ☐ Yes, it is not operational yet but we are working on:
- ☐ No, zonal socio-economic data is a static and exogenous input
- ☐ I'm not sure

Environmental impacts

25. Do you model statewide environmental impacts?

- ☐ Yes, we model statewide environmental impacts
- ☐ No, we do not model statewide environmental impacts
- ☐ I am not sure

26. What model do you use to model statewide environmental impacts?

- ☐ MOVES
- ☐ MOBILE
- ☐ GreenStep
- ☐ Other, we use a different environmental impact model:

Emissions modeled

27. What kind of emissions does your model cover?

- ☐ CO2 emissions
- ☐ NOx emissions
- ☐ SO2 emissions
- ☐ Particulate Matters (PM)
- ☐ Noise
- ☐ We cover different emissions, such as:
- ☐ We do not model emissions
- ☐ I'm not sure

Staffing

28. How many employees (full-time equivalent) at your agency work predominately in statewide modeling?

Number of full-time equivalents employees:

How many people are included in this full-time equivalent estimate?

Outside help for model development for your statewide model

29. When you developed your model, how much in-house and how much external help did you use?

Share in-house: %

Share partner agencies: %

Share consultants: %

Share universities: %

Total : 0

Outside help for model application of your statewide model

30. When you apply your model for scenario analysis, how much in-house and how much external help do you typically use?

Share in-house: %

Share partner agencies: %

Share consultants: %

Share universities: %

Total : 0

Typical scenario types

31. Please list typical scenario types that you have analyzed with your statewide model over the last couple of years

- ☐ Highway network expansions (new roads)
- ☐ Highway network improvements (e.g., additional lanes, faster speed)
- ☐ Transit network expansions (new transit lines)
- ☐ Transit improvements (e.g., faster transit, cheaper transit)
- ☐ Alternative growth scenarios for population and/or employment
- ☐ Pricing scenarios (tolls, gas prices, transit fares)
- ☐ Truck-only lanes
- ☐ Improvements to freight rail
- ☐ Other:
- ☐ Other:
- ☐ Other:
- ☐ I'm not sure

Typical scenario types continued

32. Of those applications listed in the previous question, which are the two most important scenarios analyzed with your statewide model?

1

2

Model investment

33. How much money did your State invest into statewide modeling over the last few years (including data purchase, surveys, hard- and software, consultant fees, but excluding costs for staff). Please provide data for several lines if readily accessible to you.

Over the *last year*, we spent about

Over the *last 2 years*, we spent about

Over the *last 3 years*, we spent about

Over the *last 5 years*, we spent about

Over the *last 10 years*, we spent about

Other Comments

34. Are there any other remarks you would like to mention regarding your statewide model? Please also note if there is anything else you would like the team to address in this synthesis report on statewide and megaregional modeling.

35. Please provide us with the contact information of someone familiar with the survey in case we need clarifications.

Name

Email Address

Phone Number

Review Response

Thank You!

Thank you for taking our survey. Your response is very important to us. If you like to share additional materials (such as model documentation or users guide), you may either send those by email (donnellyr@pbworld.com or rolf.moeckel@tum.de) or by regular mail to:

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